INTERNATIONAL FINANCIAL MARKETS & SERVICES

M.Com (Banking)

Semester – III, Paper- II

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M.Com (Banking) - INTERNATIONAL FINANCIAL MARKETS & SERVICES

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FOREWORD

Since its establishment in 1976, Acharya Nagarjuna University has been forging a head in the path of progress and dynamism, offering a variety of courses and research contributions. I am extremely happy that by gaining 'A' grade from the NAAC in the year 2016, Acharya Nagarjuna University is offering educational opportunities at the UG, PG levels apart from research degrees to students from over 443 affiliated colleges spread over the two districts of Guntur and Prakasam.

The University has also started the Centre for Distance Education in 2003-04 with the aim of taking higher education to the door step of all the sectors of the society. The centre will be a great help to those who cannot join in colleges, those who cannot afford the exorbitant fees as regular students, and even to housewives desirous of pursuing higher studies. Acharya Nagarjuna University has started offering B.A., and B.Com courses at the Degree level and M.A., M.Com., M.Sc., M.B.A., and L.L.M., courses at the PG level from the academic year 2003-2004onwards.

To facilitate easier understanding by students studying through the distance mode, these self-instruction materials have been prepared by eminent and experienced teachers. The lessons have been drafted with great care and expertise in the stipulated time by these teachers. Constructive ideas and scholarly suggestions are welcome from students and teachers involved respectively. Such ideas will be incorporated for the greater efficacy of this distance mode of education. For clarification of doubts and feedback, weekly classes and contact classes will be arranged at the UG and PG levels respectively.

It is my aim that students getting higher education through the Centre for Distance Education should improve their qualification, have better employment opportunities and in turn be part of country's progress. It is my fond desire that in the years to come, the Centre for Distance Education will go from strength to strength in the form of new courses and by catering to larger number of people. My congratulations to all the Directors, Academic Coordinators, Editors and Lesson-writers of the Centre who have helped in these endeavors.

Prof. P. RajaSekhar
Vice-Chancellor
Acharya Nagarjuna University

SEMESTER-III

312CO21- 1INTERNATIONAL FINANCIAL MARKETS & SERVICES

Syllabus

Learning Outcomes :

After successful completion of this course, the students will be able to:

1. *Acquire knowledge of International Monetary System*
2. *Know the concepts relating to Exchange Rate Determination*
3. *Understand the International Financial Markets and Instruments*
4. *Comprehend the Problem of debt servicing and developing*

Syllabus :

Unit –I: Introduction to International Financial System: International Monetary System Features and Requirements ; System of exchanging currencies – From Bretton Woods System to Free float and convertibility ; Pegging of Currencies- Target zone arrangement; European Monetary System; International liquidity.

Unit- II: Foreign Exchange Markets and its Activities; Exchange rate Quotations and practices; Foreign Exchange market activities; Arbitrage, hedging, and Speculation.

Unit –III: Exchange Rate Determination: Exchange Rate Determination in spot and forward market – Interest Rate Parity (IRP), Purchasing Rate Parity, Fisher open equation Monetary and portfolio balance approaches; Short run demand and supply theory, BOP Theory, and growth Theory; Forecasting exchange rate.

Unit IV: International Financial Markets and Instruments: Changing scenario; International capital and money market instruments; International development banking; Euro – currency Markets; International securities markets and instruments – Bond and Notes market; Equity market; GDR, ADR, EDR; Integration of Financial Markets and approach; Role of financial intermediaries; Financial Swaps.

Unit-V: International Debt Problem: Problem of debt servicing and developing countries (with special reference to India).

SUGGESTED READINGS:

1. Apte, P. G., Multinational Financial Management, Tata-McGraw Hill, New Delhi, 1998.
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3. Eitemean, David K., Arthur Stone – Hill and Michael H. Moffett, Multinational Business Finance, Addison-Wesley Publishing Company, Readings Mass, 1998.
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CONTENTS

LESSON - 1

INTERNATIONAL MONETARY SYSTEM

LEARNING OBJECTIVES :

After studying this chapter, you should be able to

- Describe various monetary systems.
- Discuss different exchange rate systems and developments after their implementation.
- Delineate the functioning of Gold Standard and the reasons behind its abandonment during 1930's.

STRUCTURE :

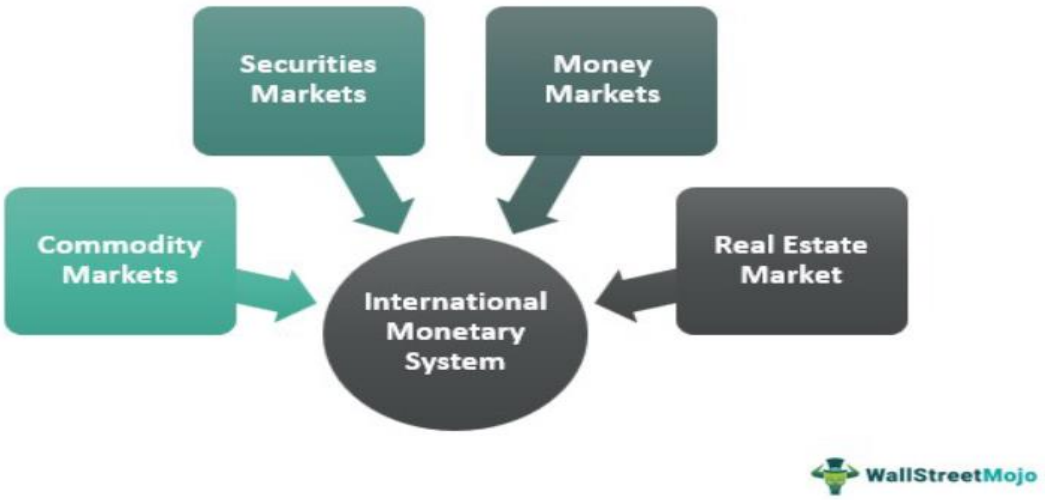
1.1 INTRODUCTION :

A *system*, in general, is a group of elements that are integrated with the common purpose of achieving certain objective(s). As various nations may have varying monetary standards, an international monetary system is required to define a common standard of value for various currencies. A *monetary standard* is a standard monetary unit that acts as a medium of exchange and a measure of the value of goods and services in a country. The monetary standard of a nation influences national as well as international economic operations. As there are several instruments or devices that can be used as a medium of exchange and a measure of the value of goods and services, the monetary standard in a country determines the standard monetary unit for the exchange of goods and services.

What Is International Monetary System? The international monetary system is a set of conventions and rules that support cross-border investments, trades, and the reallocation of capital between different countries. These rules define how exchange rates, macroeconomic management, and balance of payments are addressed between nations. The international monetary system structure was reformed after the North Atlantic financial crisis of 2008-2009. The International Monetary System comprises central and commercial banks, international financial institutions, and various money market funds, including open market funds from the currency and bond markets. In their eyes, money is a medium of exchange that facilitates the exchange of capital flows, goods, and services across countries.

International Monetary System Explained : The international monetary system is the operating system of the global financial environment. This body comprises investors, multinational companies, and financial institutions. The International Monetary System formulates the framework that facilitates the exchange rates, international payments, and movement of capital between two countries with different currencies.

The prerogative of the International Monetary System is to facilitate the exchange of capital, goods, and services between countries. The International Monetary Fund (IMF) oversees articles of the agreement signed in this regard between countries. The responsibility of member countries is to formulate economic and financial policies that facilitate the economic and financial conditions to ultimately result in economic growth by maintaining price stability.



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Moreover, member countries take active action toward creating systems that help avoid manipulation or tampering of exchange rates and keep improving rate change policies that foster growth and safety to benefit the global economy. To broaden the approach from just focusing on exchange rates, the IMF sought to create external stability through a balance of payments system that eliminates uncontrollable exchange rate movements. Since IMF is a multilateral institution, its policies and regulations help the functioning of the International Monetary System. More so, as IMF plans to extend its reach and address issues such as inequalities, financial supervision, poverty, and climate change. However, it is essential to note that The International Monetary Fund (IMF) has no power or control over the International Monetary System. Beyond domestic policies and other primary policies relating to the financial sector. Since the formulation of the Financial Sector Assessment Program (FSAP) and its mandatory application to 25 countries in 2009, IMF has been the central source of surveillance, supervision, and policy-generating body that stands to erode its stability.

Features : Let us discuss the key features of the Floating rate system through the points below:

1. **Independence:** The push and pull of the market enforce the exchange rate. Hence, there is no need for government intervention, which makes it far more transparent than its alternatives.
2. **Constant Fluctuation:** A feature of the reiteration of the 'floating' exchange system is the constant fluctuation of rates due to the movements in the market.
3. **Adjustments:** The balance of payments (BOP) is adjusted with exchange rates. The surplus or deficit of funds between countries is settled through the real-time rates displayed on the exchange.
4. **Transparency:** Interventions do not bind the smooth conduct of exchange between countries from the full reigns of governments or **central banks**. Thereby, the

fluctuation of exchange rates is backed by market factors beyond the control of any individual or centralized organization.

Functions: Let us discuss the functions of the International Monetary System through the points below:

i. Facilitates the free flow of different currencies in the open market.
ii. Restrict intervention from government or central banks only in cases of currency stabilization.
iii. Third, facilitate global trade of goods, services, and money.
iv. Fourth, Maintain a system that regulates the exchange rates through the forces of the market and not by any particular institution or organization.

Examples: Let us understand the concept better through the examples below :

Example 1: Country A borrows $100 million from Country B to finance its infrastructural development for a repayment schedule of 10% each year with interest. Due to the exchange rate fluctuations, country A benefits from the dip in USD in the first year but pays extra the following year. However, member countries can maintain repayment schedules irrespective of the movement through BOP calculations.

Example 2: For close to a century, the world's economies have been using U.S. dollars as their reserve currency as it is globally viable and is the strongest currency in the market. However, since **2022**, Russia and China have been using the Chinese Yuan as a means of payment for Russian oil. Other countries, such as Saudi Arabia, have also considered doing the same. China has been on a gold purchasing spree to shift the global reserve currency towards the Chinese Yuan. However, due to the open nature of commodity and currency markets, only the market's push and pull shall have a say on the future reserve currency.

Advantages of the International Monetary System through the points below:

1. **Liquidity:** Member countries are not limited to using one anchor currency. Therefore, countries can hold surplus or reserve cash in different currencies, resulting in a more significant liquidity factor than other systems.
2. **Larger Gains:** Easing trade restrictions allows for the free exchange of currencies, benefiting governments and central banks and allowing retail investors to experience greater gains through their trades.
3. **Confidence:** International systems in the past have come under the scanner for being manipulative and deceiving. However, the International Monetary System is independent in terms of policymaking. The policies leave the exchange rates to the market's forces, leaving almost no room for manipulation.

Disadvantages of the International Monetary System :

1. **Instability:** Constant fluctuations make these exchange rates unstable and sometimes unreliable in making **investments** or committing to trade goods and services.
2. **Curbs International Trade:** The very nature of uncertainty in the exchange rate is sometimes a hindrance. Due to the uncertainty in movement, the parties involved are inhibited from trading or investing internationally.
3. **Elasticity:** The constant rate changes cause instability, and the smaller trades get adversely affected as the price shift results in the parties taking a step back and awaiting some stability in the market.

The international monetary system consists of the laws, rules, monetary standards, instruments, and institutions that facilitate international trade and cross-border flow of funds. It consists of four elements: exchange arrangements and exchange rates; international payments and transfers relating to current international transactions; international capital movements; and international reserves.

i. **International monetary system laws**: The international monetary system is a set of conventions and rules that support cross-border investments, trades, and the reallocation of capital between different countries. These rules define how exchange rates, macroeconomic management, and balance of payments are addressed between nations. The International Monetary Fund (the "Fund") has evolved considerably since 1945 to respond to the changes in the global economy with its constant mandate to maintain and safeguard a stable international monetary system. Throughout its evolution, the Fund continues to adhere to the rule of law, which is key to the legitimacy, credibility and effectiveness of the Fund as an institution. The Legal Department of the Fund plays a critical role in ensuring that the Fund effectively responds to the changing developments in the international monetary and financial systems while maintaining the rule of law. The responsibilities of legal counsels at the Fund have been expanding over the years to keep up with the Fund's evolution, ranging from traditional in-house counselors, trusted advisors to membership to active public policy contributors. In discharging these responsibilities, legal counsels must maintain independence, objectivity and consistency to ensure credibility and effectiveness of their legal advice, which is pertinent to upholding the rule of law at the Fund.

ii. **International monetary system rules**: The IMF has three critical missions: furthering international monetary cooperation, encouraging the expansion of trade and economic growth, and discouraging policies that would harm prosperity. The Board of Governors reports directly to the managing director of the IMF, Kristalina Georgieva. All powers of the IMF are vested in the Board of Governors. The Board of Governors may delegate to the Executive Board all except certain reserved powers. The Board of Governors normally meets once a year.

iii. **International monetary standards:** The four major types of international monetary regime are specie standard, managed fixed exchange rate, free float, and managed float. They differ in their solution, so to speak, of the impossible trinity. Contractionary monetary policy is used to temper inflation and reduce the level of money circulating in the economy. Expansionary monetary policy fosters inflationary pressure and increases the amount of money in circulation. Contractionary monetary policy is used to temper inflation and reduce the level of money circulating in the economy. Expansionary monetary policy fosters inflationary pressure and increases the amount of money in circulation. There are 3 types of monetary system: Commodity money. Commodity-based money. Fiat money.

iv. **International monetary instruments :** It consists of four elements: exchange arrangements and exchange rates; international payments and transfers relating to current international transactions; international capital movements; and international reserves. Deposit, commercial paper, debentures, asset-backed securities, money market instruments and similar y instruments normally traded in the financial markets. instruments such as asset backed securities instruments such as asset backed securities. The 6 tools of monetary policy are reverse Repo Rate, Reverse Repo Rate, Open Market Operations, Bank Rate policy (discount rate), cash reserve ratio (CRR), Statutory Liquidity Ratio (SLR).

v. **International monetary institutions :** Monetary Financial Institutions (MFIs), as in a definition provided by the European Central Bank, are defined as central banks, resident credit institutions as defined in Community Law, and other resident financial institutions whose business is to take deposits or close substitutes for deposits from entities other . An international financial institution (IFI) is a financial institution that has been established (or chartered) by more than one country, and hence is subject to international law. Central banks, commercial banks, investment entities, credit unions, thrift institutions, insurance companies, etc., are some of the widely available financial institution types.

A country's standard monetary unit, or standard money, may be made of different things like gold, silver, and paper. There have been different types of monetary standards in the history of money, but metallic and paper standards have been the most widely used. In the metallic standard, the value of the monetary unit is expressed in terms of a fixed quantity and fineness of a metal like gold or silver. If the monetary unit of a country is made of only one metal, the system is known as monometallism. For example, for a long time, the United Kingdom was on the gold standard and India was on the silver standard. Some countries followed a system in which the monetary unit is made of two metals. Such a system is referred to as bimetallism. Gold and silver were the two metals that were most widely used under bimetallism. Both gold and silver coins circulated simultaneously within the country and could be exchanged for each other at the rate fixed by the government. Several countries of western Europe, such as France and Switzerland, and the United States were on bimetallism during the nineteenth century.

Paper standard refers to paper money that has legal sanction for acceptance. Paper currency standards consist of paper money and a certain quantity of token coins made of cheap metal. Paper money is the main currency and is an unlimited legal tender. Even if paper money is not convertible into any metal, people accept it because it is legal tender, and therefore paper money is known as fiat money. The value of the paper money is determined by a government or public order, and it is not related to the intrinsic value of that paper. Along with paper money, token coins may also be in circulation to meet smaller requirements. In the old days, as metals were the standard monetary units of countries, they were also used as international means of payments.

Evolution: Since the 19th Century, the International Monetary System has undergone four stages of evolution at different points in time to form the structure as we know it today. Let us understand the occurrences that led to the changes and their current implications through the points below:

1. **The Gold Standard:** Between 1880 and 1914, the gold standard was referred to as the monetary system through which each country could fix the value of their currency in terms of gold. The exchange rate was based on the determined value. For example, if the U.S. fixed 1 ounce of gold = $20. The United Kingdom had set the value of one ounce of gold equal to 10 pounds. Then, the pound-dollar exchange rate would be $20 = 10 Pounds.
2. The gold standard system had a fixed exchange rate system that facilitated the free convertibility of gold into national currencies and vice versa. The most significant advantage of this system was its ability to correct imbalances. As gold payments make balancing off easier, settling the balance of payment (BOP) deficits or surpluses could be easy. Moreover, the fixed exchange rates made international trade easier under the gold standard.

3. **The War Period:** Between 1925-1933 between the world wars, the gold standard started losing its way. The war had created a dent in the world economy, and every country wanted to export more to revamp and rebuild their economies.
4. Therefore, they significantly depreciated their currencies' value to export extensively and benefit from economies of scale. This period of chaos and rebuilding saw exchange rates fluctuate and competitive devaluation unlike ever before.
5. **The Bretton Woods System:** Only a few nations had the resources to survive after two world wars, while others struggled to feed their citizens. In times like these, the United States of America and the United Kingdom started discussing the possibilities and ways to rebuild the world economy after two disastrous wars in the mid-1940s.
6. The United Nations formulated the new international monetary system at the Bretton Woods Conference in Bretton Woods, New Hampshire. The Bretton-woods conference led to the creation of a dollar-based fixed exchange rate system. Under this system, the U.S. dollar was backed by reserve gold. All other currencies did not have to maintain a gold reserve for conversion. Therefore, the conversion rates were minimal.
7. **The Jamaica System:** Around 1971, high inflation rates and a trade deficit led to a gold process hike. Therefore, the U.S. had to stop the convertibility of gold. Owing to factors like these, the Bretton woods system collapsed.

Hence the global economy moved towards a flexible exchange rate system in 1973 and by 1976. They formalized the system through the convention in Jamaica. Under the Jamaica or floating rate system, demand and supply would affect the currency exchange rates.

The international monetary system has gone through several changes over the years. In the following sections, we shall look at some of these developments.

1.2 THE GOLD STANDARD :

Gold has been used as a medium of exchange since time immemorial because of its special qualities. According to the rules of the **gold standard**, the value of the monetary unit of a country (e.g., paper money) was fixed in terms of a specified quantity and fineness of gold. Governments were committed to a policy of converting gold into paper currency and paper currency into gold, by buying and selling gold at specified rates. The issue or circulation of paper money in a country was backed by its gold reserve at a specified ratio. Thus, the stock of money in a country would increase or decrease with changes in its gold reserves. The exchange rate between any two currencies was determined by the ratio of the price of a unit of gold, in terms of the respective units of each currency. For example, during the period 1821–1914, the United Kingdom had maintained a fixed price of gold at GBP 3.17 per ounce, while the United States maintained it at USD 20.67 per ounce of gold. Accordingly, the U.S. dollar and British pound exchange rate was fixed at GBP/USD 6.5205, which was the par exchange rate.

Under the **gold standard**, governments were committed to a policy of converting gold into paper currency and paper currency into gold, by buying and selling gold at specified rates.

When the value of the monetary unit of each country is fixed in terms of gold, the exchange rate is also automatically fixed by the mint parity or gold parity. The exchange rate may be different from the mint parity, leading to arbitrage opportunities. However, arbitrage operations will soon exhaust such opportunities and ultimately bring the exchange rates in line with the mint parity. For example, if the gold rate is fixed at INR 13,000 per ounce in India and at USD 300 in the United States, the exchange rate between the Indian rupee and the U.S. dollar will be USD/INR 43.33. If the exchange rate is not INR 43.33, arbitrageurs

will bring it to that level through their buying and selling operations. An example will illustrate how this is possible. Let us assume that the exchange rate is INR 45. If arbitrageurs buy gold in India at INR 13,000 per ounce, ship it to the United States, sell it at USD 300, and convert the U.S. dollars to Indian rupees, they can make an arbitrage profit of INR 500 per ounce of gold. Conversely, if the exchange rate is INR 42, then arbitrageurs can buy gold in the United States at USD 300 per ounce, ship it to India, sell it at INR 13,000, convert Indian rupees to U.S. dollars, and make an arbitrage profit of USD 9.5 per ounce of gold. However, such arbitrage profits will disappear very soon, and the exchange rate will come to the mint parity level of USD/INR 45.

Under the gold standard, any disequilibrium in the balance of payments of a country is adjusted through a mechanism called the *price-specie automatic adjustment mechanism.* A deficit in the balance of payments means that there is an excess demand for gold. It implies that the country should sell gold from its reserves, which has the effect of reducing the money supply in the economy. This, in turn, will cause a fall in general prices. Consequently, the exports of the country will become more competitive (i.e., exports will increase), leading to a decline in the balance of payments deficit of the country. For example, suppose the United States buys more goods and services from India than Indians buy from the United States. Net exports from India to the United States will be accompanied by a net flow of gold from the United States to India. As more gold leaves the United States than arrives, general prices in the U.S. economy will fall. At the same time, general prices in India will increase. Lower prices in the United States will make U.S. goods relatively cheaper and Indian goods relatively more expensive. So, the demand for U.S. goods in India will increase, ultimately leading to a reduction in the U.S. balance of payments deficit. The reverse process will occur for India, which has a balance of payments surplus.

To generalize, a country having a favorable balance of payments will receive gold from other countries because it has excess foreign exchange receipts over foreign exchange payments. Conversely, a country with a balance of payments deficit will have an outflow of gold on account of excess foreign exchange payments over foreign exchange receipts. The inflow of gold increases the monetary reserves of the country, which, in turn, leads to an increase in the money supply. According to the *quantity theory of money*, other things remaining unchanged, an increase in money supply implies an increase in demand and a rise in the prices of goods and services. Higher prices would make the country's goods and services relatively more expensive in the international market. This would result in a fall in exports, leading to a balance of payments deficit. Thus, a favorable balance of payments caused by a surplus in the country's balance of trade would be automatically corrected. The reverse process would occur with a balance of payments deficit and outflow of gold.

In sum, a country having a balance of payments surplus receives gold and a country having a balance of payments deficit surrenders gold under the gold standard system. The movement of gold from one country to another country influences the money supply in both countries. As the money supply in an economy is linked to the gold reserves of the country's central bank, any increase (or reduction) in gold reserves will lead to the expansion (or contraction) of money supply in the economy. In other words, if the volume of gold reserves increases, the supply of money in the economy can be increased in the same proportion, and if the volume of gold reserves falls, the supply of money can be reduced in the same proportion. As a result of changes in money supply, the price levels in the economy change. This, in turn, affects the foreign exchange rates.

From the different types of gold standards, such as the gold currency standard, gold bullion standard, gold exchange standard, gold reserve standard, and gold parity standard,

each country adopted its own standard, keeping in view its domestic factors. Though each country was free to adopt its own form of the gold standard, it had to adhere to the rules of the standard. Whatever form the gold standard took, the essential feature was that the currency was directly linked to gold, either in volume or in value. For example, the monetary standard that prevailed prior to 1914 in the United States, the United Kingdom, and in certain other countries was known as the *gold standard.* Accordingly, gold coins of a fixed weight and fineness circulated within the country. In the United Kingdom, for instance, the sovereign was the gold coin which contained 123.17447 grains of gold of 11/12 fineness. Although other metallic coins and paper currency notes were also in circulation side by side, they were convertible into gold coins on demand at fixed rates. Similarly, under the *gold bullion standard*, the legal tender in circulation consisted of paper currency notes and token coins of some metal, but they were all convertible into gold bars or bullion at fixed rates. The governments were, of course, required to keep gold bars in reserve to facilitate easy conversion. When the gold bullion standard was in operation in India in 1927, the Indian paper money, the rupee, was convertible into gold bars containing 40 *tolas* at the rate of INR 27-7-10.

The gold standard was widely appreciated because of certain inherent characteristics of gold as well as the rules governing the standard. Under the gold standard, any disequilibrium in the balance of payments of a country gets corrected automatically. As gold is the base for the creation of money in the economy, politicians cannot indulge in unrestrained money creation. Thus, countries can maintain stability in prices as well as exchange rates when they are under the gold standard. Notwithstanding these merits, the gold standard is criticized mainly because of its inflexibility. The rules of the gold standard do not allow the government to increase the money supply in the country without increasing gold reserves, even when the expansion of money supply is necessary to tide over serious situations. Besides, the gold standard cannot bring automatic correction of disequilibrium in the balance of payments unless all the countries follow the rules of the gold standard. For example, the government of a country may think that a reduction in money supply consequent of a balance of payments deficit will raise interest rates and unemployment. At the same time, the government of another country having a balance of payment surplus would not allow its money supply to increase because of the fear of inflation. Further, there may be parallel movement of prices in countries having a balance of payment surplus and in countries having a balance of payments deficit. In all such cases, there would not be an automatic correction of disequilibrium in the balance of payments. Further, the supply of gold cannot be increased at will because of its natural scarcity.

The gold standard that existed till 1914 was called the *classical gold standard* and it was embraced by most nations. The international business of most nations was therefore governed by the classical gold standard. More particularly, during the period 1880–1914, there was a rapid expansion of international trade with stable domestic prices and foreign exchange rates. The cost–price structures of different countries were in line. Along with the free flow of goods, there was also a free flow of labor and capital across countries.

When World War I broke out in 1914, the belligerent countries particularly suffered from high inflation, which made it difficult to fix the values of currencies in terms of gold. Some countries even prohibited making payments to other countries in gold. Since the value of domestic currencies was indeterminate in terms of gold, the par exchange rates could not be determined. This had an adverse effect on the exports and imports of many countries and threw the international monetary system into turmoil. Further, as there was no inbuilt mechanism to make each country abide by the rules of the gold standard, some countries imposed high tariffs. They also failed to follow the principle of expanding credit when gold

flowed into the country, and contracting credit when gold flowed out of the country. These countries failed to adhere to the rules of the gold standard, contributing to the end of the classical gold standard.

1.3 THE GOLD EXCHANGE STANDARD :

During the postwar period, each country followed its own exchange rate system, keeping in view its own domestic compulsions. It was a period of flexible exchange rates that lasted until 1926. Revaluation and devaluation of currencies was undertaken indiscriminately by various countries to serve their own objectives. For example, France devalued its currency to stimulate its own economy, but this was detrimental to Britain. Many countries followed a policy of sterilization of gold by neutralizing the effects of gold flows on the domestic money supply. It was against this backdrop that some major countries, including the United Kingdom and the United States, made efforts to restore the gold standard, which later came to be known as the **gold exchange standard.** According to the new system, which came into effect in 1925, only the United States and the United Kingdom could hold gold reserves, while other countries could hold both gold and U.S. dollars or British pounds as reserves. These reserves were meant for managing the balance of payments and foreign exchange situations. Further, countries on the gold exchange standard had to relate the value of their paper currency to the value of the currency of a country which was operating a gold standard (i.e., the United States or the United Kingdom). For example, if a country had British pounds as its reserves, its currency was convertible into British pounds, which, in turn, was convertible into gold.

According to the **gold exchange standard**, only the United States and the United Kingdom could hold gold reserves, while other countries could hold both gold and U.S. dollars or British pounds as reserves.

With the onset of the great depression in 1929, countries failed to follow the rules of the gold exchange standard. Many countries had a balance of payments deficit, resulting in massive outflow of gold. Consequently, the gold reserves of several countries including the United Kingdom and the United States continued to fall to a level where it was very difficult to maintain the gold exchange standard. They also found it very difficult to repay their international borrowings. Further, there was a beggar-thy-neighbor trade war in which nations devalued their currencies to maintain trade competitiveness. As a result, exchange rates fluctuated wildly. Speculators also played havoc with the foreign exchange market. The export earnings of many countries declined considerably, leading them to depletion of their gold reserves. Following the stock market crash in 1929, many financial institutions, including commercial and investment banks, suffered sharp declines in their asset values. Some countries even experienced a spate of bank failures. Because of the adverse situations faced during such times, countries started getting off gold, one after another. Countries such as the United Kingdom, Canada, Sweden, Austria, and Japan got off gold in 1931. The United States pulled out from the gold exchange standard in 1933, and many other countries followed suit. France abandoned the gold exchange standard in 1936.

All these developments hindered international trade and, consequently, had an adverse effect on global economic growth. It was against this backdrop that the representatives of some major countries met at the Mount Washington Hotel in Bretton Woods, New Hampshire, in July 1944.

1.4 THE BRETTON WOODS SYSTEM :

The main aim of the meeting of the representatives of 44 countries at Bretton Woods was to bring about international financial order through an effective monetary system. At the

first instance, the representative members reviewed the working of the gold standard and identified the ills of the fixed exchange rate system. They believed inadequate international monetary arrangements had contributed to the Great Depression of 1929. Therefore, they felt it necessary to have a system which could provide stable exchange rates under the surveillance of an independent international body. The representatives also proposed that the international body should provide credit facilities to member nations and establish arrangements for international liquidity. So, after a series of deliberations and negotiations, the representatives of 44 nations agreed to have an *adjustable peg exchange rate system* under the gold exchange standard, with currencies convertible into the U.S. dollar, and the U.S. dollar, in turn, convertible into gold. The U.S. dollar was the only currency that would be freely convertible into gold. According to the agreement signed by the representatives, each country would fix a par value of its currency in relation to the U.S. dollar, which was pegged to gold at USD 35 per ounce. For example, the British pound was set at GBP 12.0 per ounce of gold. In other words, the exchange rate between the U.S. dollar and the British pound was set at GBP/USD 2.92. Member countries were expected to maintain their exchange rates within a margin of 1 per cent on either side of the par value. In the example given here, the upper and lower support points that the United Kingdom needed to maintain were USD 2.949 and USD 2.891, respectively. The exchange rates were thus allowed to fluctuate only within ±1 per cent of the stated par value. Whenever the demand and supply factors in the market caused exchange rates to go outside the permissible limits, countries other than the United States would buy and sell U.S. dollars in the market to keep the exchange rates within ±1 per cent limits. In case of a disequilibrium in the balance of payments of any country, an adjustment process like the process under the gold standard would take place.

The United States on its part would stand ready to meet the requests of other nations to buy or sell gold or U.S. dollars. As there was a guarantee of the convertibility of the U.S. dollar into gold, other countries would hold reserves in U.S. dollars as well as in gold. The U.S. dollar thus became the world's reserve currency, and international liquidity came to be governed by the U.S. monetary policy. The new *adjustable peg system* came to be popularly known as the **Bretton Woods system.** The new system also limited the scope of governments (other than the U.S. Government) in changing their monetary policy as they wished.

The **Bretton Woods system** required that each country should fix a par value of its currency in relation to the U.S. dollar, which was pegged to gold at USD 35 per ounce.

The Articles of Agreement adopted at Bretton Woods also envisaged the creation of two new institutions at the international level—the International Monetary Fund (IMF), and the International Bank for Reconstruction and Development (IBRD), popularly known as the World Bank. The chief objective of the IMF is to promote international monetary cooperation and facilitate the balanced growth of international trade. The IMF is also expected to enforce the set of rules governing the international monetary system.

Under the Bretton Woods system, if any country repeatedly faced a balance of payments disequilibrium, which was known as a fundamental disequilibrium, it could change the parity of its currency against the U.S. dollar up to 10 per cent in either direction without the prior approval of the IMF. If a country wanted to effect changes larger than 10 per cent, in the parity rate, it had to obtain prior approval from the IMF. However, this facility was not available to the United States, which did not enjoy the privilege of changing the parity of its currency against gold or any other currency. On the contrary, the United States had the responsibility of maintaining the gold value of the U.S. dollar and price stability around the world. Further, whenever other nations wanted to convert their U.S. dollar balances into gold,

the United States had to facilitate such conversion. For this, it was also required to maintain enough gold reserves to facilitate the conversion of dollars into gold at any time. As a reward for shouldering such onerous responsibility, the United States was permitted to print more dollars, and thereby derive seigniorage gains. Although the United States was not officially prevented from printing more U.S. dollars, it had to keep in view the world prices, because the printing of more U.S. dollars would lead to spiraling prices at the global level.

To partially alleviate the pressure on the U.S. dollar as the central reserve currency, the IMF created *Special Drawing Rights (SDRs)*, which represented a basket of major currencies in the world. SDRs were allotted to member countries which, in turn, would use them for transactions among themselves or with the IMF. These SDRs could also be used as reserve assets.

1.5 POST-BRETTON WOODS SYSTEMS :

The Bretton Woods system worked almost smoothly till the 1960s. There was stability in exchange rates, which promoted international trade and investment. The system also brought about some sort of discipline on the part of member countries as far as their economic policies were concerned. In the early 1970s, however, it was realized that Bretton Woods system was not working as expected. Because of spiraling prices, many countries devalued their currencies by more than 30 per cent against the U.S. dollar. A few countries revalued their currencies. Many countries were unable to maintain the par value of their currencies against the U.S. dollar. Further, as these countries recovered from the Great Depression and started reconstructing the devastation caused by World War II, the world economy progressively improved, leading to an increased level of world reserves, which consisted essentially of gold and the U.S. dollar. Since gold production was stagnant, world reserves could be increased only if nations increased their dollar holdings. Moreover, dollar reserves could be kept in securities such as treasury bills which would yield interest, while gold reserves did not carry any interest. With the increasing levels of world reserves, the U.S. balance of payments deficit mounted.

Initially, the U.S. balance of payments deficit was not viewed as a problem. However, as the U.S. gold reserves progressively came down and other countries' holdings of U.S. dollar balances increased, countries started doubting the ability of the United States to maintain the gold convertibility of the dollar. The expansionary monetary policy and rising inflation in the United States resulting from financing the Vietnam War also contributed to the woes of the U.S. economy. Even as the dominance of the United States over the world monetary system weakened, the strength of the European and the Japanese economies progressively improved.

Many countries started putting pressure on the United States to convert its U.S. dollar resources into gold, but it did not have enough gold to honor its commitments. Adding to this, participating nations did not make necessary economic adjustments to maintain the par values of their currencies. Many countries devalued their currencies against the U.S. dollar at a high rate. The U.S. Government was unable to manage its economy and keep the gold price at USD 35. It initiated certain measures to slow down the outflow of gold and reduce the mounting pressure to convert U.S. dollars into gold. Even with such measures, the United States could not stop the run on the U.S. dollar from reaching alarming proportions. Therefore, in mid-1971, the United States decided to give up its role as the anchor of the international monetary system and devalued the U.S. dollar to deal with the mounting trade deficit. But this did not restore stability to the exchange rate system.

Notwithstanding the out-of-control situation, efforts were made to resurrect the gold exchange standard. A group of 10 countries—West Germany, Belgium, Canada, France,

Italy, Japan, the Netherlands, the United States, the United Kingdom, and Sweden—met at the Smithsonian Institution in Washington DC in December 1971 and signed an agreement that came to be known as the *Smithsonian Agreement.* According to the terms of the Agreement, the par value of gold was raised to USD 38 per ounce. Other countries were allowed to revalue their respective currencies against the U.S. dollar by up to 10 per cent, and the band within which exchange rates were allowed to move was broadened from 1 per cent to 2.25 per cent in either direction.

The Smithsonian Agreement, however, did not last long. A few months after the agreement, the foreign exchange rates of major currencies, including the U.S. dollar, became volatile. The U.S. dollar was devalued for a second time and the par value was reduced by an additional 10 per cent, that is, from USD 38 to USD 42.22 per ounce of gold. But such measures were not sufficient to stabilize the situation and the U.S. trade deficit continued to rise. The U.S. dollar and the British pound became weak. As a result, there was a massive flow of capital towards countries with strong currencies, such as Germany, Switzerland, the Netherlands, France, and Japan. Therefore, in March 1973, the group of 10 nations announced that they would allow their currencies to float, dealing a death blow to the Bretton Woods system.

The inevitable collapse of the Bretton Woods system was recognized by a noted economist, Professor Triffin. According to the Bretton Woods system, the U.S. dollar could be used as a reserve currency along with gold for making international payments. The U.S. dollar was therefore the key currency in the foreign exchange market. As gold is a naturally scarce commodity, an increase in U.S. dollar holdings was the only way for the stock of world reserves to grow along with the increasing international trade. As a result, the United States had to face balance of payments deficits so that the other nations could accumulate U.S. dollar reserves. However, with the increasing U.S. balance of payments deficits, the confidence of other nations in the ability of the United States to convert U.S. dollars into gold at the par value diminished. This inherent contradiction, known as the *Triffin paradox* or the *Triffin dilemma*, doomed the Bretton Woods system. In April 1972, the members of the European Economic Community (EEC) established a pegged exchange rate system, called the snake within the tunnel. The new system involved fixing the par exchange rate of the currencies of the European Community against each other and floating those currencies jointly against outside currencies. The exchange rates of the European currencies would move like a snake in the tunnel, which represented the upper and lower limits of the band. Thus, each pair of currencies had a par value as well as the highest and the lowest exchange rates. The highest exchange rate was set at $1(^{1}/_{8})$ per cent above the par rate and the lowest exchange rate was at $1(^{1}/_{8})$ per cent below the par rate. Subsequently, the band was widened to $2^{1}/_{4}$ per cent on either side of the par values. The snake, with certain changes including the new band, became the European exchange rate mechanism.

Whenever the exchange rate of two currencies was at either limit, the countries concerned needed to intervene. For example, if the British pound was at its lower support point against the German mark (DM), the United Kingdom would have to buy British pounds and Germany would need to sell German DM. Similarly, if the British pound was at its upper limit against the German DM, the United Kingdom was supposed to sell British pounds and Germany had to buy German DM. The purpose of fixing the band was to narrow down the fluctuation margin in the exchange rates. Although the “snake within the tunnel” was successful in the beginning, it became fragile in the volatile international economic environment. Many hurdles came in the way of the smooth functioning of the snake.

Given the uncertainty in exchange rates, academic discussions began at higher levels on possible reforms of the international monetary system. As the discussions continued, many countries opted for a *floating exchange rate system.* The first major oil crisis in 1973 followed by hyperinflation in many countries also added to the exchange rate crisis.

The IMF convened a monetary summit in Jamaica in January 1976, to approve the following broad options suggested by a committee constituted to evolve an exchange rate system:

Floating regimes. Pegging of currencies- to a single currency,- to a basket of currencies, and to SDRs; and Crawling pegs. The IMF Articles of Agreement were amended in 1978 to allow each member nation to choose an exchange rate system best suited to its needs, subject to firm surveillance of the member's policies by the IMF. Member countries, individually or in groups, have thus adopted different exchange rate approaches within the broader framework given by the IMF. As these countries were able to choose from a variety of exchange rate regimes, they pegged their currency exchange rates either to the U.S. dollar, the French franc, some other currency, or to some basket or composite currency such as the SDR. Some countries like the United States have allowed their currencies to float independently. The crawling peg was also adopted by a few developing countries. Some countries that had initially opted for a particular exchange rate system subsequently switched over to a floating exchange rate system. The *flexible exchange rate system* gradually became widely acceptable. Since 1978, the exchange rate systems of various countries have gone through several modifications. However, the trend has been towards the adoption of more flexible exchange rate systems. Further, with the introduction of the euro, development of emerging markets, evolution of transnational economies, advancement of technologies, and the integration of economies through globalization, many changes have taken place in the international financial structure.

1.6 ALTERNATIVE EXCHANGE RATE REGIMES :

The international monetary system plays a vital role in the flow of goods, services, and capital across countries. It influences international trade and investments to a great extent. There is a wide choice of exchange rate regimes to choose from, ranging from completely fixed to freely floating, with several options in between. A country can choose an exchange rate regime depending on the long-term goals of its economic policy. Countries differ not only in terms of the exchange rate regime they choose, but also in their approach to maintaining the value of their currency in the foreign exchange market. Some governments intervene in the foreign exchange market quite frequently; the intervention of some governments is intermittent; and other governments make no attempt to influence the value of their currencies in the foreign exchange market. Based on the degree of intervention, foreign exchange rate systems can be categorized into fixed, intermediate, and flexible systems. The spectrum of exchange rate regimes has systems like the independent floating exchange rate regime on one end and dollarization on the other. Intermediate regimes exist between these two extremes. In next lesson, we shall discuss various types of exchange rate regimes that fall under the fixed exchange rate system, the flexible exchange rate system, and currency pegging.

1.7 SUMMARY :

The development in the international monetary system dates to the commodity specie standard when metallic coins were used for international transaction. This was followed by the gold standard that provided not only domestic price stability but also automatic adjustment in the exchange rate and the balance of payments. The gold standard failed to cope with the changes in the international economic scenario and it was finally

abandoned in the 1930s.Itsabandonment led to large fluctuations in exchange rates. And so, a new system of exchange rate evolved under the aegis of the "Bretton Woods" child", International Monetary Fund in 1945. The system represented a fixed paritysystemwithadjustablepegs.Thecurrencyofthemembercountrieswasconvertible in US dollars and the US dollar was convertible into gold. And so, when the US economy turned into distress in the late1950s, the dollar failed to command confidence. Dollar-denominated securities were converted into gold depleting in turn the stock of gold with the USA.

1.8 TECHNICAL TERMS :

1. **International Monetary System:**The *international monetary system* refers to the laws, rules, monetary standards, instruments, and institutions that facilitate international trade and cross-border investments.
2. **Gold standard:**Under the *gold standard*, the exchange rate between two currencies was determined by the ratio of the prices of a unit of gold in terms of respective units of each currency.
3. **Gold Exchange Rate System:** The *gold exchange rate system* prescribed that only the United States and United Kingdom could hold gold reserves, while other countries could hold gold and U.S. dollars or the British pound as reserves.
4. **Bretton Woods System:** According to the *Bretton Woods* system, each country had to fix a par value of its currency in relation to the U.S. dollar, which was pegged to gold at USD 35 per ounce. Member countries were expected to maintain their exchange rates within a margin of 1 per cent on either side of the par value. The main aim of the Bretton Woods system was to maintain stable exchange rates and, at the same time, economize on gold.

1.9 SELF-ASSESSMENT QUESTIONS :

1. Discuss the evolution of the international monetary system.
2. How is the exchange rate determined under the gold standard? What are the limitations of the gold standard?
3. What are the objectives of the Bretton Woods system?
4. "Gold standard provided price stability besides automaticity in exchange rate and BOP adjustment". Discuss.
5. What are the important features of the Smithsonian Agreement?

1.10 SUGGESTED READINGS :

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LESSON - 2

FIXED & FLEXIBLE EXCHANGE RATE SYSTEMS

LEARNING OBJECTIVES :

After studying this chapter, you should be able to:

- Discuss different exchange rate regimes and understand the IMF's classification of these regimes.
- Comment on the IMF's role in improving international liquidity.

STRUCTURE :

2.1. INTRODUCTION : EVOLUTION OF EXCHANGE RATE MANAGEMENT IN INDIA :

Special Drawing Rights (SDRs), IMF, Exchange Rate Management in India etc. Foreign exchange market is the market in which foreign currencies are bought and sold. Being a member of the IMF, India followed the par value system of the pegged exchange rate system. But when the Bretton Woods system collapsed in 1971, the rupee was pegged to pound sterling for four years after which it was initially linked to the basket of 14 currencies but later reduced to 5 currencies of India's major trading partners. Currently India has adopted the managed exchange rate system.

In 1967, gold was displaced by creating the Special Drawing Rights (SDRs), also known as 'paper gold', in the IMF as a replacement to gold as an international reserve standard. However, SDRs were defined in terms of gold. At present, it's determined day by day as the weighted amount of the qualities in dollars of five monetary standards (euro, dollar, Japanese yen, pound sterling,chinese renminbi).The strength of it derived from IMF members who were willing to use it as a reserve currency and use it as a payment means between central banks to exchange for national currencies. The original installments of SDRs were distributed to member countries in accordance with their quota within the Fund (the quota was broadly associated with the country's economic importance as indicated by the value of its international trade). Slowly many countries began to adopt the floating exchange rates, and the IMF gave the freedom to countries to decide, if they wanted to go for a floating market determined exchange rate, or peg (tie the exchange rate) their currencies to a particular asset like the SDR.

The Current Scenario : Today, the global exchange rate system is characterized by multiple kinds of regimes, involving free floating exchange rates, pegging their exchange rates to other developed countries, introducing common currencies like Euro etc. Most exchange rates fluctuate slightly on a day to day basis, with even those nations tilting towards fixed

exchange rate systems, only specifying a certain range for their currency instead of actually fixing them. Gold is now not being used for exchange rate purposes, instead the prices of gold are controlled by demand and supply.

The exchange rate of any currency is determined by the supply and demand for the country's currency in the international foreign exchange market. For example, the value of Indian rupee with respect to the dollar is determined by the demand of dollar against the Indian rupee. India has been operating on a managed floating exchange rate regime since March 1993, marking the start of an era of a market-determined exchange rate regime of the rupee with provision for timely intervention by the central bank.

Exchange Rate Management in India : Post-independence, in line with Bretton Woods system Rupee was pegged to the pound sterling. The rupee had been devalued by 36.5 per cent in June 1966. The rupee was delinked from the pound sterling in September 1975, due to the breakdown of Bretton Woods system and declining share of UK in India's trade. During the years between 1975 to 1992, the pace of trade of the rupee was authoritatively dictated by the Reserve Bank inside an ostensible band of give or take 5% of the weighted crate of monetary standards of India's significant exchanging accomplices. Requiring day-to-day intervention of the Reserve Bank, which resulted in wide changes in the size of reserves. The exchange rate regime of this period can be denoted as an adjustable nominal peg with a band. In the beginning of 1990s, the situation for India became problematic requiring reforms in line with IMF recommendations (explained in class 11th Notes). Along with other reforms there was a two-step devaluation of 1 8 –19 percent of the rupee on July 1 and 3, 1991. In March 1992, the Liberalized Exchange Rate Management System (LERMS) which involves dual exchange rates was introduced. Under this system, 40 percent of exchange earnings had to be surrendered at an official rate which had been determined by the Reserve Bank and 60 per cent was to be converted at the market determined rates. The dual rates were converged into one and only rate from March 1, 1993. Current account convertibility was achieved in August 1994. Meaning that the Rupee could now be converted into any foreign currency at existing market rates for trade purposes for any amount. The rate of exchange of the rupee thus became market determined, with the Reserve Bank ensuring orderly conditions in the foreign exchange market through its sales and purchases.

2.2. EXCHANGE RATE SYSTEM IN INDIA: OBJECTIVES AND REFORMS :

An exchange-rate regime is the way an authority manages its currency in relation to other currencies and the foreign exchange market. Between the two limits of fixed and freely floating exchange regimes, there can be several other types of regimes. In their operational objective, it is closely related to monetary policy of the country with both depending on common factors of influence and impact. The exchange rate regime has a big impact on world trade and financial flows. The volume of such transactions and the speed at which they are growing makes the exchange rate regime a central piece of any national economic policy framework. Types of Exchange Rate Regime: The four major types of international monetary regime are specie standard, managed fixed exchange rate, free float, and managed float. They differ in their solution, so to speak, of the impossible trinity.

Exchange Rate System in India: India was among the original members of the IMF when it started" functioning in 1946. As such, India was obliged to adopt the Bretton Woods system of exchange rate determination. This system is known as the par value system of pegged exchange rate system. Under this system, each member country of the IMF was required to define the value of its currency in terms of gold or the US dollar and maintain (or peg) the market value of its currency within ± per cent of the defined (par) value. The Bretton

Woods system collapsed in 1971. Consequently, the rupee was pegged to pound sterling for four years after which it was initially linked to the basket of 14 currencies but later reduced to 5 currencies of India's major trading partners. This system continued through the 1980s; through the exchange rate was allowed to fluctuate in a wider margin and to depreciate modestly with a view to maintaining competitiveness. However, the need for adjusting exchange rate became precipitous in the face of external payments crisis of 1991. As a part of the overall macro-economic stabilisation programme, the exchange rate of the rupee was devalued in two stages by 18 per cent in terms of the US dollar in July 1991. With that, India entered into a new phase of exchange rate management.

Objectives of Exchange Rate Management : The main objectives of India's exchange rate policy is to ensure that the economic fundamentals are truly reflected in the external value of the rupee. Subject to this predominant objective, the conduct of exchange policy is guided by the following:

i. Reduce volatility in exchange rates, ensuring that the market correction of exchange rates is effected in an orderly and calibrated manner;
ii. Help maintain an adequate level of foreign exchange reserves;
iii. Prevent the emergence of destabilisation by speculative activities; and
iv. Help eliminate market constraints so as to assist the development of a healthy foreign exchange market.

Exchange Rate Reforms : Exchange rate reforms have proceeded gradually beginning with a two- stage cumulative devaluation of rupee by about 20 per cent effected in July 1991. Subsequently, the Liberalised Exchange Rate Management System (LERMS) was introduced in 1992, which was later replaced by the Unified Exchange Rate System (UERS) in 1993. The net result was an effective devaluation of the rupee by around 35 per cent in nominal terms and 25 per cent in real terms between July 1991 and March 1993.

a. Features of the Current Regime: The principal features of the current exchange rate regime in India can be briefly stated as follows :

i. The rates of exchange are determined in the market.
ii. The freely floating exchange rate regime continues to operate within the framework of exchange control.
iii. Current receipts are surrendered (or deposited) to the banking system, which in turn, meets the demand for foreign exchange.
iv. RBI can intervene in the market to modulate the volatility and sharp depreciation of the rupee. It effects transactions at a rate of exchange, which could change within a margin of 5 per cent of the prevailing market rate.
v. The US dollar is the principal currency for the RBI transactions.
vi. The RBI also announces a Reference Rate based on the quotations of select banks on Bombay at twelve noon every day. The Reference Rate is applicable to SDR transactions and transactions routed through the Asia Clearing Union.

In short, the India rupee has matured to a regime of the floating exchange rate from the earlier versions of a 'managed float'.

b. Convertibility on Current Account : The current regime of the exchange rate has been accompanied by full 'Convertibility on current account with effect from August 20, 1994. Accordingly, several provisions like remittances for service, education, basic travel, gift remittances, donation, and provisions of the Exchange Earners'

Foreign Currency Account (EEFCA) were relaxed. In a further move, announced in 1997, the RBI liberalised the existing regulations in regard to payments for various kinds of feasibility studies, legal services, postal imports and purchases of designs and drawings. With this, India acquired a status called as the IMF Article VIII Status. By attaining the Article VIII status, India has reached a position by which it can instill confidence among the international investor community, paving the way for further inflow of foreign capital. Further, India is also committed to allowing free outflow of current account payments (like interest) even if there is a serious foreign exchange crisis. Notwithstanding the above, the government still retains many controls on current account. Among these, the following may be specifically mentioned :

i. Repatriation of export proceeds within six months;
ii. Caps on the amounts spent on the purchase of services abroad;
iii. Restrictions on the repatriation of interest on rupee debt;
iv. Dividend-balancing for FDI in some consumer goods industries;
v. Restrictions on the repatriation of interest on NRI deposits;
vi. The rupee is not allowed to be officially used as international means of payment. Indian banks are not permitted to offer two- way quotes to NRIs or-non-resident banks.

With the help of these controls, the governments can significantly alter the flow of foreign exchange and the exchange rate of rupee. Additionally, the RBI can influence the exchange rate through direct purchase and sale of foreign exchange in the market.

c. Convertibility on Capital Account : Drawing on the experience of the past decade and a half, the extent and timing of capital account liberalisation is sequenced with other reforms like strengthening of banking systems, fiscal consolidation, market development and integration, trade liberalisation, etc. all of which are in tune with the changing domestic and external economic environment. A hierarchy is thus established in the sources and types of capital flows. The priority has been to liberalise inflows relative to outflows, but all outflows associated with inflows have been totally freed. Among the type of inflows, FDI is preferred for its stability, while short-term external debt is avoided. A differentiation is made between Corporates, individuals and banks.

For outflows, the hierarchy for liberalisation has corporate at the top, followed by financial intermediaries and individuals. Restrictions have been eased for corporate Seeking investments and acquisitions abroad, which strengthen their global presence. Banks and financial intermediaries are considered a source of greater volatility as their assets are relatively illiquid and their liabilities are demandable. They are thus susceptible to self-fulfilling crisis of confidence leading to contagion effect. In view of this, liberalisation for outflows in this sector has been tied to financial sector reforms. For individuals, residents are treated differently from non-residents, and non-resident Indians are accorded a well-defined intermediate status between residents and non-residents.

d. Intervention by RBI : The current exchange rate regime, introduced in 1993, the RBI has been, actively intervening in the foreign exchange market with the objective of maintaining the real effective exchange rate (REER) stable. The RBI uses two types of intervention in this regard :

i. **Direct Intervention :** It refers to purchases and sales in international currency (i.e. US dollars and euro) both on the spot and also in forward markets.

ii. **Indirect Intervention :** It refers to the use of reserve requirements and interest rate flexibility to smoothen temporary mismatches between demand and supply of foreign currency.

Intervention by the RBI has raised a question as to whether or not there should be an exchange rate band within, which the central bank should allow the currency to fluctuate. The Tarapore Committee in its report on Capital Account Convertibility had, while suggesting transparency in the exchange rate policy of the central bank, recommended a band within which it would allow the currency to move. The RBI has been, in contrast, saying that there cannot be such rigidities in exchange rate policy, and, therefore, the bank should have the right to intervene at its discretion. Such interventions are considered necessary till the rupee is made fully convertible.

2.3. INTERNATIONAL MONETARY REGIMES :

i. The Trilemma, or Impossible Trinity: What are the four major types of international monetary regimes and how do they differ?

"Foreign Exchange" is called the free floating regime because monetary authorities allow world markets (via interest rates, and expectations about relative price, productivity, and trade levels) to determine the prices of different currencies in terms of one another. The free float, as we learned, was characterized by tremendous exchange rate volatility and unfettered international capital mobility. It is also characterized by national central banks with tremendous discretion over domestic monetary policy. The free float is not, however, the only possible international monetary regime. In fact, it has pervaded the world economy only since the early 1970s, and many nations even today do not embrace it. Between World War II and the early 1970s, much of the world (the so-called first, or free, world) was on a managed, fixed-FX regime called the Bretton Woods System (BWS) . Before that, many nations were on the gold standard (GS) , as summarized in Figure 19.1 "The trilemma, or impossible trinity, of international monetary regimes".

The impossible trinity, or trilemma, is one of those aspects of the nature of things, like scarcity and asymmetric information, that makes life difficult. Specifically, the trilemma means that a country can follow only two of three policies at once: international capital mobility, fixed exchange rates, and discretionary domestic monetary policy. To keep exchange rates fixed, the central bank must either restrict capital flows or give up its control over the domestic money supply, interest rates, and price level. This means that a country must make difficult decisions about which variables it wants to control and which it wants to give up to outside forces.

The four major types of international monetary regime are specie standard, managed fixed exchange rate, free float, and managed float. They differ in their solution, so to speak, of the impossible trinity. Specie standards, like the classical GS, maintained fixed exchange rates and allowed the free flow of financial capital internationally, rendering it impossible to alter domestic money supplies, interest rates, or inflation rates. Managed fixed exchange rate regimes like BWS allowed central banks discretion and fixed exchange rates at the cost of restricting international capital flows. Under a free float, free capital flows are again allowed, as is domestic discretionary monetary policy, but at the expense of the security and stability of fixed exchange rates. With a managed float, that same solution prevails until the FX rate moves to the top or bottom of the desired band, at which point the central bank gives up its domestic discretion so it can concentrate on appreciating or depreciating its currency.

ii. Two Systems of Fixed Exchange Rates: What were the two major types of fixed exchange rate regimes and how did they differ? Under the gold standard, nations

defined their respective domestic units of account in terms of so much gold (by weight and fineness or purity) and allowed gold and international checks (known as bills of exchange) to flow between nations unfettered. Thanks to arbitrageurs, the spot exchange rate, the market price of bills of exchange, could not stray very far from the exchange rate implied by the definition of each nation's unit of account. For example, the United States and Great Britain defined their units of account roughly as follows: 1 oz. gold = $20.00; 1 oz. gold = £4. Thus, the implied exchange rate was roughly $5 = £1 (or £.20 = $1). It was not costless to send gold across the Atlantic, so Americans who had payments to make in Britain were willing to buy sterling-denominated bills of exchange for something more than $5 per pound and Americans who owned sterling bills would accept something less than $5 per pound, as the supply and demand conditions in the sterling bills market dictated. If the dollar depreciated too far, however, people would stop buying bills of exchange and would ship gold to Britain instead. That would decrease the U.S. money supply and appreciate the dollar. If the dollar appreciated too much, people would stop selling bills of exchange and would order gold shipped from Britain instead. That increased the U.S. money supply and depreciated the dollar. The GS system was self-equilibrating, functioning without government intervention (after their initial definition of the domestic unit of account).

The two major types of fixed exchange rate regimes were the gold standard and Bretton Woods.The gold standard relied on retail convertibility of gold, while the BWS relied on central bank management where the USD stood as a sort of substitute for gold.

iii. The Managed or Dirty Float: How can central banks manage the FX rate? The so-called managed float (aka dirty float) is perhaps the most interesting attempt to, if not eliminate the impossible trinity, at least to blunt its most pernicious characteristic, that of locking countries into the disadvantages outlined in Figure 19.2 "Strengths and weaknesses of international monetary regimes". Under a managed float, the central bank allows market forces to determine second-to-second (day-to-day) fluctuations in exchange rates but intervenes if the currency grows too weak or too strong. In other words, it tries to keep the exchange rate range bound, ostensibly to protect domestic economic interests (exporters, consumers) who would be hurt by rapid exchange rate movements. Those ranges or bands can vary in size from very wide to very narrow and can change levels over time.

Central banks intervene in the foreign exchange markets by exchanging international reserves, assets denominated in foreign currencies, gold, and special drawing rights (SDRs), for domestic currency. Consider the case of Central Bank selling $10 billion of international reserves, thereby soaking up $10 billion of MB (the monetary base, or currency in circulation and/or reserves). The T-account would be: Central banks influence the FX rate via unsterilized foreign exchange interventions or, more specifically, by buying or selling international reserves (foreign assets) with domestic currency. When central banks buy international reserves, they increase MB and hence depreciate their respective currencies by increasing inflation expectations. When central banks sell international reserves, they decrease MB and hence appreciate their respective currencies by decreasing inflation expectations.

iv. The Choice of International Policy Regime: What are the costs and benefits of fixing the FX rate or keeping it within a narrow band? Problems ensue when the central bank runs out of reserves, as it did in Thailand in 1997. The International Monetary Fund (IMF) often provides loans to countries attempting to defend the value of their currencies. It doesn't really act as an international lender of last resort, however,

because it doesn't follow Hamilton's née Bagehot's Law. It simply has no mechanism for adding liquidity quickly, and the longer one waits, the bigger the eventual bill. Moreover, the IMF often forces borrowers to undergo fiscal austerity programs (high government taxes, decreased expenditures, high domestic interest rates, and so forth) that can create as much economic pain as a rapid depreciation would. Finally, it has created a major moral hazard problem, repeatedly lending to the same few countries, which quickly learned that they need not engage in responsible policies in the long run because the IMF would be sure to help out if they got into trouble. Sometimes the medicine is indeed worse than the disease!

A country with weak institutions (e.g., a dependent central bank that allows rampant inflation) can essentially free-ride on the monetary policy of a developed country by fixing or pegging its currency to the dollar, euro, yen, pound sterling, or other anchoring currency to a greater or lesser degree. In fact, in the limit, a country can simply adopt another country's currency as its own in a process called dollarization. If it wants to continue earning seigniorage (profits from the issuance of money), it can create a currency board, the function of which is to maintain 100 percent reserves and full convertibility between the domestic currency and the anchor currency. At the other extreme, it can create a crawling peg with wide bands, allowing its currency to appreciate or depreciate day to day according to the interaction of supply and demand, slowly adjusting the band and peg in the long term as macroeconomic conditions dictate. When a currency is overvalued, which is to say, when the central bank sets Epeg higher than E* (when E is expressed as foreign currency/domestic currency), the central bank must appreciate the currency by selling international reserves for its domestic currency. It may run out of reserves before doing so, however, sparking a rapid depreciation that could trigger a financial crisis by rapidly increasing the real value of debts owed by domestic residents but denominated in foreign currencies. When a currency is undervalued, which is to say, when the central bank sets Epeg below E*, the central bank must depreciate its domestic currency by exchanging it for international reserves. It may accumulate too many such reserves, which often have low yields and which could quickly lose value if the domestic currency suddenly appreciates, perhaps with the aid of a good push by currency speculators making big one-sided bets.

2.4. FIXED EXCHANGE RATE SYSTEMS :

A **fixed exchange rate system** is an exchange rate regime in which the government of a country is committed to maintaining a fixed exchange rate for its domestic currency. There are different kinds of fixed exchange rate regimes. Under one such regime, the monetary authority of a country may announce the par value, as well as a band of exchange rates within which the exchange rates may vary. Whatever its form, under a fixed exchange rate regime, the government of a country announces an exchange rate, called the parity rate, and defends it. To maintain the exchange rate, the government is always ready to buy or sell unlimited quantities of a foreign currency at a fixed rate. To prevent the exchange rate from appreciating, the government buys foreign currency in exchange for domestic currency. The increased supply of the domestic currency lowers its value. Similarly, to prevent the exchange rate from depreciating, the government buys domestic currency using the foreign currency. To make such transactions, the government must have enough foreign currency as well as domestic currency. When the government is not able to maintain sufficient supplies of these currencies, it fails to maintain the exchange rate. Thus, countries which adopt this exchange rate regime must strive to keep exchange rates stable even if the rates they choose deviate from the equilibrium. The gold standard and the gold exchange standard are two classical examples of the fixed exchange rate system.

A fixed exchange rate system is an exchange rate regime in which the government of a country is committed to maintaining a fixed exchange rate for its domestic currency.

The fixed exchange rate system has certain advantages. The main ones are:

i. It ensures stability and certainty in exchange rates.
ii. It creates confidence in the currency, which promotes international trade and investments.
iii. It facilitates domestic economic stabilization.

The major deficiencies of fixed exchange rate regimes are:

iv. The exchange rates are determined by the monetary authorities without taking into consideration the demand for and supply of the currency.
v. Sometimes, the exchange rates are determined by governments based on certain extraneous considerations, leading to trade wars in the international market.
vi. Although each fixed exchange rate regime has certain rules, governments may bypass those rules for short-term gains.
vii. Exchange rates determined at the discretion of the monetary authorities cause uncertainty in the future exchange rates.
viii. The system is inflexible, and therefore leads to slow growth of international trade.

Having reviewed the advantages and limitations of fixed exchange rate systems, let us look at the various types of fixed exchange rate systems that may exist.

Currency boards : A **currency board** is a country's monetary authority that issues its base money (notes and coins) and fixes the exchange rate. Under the currency board system, the domestic currency is anchored to a foreign currency, which is also known as the reserve currency. Although it is possible to fix the exchange rate in terms of a basket of currencies rather than one currency, the currency board may rigidly fix the exchange rate in terms of a single currency. The board selects a foreign currency which is strong, and this currency is internationally traded as the *anchor currency.* The value and stability of the local currency is directly linked to the value and stability of the anchor currency.

A currency board is a country's monetary authority that issues its base money (notes and coins). The currency board system requires that the domestic currency be anchored to a foreign currency, which is also known as the reserve currency.

The exchange rate in a currency board system is strictly fixed. For example, the Hong Kong dollar has been officially fixed at USD/HKD 7.80 since the currency board was introduced in 1983. A currency board can function alone or work in parallel to the central bank of the country. If it functions along with the central bank, the central bank virtually loses its monetary autonomy. It cannot set interest rates and inject liquidity into the economy. A currency board is fully committed to the complete convertibility of the local currency into the anchor currency. There are no restrictions on individuals and businesses exchanging the locally issued currency with the anchor currency at a fixed rate, on both current account and capital account. To honor its commitment, a country under the currency board regime holds reserves of foreign currency (or gold or some other liquid asset) equal at the fixed rate to at least 100 per cent of the domestic currency issued. That is, a country under the currency board regime can issue domestic currency only when it has foreign exchange reserves to back it. Thus, in a currency board system, the money base (M0) is backed 100 per cent by foreign reserves. Countries such as Lithuania, Estonia, and Bosnia have their local currencies anchored to the euro. Argentina had a currency board system (anchored to the U.S. dollar) until 2002. Currency boards do not engage in discretionary monetary policy.

The traditional currency board system had its roots in the English Bank Act of 1844. However, the currency board system no longer exists in its pure form today. These days, currency board–like systems exist instead. Present-day currency boards, for example, may not maintain 100 per cent reserves. Further, a central bank may be in place, but with specific rules dictating the level of the reserves it should maintain.

The main advantage of the currency board system is that it offers the prospect of a stable exchange rate. Besides ensuring monetary discipline in the economy, it generates fiscal discipline by preventing governments from direct monetary financing of government expenditure. Exchange rates under the currency board system are less risky and less prone to speculative attacks. However, the major problem with the currency board system is the loss of monetary independence. It is argued that the currency board system creates problems as it becomes very difficult to respond to external shocks by using monetary policy.

Dollarization: Dollarization : is a generic term that refers to the use of any other currency (dollar) in place of a domestic currency as the legal tender. Some nations abandon their domestic currency and use one of the major reserve currencies. Panama has been using the U.S. dollar as the legal tender since 1904. Countries such as Ecuador and El Salvador dollarized in 1999. When a country is unable to manage its own economic affairs, it may become an adjunct to the country issuing the currency.
The system of adopting the currency of another nation as the legal tender is known as dollarization.

Currency unions : When a group of countries feel that multiple currencies and exchange rate fluctuations are seriously affecting their trade, they may adopt an exchange rate regime known as a *currency union.* In such a regime, countries decide to adopt a common currency so that, by definition, exchange rates between the member countries of the union disappear. The largest currency union in the world has been formed by 12 countries of the European Union, using the euro as its common currency.

Currency baskets : Pegging a currency to another single currency might be risky at times. So, a country might peg its currency to a basket of foreign currencies. A basket of currencies is likely to be less variable than a single currency. If the currencies for a basket are chosen correctly, the resulting peg will be more stable. However, managing such a peg can be quite cumbersome. When the currencies are not equally important, weights should be assigned to each currency in accordance with the economic power of the nations included in the basket. For this reason, currency baskets often include a small number of major currencies.

2.5. FLEXIBLE EXCHANGE RATE SYSTEMS :

Under the flexible exchange rate system, the exchange rate is determined by the forces of demand and supply for one currency vis-à-vis another currency. Changes in exchange rates occur continuously and automatically as the exchange rate is free to move according to the changes in demand and supply. The major advantages of the flexible exchange rate system are: The flexible exchange rate system has an exchange rate between two currencies that is determined by market forces.

i. The flexible exchange rate system allows the foreign exchange market to determine what a currency is worth. In the long run, it keeps the balance of payments of all countries in equilibrium through an automatic adjustment mechanism. For example, if a country has a deficit in its balance of payments, the exchange rate of its currency depreciates. This makes the country's exports cheaper and its imports dearer. In other words, the depreciation of the home currency encourages exports and discourages imports, adjusting the country's

balance of payments deficit. Conversely, if a country has a balance of payments surplus, the exchange rate of its currency appreciates. Its exports become dearer, and its imports become cheaper consequently. This ultimately results in adjustments in the country's balance of payments. It has been observed that balance of payments disequilibrium can be corrected with fewer disruptions to the domestic economy through a flexible exchange rate system than through the fixed exchange rate system.

ii. If a country can control its trade deficit through the flexible exchange rate system, it implies that it has a strong economic system.

iii. A country can boost its image and attract foreign investments by adopting a flexible exchange rate system. This can further help the country by indicating to its stakeholders that its financial system, and its treasury management, is sound.

iv. Under the flexible exchange rate regime, there is no need to bother about tariffs, subsidies, and quotas, etc., as they are automatically taken care of by market forces and, consequently, by the exchange rates.

v. Different countries follow different economic policies and, therefore, different cost–price relationships exist. The flexible exchange rate system reflects the true cost–price relationship between the two countries.

vi. Another great advantage of the flexible exchange rate system is that it allows countries to pursue their own economic policies and to maintain their economic sovereignty.

Like most systems, the flexible exchange rate system also suffers from certain limitations, some of which are:

i. The flexible exchange rate system cannot ensure stability in exchange rates, which results in uncertainty and speculation. It is argued that the flexible exchange rate system creates uncertainty for activities involving the inflow and outflow of foreign exchange. This uncertainty throws business planning out of gear, leading to economic instability and slow growth of the world economy.

ii. The flexible exchange rate system may encourage speculation in the foreign exchange market and cause violent fluctuations in the exchange rates. This constitutes an additional risk to international trade and investment.

iii. Countries under a flexible exchange rate system may also witness a high rate of inflation. Countries must keep their money supply and inflation under control in a fixed exchange rate system, but countries with a flexible exchange rate system face no such compulsions. This may result in a high rate of inflation.

The free float : In a **free float**, the government does not announce a parity rate; therefore, there is no intervention by the monetary authority in the foreign exchange market. Exchange rates vary in accordance with changes in the demand and supply of a currency. Demand and supply are influenced by several factors, which may include economic factors, social factors, political factors, and technological factors. In other words, any change in environmental factors may result in a change in the demand or supply of a currency. Changes in the environment, and those in the economic environment, occur at random. As market participants respond to new information instantaneously, the exchange rate keeps changing. The free float is also known as the *pure float* or the *clean float.* There is no intervention by the monetary authority of a country in exchange rate determination when the domestic currency is freely floated against the foreign currency.

The managed float : In a free float, exchange rates may change drastically, making international transactions very risky. Fluctuations in exchange rates can cause a lot of

uncertainty about the future spot rates for market participants. This will vitiate the investment climate and international transactions. A country may adopt a managed float system to guard against such untoward situations. Under such a system, the monetary authority of the country may occasionally intervene in the foreign exchange market and buy and sell the domestic currency. Intervention by the government in the foreign exchange market to smooth out exchange rate fluctuations is known as a managed float or a dirty float.

The managed float is primarily aimed at eliminating excess volatility and reducing uncertainty. When a government does not make an upward or downward change in its exchange rate when such a change is warranted, it also amounts to a managed float. This is because a managed float is not only for smoothing out daily fluctuations, but also for moderating or preventing short-term or medium-term fluctuations. Where there is light intervention by the monetary authority in the foreign exchange market to moderate excessive fluctuations, the float is a lightly managed one, and in such cases the foreign exchange rate is essentially determined by the market forces. Under a managed float system, the government intervenes in the foreign exchange market whenever it wants the exchange rate to move in a particular direction or to stabilize at a target level.

2.6. SUMMARY:

Under the *fixed exchange rate system*, governments are committed to maintaining a fixed exchange rate for their currencies against the foreign currency. When countries are under a *flexible exchange rate system*, the exchange rate between two currencies is determined by the forces of demand and supply. The Indian rupee is allowed to float in the foreign exchange market, but within the framework of the Reserve Bank of India. The central bank may intervene in the foreign exchange market with certain objectives. Under the fixed exchange rate system, if the value of a currency is reduced relative to another currency, it is known as *devaluation of currency. A* fall in a currency value relative to another currency is called *depreciation of currency* in the floating exchange rate system.

2.7. TECHNICAL TERMS :

- **Fixed Exchange Rate System:** A fixed exchange rate system is an exchange rate regime in which the government of a country is committed to maintaining a fixed exchange rate for its domestic currency.
- **Currency board:** A currency board is a country's monetary authority that issues its base money (notes and coins) and fixes the exchange rate.
- **Dollarization**: A dollarization is a generic term that refers to the use of any other currency (dollar) in place of a domestic currency as the legal tender.
- **Currency unions:** When a group of countries feel that multiple currencies and exchange rate fluctuations are seriously affecting their trade, they may adopt an exchange rate regime known as a *currency union.*
- **Currency baskets:** Pegging a currency to another single currency might be risky at times. So, a country might peg its currency to a basket of foreign currencies.
- **Flexible Exchange Rate Systems:** Under the flexible exchange rate system, the exchange rate is determined by the forces of demand and supply for one currency vis-à-vis another currency.

2.8. SELF-ASSESSMENT QUESTIONS :

1. What are the advantages and limitations of the flexible exchange rate system and the fixed exchange rate system?

2. Do you agree that a floating exchange rate regime is a better option than the fixed exchange rate regime?
3. Discuss various types of fixed exchange rate systems in detail.
4. Explain the concept of managed floats.
5. Discuss the differences between free float and managed float.

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LESSON - 3

CURRENCY PEGGING & EUROPEAN MONETARY SYSTEM

LEARNING OBJECTIVES :

After studying this chapter, you should be able to:

- Trace the emergence of the euro.
- Discuss the chronological developments in the exchange rates of the Indian rupee.
- Highlight the implications of appreciation and depreciation of currency.

STRUCTURE :

3.1 INTRODUCTION :

Currency pegging involves fixing the value of a currency in relation to the value of another currency. A currency can be pegged to another currency, to a basket of currencies, or to SDRs. A country with a pegged exchange rate establishes a fixed exchange rate with another currency or a basket of currencies. So, the values of the pegged currencies move together over time. Generally, a country may peg its currency to the currency of its major trading partner to stabilize its trade receipts and payments. If a particular country's currency is not pegged, any change in the value of the currency of the country with which it has major trade relations will adversely affect the cash flows of the country. Further, pegging may avoid the risk of taking a wrong decision about devaluation or revaluation of the currency. The effort required for making changes in exchange rates can be minimized when a currency is pegged to another strong currency, because the value of the currency will automatically move with the value of the other currency, regarding which the other country has made a thorough analysis.

Currency pegging involves fixing the value of a currency in relation to the value of another currency or a basket of currencies.

A currency may also be pegged to a basket of currencies, which will give more stability to the exchange rate. Similarly, a currency may also be pegged to the SDR, which itself is pegged to a basket of four currencies the euro, the Japanese yen, the British pound, and the U.S. dollar at present.

The pegging of a currency may take a form of hard pegging, adjustable pegging, or soft pegging. In the case of hard pegging, exchange rates are fixed, and the government has no

plans to change them. Currency boards and dollarization are examples of hard pegging. In reality, hard pegging corresponds to fixing the exchange rate to a hard currency and holding enough reserves to back up the peg. The adjustable pegging system allows the government to revise or adjust exchange rates periodically. The Bretton Woods system is a case in point. Soft pegging involves frequent adjustment of exchange rates. This may be high-frequency pegging (day-to-day or week-to-week pegging) or low-frequency pegging (month-to-month or quarter-to-quarter pegging).

The crawling peg is a hybrid system with some features of the flexible exchange rate system and some features of the fixed exchange rate system. It involves fixing the par value of a currency and allowing the exchange rate to move within a given percentage. If the actual exchange rate approaches a certain limit, the central bank intervenes by buying or selling home currency for the required foreign currency. In other words, a country which adopts this system is committed to maintaining its exchange rate within a certain margin at any point in time. For example, Mexico pegged its currency (peso) to the U.S. dollar. In the 1990s, when the inflation differential between the two countries increased considerably, Mexico adopted a crawling peg to devalue the Mexican peso drastically. Under the crawling peg system, however, governments are at liberty to revise the par value, as well as the limits when required. Thus, the crawling peg system avoids violent fluctuations in the exchange rate without being inflexible.

A crawling peg may contain some features of the flexible exchange rate system and some features of the fixed exchange rate system.

A crawling peg may take the form of a crawling broad band or a crawling narrow band. In a crawling broad band, the limits around the central parity are wide enough (say, ±20 per cent) to provide more flexibility. Thus, the exchange rates are fixed, but considerable fluctuation is permitted around the central parity rate. It provides more flexibility and is closer to a floating system in terms of its merits and shortcomings. On the other hand, the crawling narrow band (e.g., the Bretton Woods system) is almost equivalent to the fixed exchange rate regime.

3.2 THE IMF CLASSIFICATION OF EXCHANGE RATE REGIMES :

The IMF has classified exchange rate regimes in the following way :

i. **Exchange arrangements with no separate legal tender :** A country adopts the currency of another country as the sole legal tender by giving up its own currency. This includes currency unions and dollarization. As stated by the IMF, under an exchange arrangement with no separate legal tender, "the currency of another country circulates as the sole legal tender, or the member belongs to a monetary or currency union in which the same legal tender is shared by the members of the union".
ii. **Currency board arrangements :** These are regimes in which a nation commits to exchanging its currency for a foreign currency at a pre-specified rate. Under a currency board, the management of the exchange rate and money supply are given to a monetary authority that makes decisions about the valuation of a nation's currency. Often, this monetary authority has direct instructions to back all units of domestic currency in circulation with foreign currency. When all domestic currency is backed with foreign currency, it is called a 100% reserve requirement. With a 100% reserve requirement, a currency board operates similarly to a strong version of the gold standard. The currency board allows for the unlimited exchange of the domestic currency for foreign currency. A conventional central bank can print money at will, but a currency board must back additional units of currency with foreign currency. A

currency board earns interest from foreign reserves, so domestic interest rates usually mimic the prevailing rates in the foreign currency.

iii. **Conventional fixed peg arrangements :** These exchange rate regimes differ from currency board arrangements only in the legal structure of the regime. Conventional pegged arrangement For classification as a conventional pegged arrangement, the country formally (de jure) pegs its currency at a fixed rate to another currency or a basket of currencies, where the basket is formed, for example, from the currencies of major trading or financial partners, and weights

iv. **Pegged exchange rates within horizontal bands :** These are regimes in which a country allows only limited movement in exchange rates. Weak version: also known as pegged exchange rates within horizontal bands. In this case, the exchange rate fluctuates more than ±1% around the fixed central rate. A currency peg is a policy in which a national government or central bank sets a fixed exchange rate for its currency with a foreign currency or a basket of currencies and stabilizes the exchange rate between countries.

v. **Crawling pegs :** Crawling pegs are essentially the same as pegged exchange rates, except that the price at which the currency is traded changes over time. A crawling peg is a system of exchange rate adjustments in which a currency with a fixed exchange rate is allowed to fluctuate within a band of rates. The par value of the stated currency and the band of rates may also be adjusted frequently, particularly in times of high exchange rate volatility. Crawling pegs are often used to control currency moves when there is a threat of devaluation due to factors such as inflation or economic instability. Coordinated buying or selling of the currency allows the par value to remain within its bracketed range.

vi. **Exchange rates within crawling bands :** These are a combination of crawling pegs and pegged exchange rates with horizontal bands. A crawling peg is a band of rates that a fixed-rate exchange rate currency is allowed to fluctuate. It's a coordinated buying or selling of currency to keep the currency within range. Crawling pegs help control currency moves, usually during threats of devaluation. The purpose of crawling pegs is to provide stability. Intermediate options include crawling bands, where the exchange rate is allowed to fluctuate within a band, around a central parity that is adjusted periodically according to a preannounced schedule; crawling pegs, where the band collapses to a fixed (but adjustable) exchange rate; horizontal bands, where the currency ...

vii. **floating independently :** These are systems where the exchange rate is independently determined by market forces. When any boat displaces a weight of water equal to its own weight, it floats. This is often called the "principle of flotation": A floating object displaces a weight of fluid equal to its own weight. Every ship, submarine, and dirigible must be designed to displace a weight of fluid at least equal to its own weight. When a body floats in a liquid, the weight of the liquid displaced by its immersed part is equal to the total weight of the body. This is the law of floatation, i.e. while floating the weight of the floating body = Weight of the liquid displaced by its immersed part.

viii. **Managed floating :** Although the exchange rate in managed floats is determined by market forces, occasionally, the government seeks to influence the exchange rate through purchase or sale of the currency. A managed floating exchange rate is an exchange rate system that allows a nation's central bank to intervene regularly in foreign exchange markets to change the direction of the currency's float and/or reduce the amount of currency volatility. This exchange rate system is also known as a “dirty float”.

The distribution of exchange rate regimes among the IMF countries is presented in Table 3.1. As shown in the table, there were more floating exchange rate regimes at the end of April 2006 than soft pegs or hard pegs. Further, there has been a shift from soft pegs to hard pegs, or floating regimes, over time. The preference for hard pegs has increased, perhaps because of strong external demand. In recent years there has been a tendency to adopt a more flexible exchange rate system. For example, Malaysia shifted from pegging its currency to the U.S. dollar to a managed float regime in 2005. Countries may shift from one regime to another due to various reasons. For instance, during the East Asian crisis (1997–98), the affected countries allowed their currencies to float when they could no longer defend their pegs. In moving from one regime to another, nations must exercise caution to avoid economic disruption.

Table 3.1 Exchange rate regimes of IMF member countries (number of countries)

Regime	**End-December 1996**	**End-April 2006**
Hard pegs	**30**	**48**
No separate legal tender	24	41
Currency board	6	7
Soft pegs	**94**	**60**
(a) Conventional pegged arrangements	50	49
Pegs to a single currency	36	44
Pegs to composite currencies	14	5
(b) Intermediate pegs	44	11
Pegged with horizontal bands	18	6
Crawling pegs	14	5
Crawling bands	12	0
Floating regimes	**60**	**79**
Managed floating	37	53

Regime	End-December 1996	End-April 2006
Independently floating	23	26

Source: IMF, reproduced with permission from Annual Report on Exchange Arrangements and Exchange Restrictions, 2006.

The U.S. dollar remains the currency of choice for countries with hard pegs as well as soft pegs. This reflects the importance of the U.S. dollar as an invoicing currency. It also reflects the high share of trade of many countries with the United States or with countries that have pegged their currency to the U.S. dollar. The euro is the next important currency and serves as an exchange rate anchor for countries in Europe and the CFA franc zone in Africa.

3.3 SELECTION AND MANAGEMENT OF EXCHANGE RATE REGIMES :

Both the flexible exchange rate system and the fixed exchange rate system have their own advantages and limitations. No country can afford to allow its exchange rate to float continuously, as a fluctuating exchange rate is not favorable for domestic economic stability. Volatile exchange rates disrupt the smooth flow of goods, services, and capital across political borders. At the same time, no country can follow a rigid, fixed exchange rate system, particularly in an era of globalization of trade and investments. Therefore, a country may adopt a system that combines the advantages of the two systems. The extent to which the exchange rate should be flexible and the extent to which it should be stable cannot be generalized. Depending upon the needs of its economy and other factors, a country can design its own exchange rate system or follow a system that already exists.

Each nation chooses an exchange rate regime that will enable it to achieve its economic objectives. Many countries including the United States, the United Kingdom, Canada, Japan, New Zealand, and Australia allow their currencies to float independently in the foreign exchange market. The exchange rates of these currencies are essentially determined by market forces. Under the floating exchange rate regime, the monetary and fiscal policies of a country do not have to be subordinated to the needs of defending the exchange rate. The supporting policies (monetary policy and fiscal policy) can be guided by nominal anchors such as the target inflation rate and the target growth rate. Thus, the floating exchange rate regime allows greater autonomy to the monetary authority in pursuing the objectives of the economy (e.g., price stability and growth) while leaving the exchange rate adjustment to the market forces.

Countries such as Russia, Singapore, Pakistan, India, and Vietnam are under the managed floating system. Some countries may also have a mixture of fixed and floating exchange rate regimes. A few countries, such as Hong Kong, have pegged the value of their currencies to hard currencies like the U.S. dollar or the euro. It should be noted that some countries do not have their own national currencies. They use the currencies of other countries. Some countries jointly use a particular currency. For example, some African countries jointly use the CFA franc, which is fixed to the euro through the French franc. As mentioned earlier, in a fixed exchange rate regime, monetary autonomy is either fully surrendered to another country, or is tied to rigid rules under legislation.

Foreign exchange rates significantly influence the flow of goods, services, and capital across countries and exert strong pressure on the balance of payments, inflation, and other macroeconomic variables. Therefore, the choice and management of exchange rate regimes is

a critical aspect of the economic development of a country. Ideally, a country needs a regime that combines stability with flexibility. Stability of the exchange rates is required to avoid fluctuating financial impulses and to provide a reliable anchor. At the same time, the exchange rate regime should allow considerable flexibility to cope with external shocks, in an orderly way, without affecting the economic objectives of the country. A country requires consistent and supportive monetary and fiscal policies to maintain a stable and competitive real exchange rate.

3.4 EXCHANGE RATE POLICY AND MONETARY POLICY :

A country's choice of exchange rate system has implications for its monetary policy. Monetary policy is the policy that controls the money supply in the economy. Under a fixed exchange rate regime, the government of a country fixes the exchange rate and controls the money supply in the economy to defend the exchange rate. The monetary policy of such a country is dedicated to maintaining the exchange rate, and it cannot be used simultaneously for controlling domestic prices (inflation) and interest rates. For example, to maintain the exchange rate, the government may have to print unlimited quantities of its own currency. This may lead to an increase in prices and inflation in the country.

A close relationship also exists between interest rates and the inflation rate. Further, interest rates influence the flow of funds from foreign countries to the domestic country, and vice versa. Any policy that restricts the free flow of funds will lower the value of the currency. This is likely to have an impact on the money supply as well as the interest rates in the economy. In view of such cause-and-effect relationships, the monetary policy of a country that adopts a fixed exchange rate regime is likely to be quite different from one that has not adopted such a system. By adopting the fixed exchange rate regime, the country loses its monetary autonomy. Such a government essentially adopts the monetary policy of a foreign country as the value of the domestic currency is fixed against the respective foreign currency.

3.5 THE PAR RATE OF EXCHANGE :

The value of a currency in terms of the value of another currency is determined by the forces of demand and supply of that currency. As demand and supply are susceptible to many changes in the domestic and international environment, the exchange rate of a currency varies over time and, at times, is subject to wide fluctuations. Market sentiment and speculative activities also cause sudden changes in exchange rates. All such changes, however, are temporary or day-to-day fluctuations. In the long run, the exchange rate of a currency is determined by the relative purchasing power of the two currencies in terms of goods and services. The par rate of exchange is thus the ratio between two currencies that would equalize their relative purchasing power. The par rate of exchange is known as a standard rate of exchange between two currencies, and it is used as a reference rate in various contexts.

The par rate of exchange is the ratio between two currencies that would equalize their relative purchasing power.

3.6 Emergence of the Euro :

The formation of the European Economic Community (EEC) in 1958 was the first major step towards the integration of European countries. The EEC subsequently became the European Community. Many initiatives were taken to bring about a high level of integration in Europe. The first major initiative about the monetary system was the establishment of the European Monetary System (EMS) in 1979, with the European Currency Unit (ECU) as the monetary unit. The EMS was aimed at the integration of the monetary systems of

European nations. The ECU was an artificial composite monetary unit made up of a basket of specified amounts of currencies of 12 European Union (EU) member countries. In other words, the ECU was a weighted average of each of the EMS'S currencies. The weights of the individual currencies as of 21 September 1989 are shown in Table 3.2.

Table 3.2 Constituent currencies of the ECU (21 September 1989)

Currency	Weights (%)
German mark	30.10
French franc	19.00
British pound	13.00
Italian lira	10.15
Netherlands guilder	9.40
Belgian franc	7.60
Spanish peseta	5.30
Danish crone	2.45
Irish punt	1.10
Greek drachma	0.80
Portuguese escudo	0.80
Luxembourg franc	0.30

Source: http://ec.europa.eu/

The ECU went through a series of turbulent events. Therefore, its member nations met at Maastricht, Netherlands, in December 1991 and signed an agreement that came to be known as the Maastricht Treaty. According to this treaty, the European Union would fix the exchange rates between the currencies of member nations by 1 January 1999 and, subsequently, would introduce a common European currency replacing individual currencies. In line with the treaty, 11 of 15 member nations adopted a common currency called the euro. The countries which signed the agreement are Germany, Belgium, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal, and Finland. Greece was admitted into the treaty after two years, but the United Kingdom, Denmark, and Sweden deferred their joining. Thus, there are 12 nations that come under the common currency, the euro.

Each national currency of the euro countries was irrevocably fixed to the euro at a certain conversion rate. The euro conversion rates as on 1 January 1999 are presented in Table 3.3.

Table 3.3 Euro conversion rates (1 January 1999)

Currency	Units of national currency for EUR 1
Austrian schilling	13.7603
Belgian franc	40.3399
Dutch guilder	2.20371
Finnish markka	5.94573
French franc	6.55957
German mark	1.95583
Irish punt	0.78756
Italian lira	1936.2700
Luxembourg franc	40.3399
Portuguese escudo	200.4820
Spanish peseta	166.3860

The conversion rate between a pair of currencies can be obtained by using the euro conversion rates of the two currencies. On 4 January 1999, the euro started trading at 1.18 against the U.S. dollar. Originally, the euro was an electronic currency, but on 1 January 2002, euro notes and coins were introduced into circulation. The euro would go side-by-side with the national currencies of the member countries till 2001. It was envisaged that from the year 2002, the euro would substitute the national currencies of member nations. The euro would be the only currency in these countries from 2002 onwards. As per the treaty, all euro zone countries had to follow strict fiscal discipline. The European Central Bank (ECB), established in 1998, would monitor the monetary policy of the European Union and maintain price stability. The European Monetary Union (EMU) was created with the launching of a single currency. The national central banks of the euro zone countries, together with the European Central Bank, formed the European System of Central Banks. The system aims at (i) defining and implementing the common monetary policy of the European Union; (ii) conducting foreign exchange operations; and (iii) holding and managing the official foreign exchange reserves of the euro zone nations. By using a common currency, member nation's aim at reducing transaction costs involved in the exchange of national currencies. The

common currency would help eliminate uncertainties related to foreign exchange rates and eliminate the need for hedging transactions within the euro zone. The reduction of transaction costs and elimination of foreign exchange risk would encourage trade and investment across the euro zone. With a common currency, the economies of the euro zone countries would become integrated, which would ultimately enhance the competitive strength of the European economies in the international market. It was also expected that the euro, along with the U.S. dollar, would dominate the world economy and would also result in the political unionization of Europe. It has now been over a decade since the ECB was formed, and many feel that the euro has been able to challenge the preeminence of the U.S. dollar.

European Monetary System: The European Monetary System, abbreviated as EMS, was an exchange rate regime set up in 1979 (and which ended in 1999) to foster closer monetary policy co-operation between the central banks of the Member States of the European Economic Community (EEC). The objective of the EMS was to promote monetary stability in Europe. The European Monetary System was built on the concept of stable but adjustable exchange rates defined according to the newly created European currency unit (ECU) – a currency basket based on a weighted average of EMS currencies. Within the EMS, currency fluctuations were controlled through the Exchange Rate Mechanism (ERM). The EMS was a radical new departure because exchange rates could only be changed by mutual agreement between participating Member States and the European Commission – an unprecedented pooling of monetary sovereignty. It was replaced by ERM II (exchange rate mechanism II) at the start of Stage Three of economic and monetary union (EMU) on 1 January 1999 when the single currency was launched.

Later attempts to achieve stable exchange rates were hit by oil crises and other shocks until, in 1979, the European Monetary System (EMS) was launched. The EMS was built on a system of exchange rates used to keep participating currencies within a narrow band. The EMS comprised three principal elements: the European Currency Unit (ECU), the monetary unit used in EC transactions; the Exchange Rate Mechanism, ERM, whereby those member states taking part agreed to maintain currency fluctuations within certain agreed limits; and the European Monetary Cooperation Fund, The euro is the official currency of 20 European Union countries which collectively make up the euro area, also known as the eurozone. Some EU countries have yet to meet the criteria required to join the euro area while Denmark has opted not to participate. Monetary policy for the euro area is managed through the European Central Bank (ECB) and the national central banks of the euro area countries, which together make up the Eurosystem. These decisions are made free from outside influence. The European Monetary System (EMS) was established to stabilize inflation and stop large exchange rate fluctuations between these neighboring nations, with the intended goal of making it easy for them to trade goods with each other.

What Is the European Monetary System (EMS)? The European Monetary System (EMS) was an adjustable exchange rate arrangement set up in 1979 to foster closer monetary policy cooperation between members of the European Community (EC). The European Monetary System (EMS) was later succeeded by the European Economic and Monetary Union (EMU), which established a common currency, the euro.

The European Monetary System (EMS) was an adjustable exchange rate arrangement set up in 1979 to foster closer monetary policy cooperation between members of the European. Community (EC). The European Monetary System (EMS) was established to stabilize inflation and stop large exchange rate fluctuations between these neighboring nations, with the intended goal of making it easy for them to trade goods with each other. The European Monetary System (EMS) was succeeded by the European Economic and Monetary Union

(EMU), which established a common currency, the euro. Understanding the European Monetary System (EMS). The EMS was created in response to the collapse of the Bretton Woods Agreement. Formed in the aftermath of World War II (WWII), the Bretton Woods Agreement established an adjustable fixed foreign exchange rate to stabilize economies and consolidate global financial power among the Western Allied nations. When it was abandoned in the early 1970s, currencies began to float—fluctuate in market value relative to one another—which prompted members of the EC to seek out a new exchange rate agreement to complement their customs union. The EMS's primary objective was to stabilize inflation and stop large exchange rate fluctuations between European countries. This was part of a wider, overall goal of fostering economic and political unity in Europe, which ultimately paved the way for a common currency, the euro. Currency fluctuations were controlled through an exchange rate mechanism (ERM). The ERM was responsible for pegging national exchange rates, allowing only slight deviations from the European currency unit (ECU)—a composite artificial currency based on a basket of 12 EU member currencies, weighted according to each country's share of EU output. The ECU served as a reference currency for exchange rate policy and determined exchange rates among the participating countries' currencies via officially sanctioned accounting methods.

History of the European Monetary System (EMS): The early years of the EMS were marked by uneven currency values and adjustments that raised the value of stronger currencies and lowered those of weaker ones. After 1986, changes in national interest rates were specifically used to keep all the currencies stable. A new crisis for the EMS emerged in the early 1990s. Differing economic and political conditions of member countries, notably the reunification of Germany, led to Britain permanently withdrawing from the EMS in 1992. Britain's withdrawal foreshadowed its later insistence on independence from continental Europe; Britain refused to join the eurozone, along with Sweden and Denmark. During this time, efforts to form a common currency and cement greater economic alliances were ramped up. In 1993, most EC members signed the Maastricht Treaty, establishing the European Union (EU). One year later, the EU created the European Monetary Institute, which became the European Central Bank (ECB) in 1998. The primary responsibility of the ECB was to institute a single monetary policy and interest rate. At the end of 1998, the majority of EU nations simultaneouslyy cut their interest rates to promote economic growth and prepare for the implementation of the euro. In January 1999, a unified currency, the euro, was created; the euro is used by most EU member countries. The European Economic and Monetary Union (EMU) was also established, succeeding the EMS as the new name for the common monetary and economic policy organization of the EU. Criticism of the European Monetary System (EMS). Under the EMS, exchange rates could only be changed if both member countries and the European Commission were in agreement. This was an unprecedented move that attracted a lot of criticism. In the aftermath of the global economic crisis of 2008-2009, significant tension between the principles of the EMS and the policies of national governments became evident. Certain member states—Greece, in particular, but also Ireland, Spain, Portugal, and Cyprus—pursued policies that created high national deficits. This phenomenon was later referred to as the European sovereign debt crisis. These countries could not resort to the devaluation of their currencies and were not allowed to spend to offset unemployment rates. From the beginning, the European Monetary System (EMS) policy intentionally prohibited bailouts to ailing economies in the eurozone. Despite vocal resistance from EU members with stronger economies, the EMU finally established bailout measures to provide relief to struggling members.

3.6.1 Objectives of the European Monetary System:

i. An exchange rate regime set up in 1979 (and which ended in 1999) to foster closer

monetary policy co-operation between the central banks of the member states of the European Economic Community (EEC). The objective of the EMS was to promote monetary stability in Europe.

ii. The EMS was built on the concept of stable but adjustable exchange rates defined according to the newly created European currency unit (ECU), a currency basket based on a weighted average of EMS currencies (see Europa: glossary: European currency unit (ECU)). Within the EMS, currency fluctuations were controlled through the Exchange iii.

iii. Rate Mechanism (ERM) (see Europa: glossary: Exchange Rate Mechanism (ERM)).

iv. Under the EMS, exchange rates could only be changed by mutual agreement between participating member states and the European Commission. It was replaced by ERM II at the start of Stage Three of the European Monetary Union (EMU) on 1 January 1999 when the single currency (euro) was launched.

v. The primary objective of the EMS is to promote and enhance monetary stabilityintheEuropeanCommunity.Itsotherobjectivesincludeworkingtowards the improvement of the general and economic situation of the countries of the European Union in terms of growth, full employment, standard of living, reduction of regional disparities, etc. Above all, it also aims at bringing about a stabilizing effect on international economic and monetary relations.

3.6.2 EMS vis-à-vis Balance of Payments (BOP) :

The formation of EMS has the following implications for countries having surplus balance of payment. First, the countries dealing with member countries of the European Union may weaken the pace of appreciation of their currencies. This is likely to happen as the relative stability of exchange rates inside the EMS is expected to avoid the distortions between various currencies of the European Union. Second, a deceleration in the rate of appreciation of currencies may step up exports to such countries. Increased exports, obviously, have salutary effects on the profitability of enterprises on the one hand and higher growth of their economies on the other. This assertion is because the surplus countries faced the negative effect of continuing re-evaluation (appreciation) of their currencies, vis-à-vis, and the currencies of the member countries of the European Union (EU). In particular, the effect was more marked on external trade with the EU as it constituted 40-50 percent of the total external business. In the case of the deficit

3.6.3 Characteristics of the EMS :

The following are the major characteristics of the EMS:

1. There is a single uniform monetary unit of the European Union, namely, the European Currency Unit (ECU).
2. A stable but adjustable exchange rate has emerged.

Characteristics You Need to Possess When Building a Career in EMS

i. Flexibility. Emergency responders don't have 9-to-5 jobs. ...
ii. Drive. Being a self-starter is essential for anyone who wants to become an EMS worker. ...
iii. Compassion. ...
iv. Good Communication Skills. ...
v. Creativity. ...
vi. Mental Resilience. ...
vii. A Strong Stomach. ...
viii. Self-Control.

3.7 SUMMARY :

1. A country with a pegged exchange rate establishes a fixed exchange rate with another currency or a basket of currencies so that the values of the pegged currencies move together over time.
2. The euro has emerged as the common currency for 12 European countries.
3. Under the fixed exchange rate system, if the value of a currency is reduced relative to another currency, it is known as devaluation of currency. A fall in a currency value relative to another currency is called depreciation of currency in the floating exchange rate system.

3.8 TECHNICAL TERMS :

Currency pegging: Currency pegging involves fixing the value of a currency in relation to the value of another currency.

Crawling peg: It is a hybrid system with some features of the flexible exchange rate system and some features of the fixed exchange rate system. It involves fixing the par value of a currency and allowing the exchange rate to move within a given percentage.

The Par Rate of Exchange: The value of a currency in terms of the value of another currency is determined by the forces of demand and supply of that currency.

3.9 SELF-ASSESSMENT QUESTIONS :

1. What are the advantages of currency pegging?
2. Trace the emergence of the euro.
3. Write a note on the developments in the European Monetary Union.
4. "Crawling peg is a compromise between fixed exchange rates and floating exchange rates". Discuss
5. Write a note on the par rate of exchange.

3.10 SUGGESTED READINGS :

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LESSON - 4

INTERNATIONAL LIQUIDITY AND INTERNATIONAL RESERVES

LEARNING OBJECTIVES :

After studying this chapter, you should be able to:

- Understand the concepts of international liquidity and international reserves.
- To comment on the IMF's role in improving international liquidity.

STRUCTURE :

4.1 INTRODUCTION :

International liquidity refers to those financial resources and facilities that are available to a country for financing the deficit in its balance of payments. The various components of international liquidity are gold and foreign currencies held by the monetary authority of a country, borrowing facilities available from the IMF, special drawing rights (SDRs), the borrowing capacity of the country in the international market, and so on. Thus, the term "international liquidity" refers to the country's international reserves as well as its capacity to borrow in the international market. Where gold is held as a reserve asset, its market value is listed, but gold cannot be directly used to settle payments between central banks. In other words, gold is no longer used to settle international payments.

Official reserve holdings may include some foreign currency that is universally acceptable and convertible. Throughout the latter part of the nineteenth century, the British pound served as a universally acceptable currency alongside gold, into which it was convertible. Subsequently, the U.S. dollar has rivaled the GBP as a world currency. Any currency which is to serve satisfactorily as a reserve currency for other countries should satisfy certain conditions. It must be the currency of a great trading nation. The currency should be easily acquired via normal trade. It must have a stable value, or at least, in a world where currencies are losing value, it must lose value no faster than other currencies. It must be a currency that is supported in its home country by a strong banking system. Such a currency must also be free from recurrent scarcity. Any currency which is a candidate for the international reserve must be close to meeting these criteria, and the extent to which it conforms to them is likely to determine its success.

4.2 MEANING OF INTERNATIONAL LIQUIDITY :

- The academic circles throughout the world have remained greatly concerned with the problem of international liquidity.
- The problem is, by no means, of a recent origin. One of the basic factors for the breakdown of the gold standard in 1931 was the failure of the leading gold standard countries to cope effectively with the problem of international liquidity, which was created by the inadequacy of gold reserves with the debtor countries and those which had balance of payments deficit coupled with the reluctance to lend on the part of those which were strongly placed in the matter of international payments.
- The pinch of the problem of inadequacy of gold and foreign exchange reserves was felt more particularly in the post-war period when the European countries launched programmes of rehabilitating and reconstructing their economies and the developing world initiated the programmes of economic development. The resultant balance of payment deficits of almost chronic character intensified the pressure of demand for the international exchange media.
- The controversies about the evolution of an acceptable international system of payments became much more intense during 1950's and 1960's. No doubt, a system of Special Drawing Rights has been evolved by the IMF, yet the international economic world remains dissatisfied and the payment adjustments and availability of foreign exchange still remain as the unresolved problems.
- The term 'International Liquidity' means all the financial resources and facilities that are available to the monetary authorities of individual countries for financing the deficits in their international balance of payments when all other sources of supply of foreign funds prove insufficient to ensure a balance in international payments.
- In the words of Brahamanand, "The term 'International liquidity' refers to the supply of certain categories of financial assets or claims which are created by all the different countries and international financial organisations in the international community, as receptacles of calculable ready purchasing power over all the domestic currencies in vogue".
- The international liquidity may be distinguished from the domestic liquidity. While the latter includes, apart from money, the time deposits, postal savings, co-operative society deposits, treasury bills, short- term bonds, the former, which refers to the various ways by which the different countries can raise their ready purchasing power over the goods of other countries without initially affecting their own trade balance, includes the official reserves, namely gold held by the central banks and treasuries of different countries.
- The international liquidity, however, does not include a great deal of the financing of the international trade, viz., the vast complex of private foreign exchange holdings and bank and trade credits. The credit supplied by the international institutions like the Export-Import Bank, the World Bank, International Finance Corporation and International Development Association for the specific purposes of trade too remain excluded from the international liquidity.
- Form the point of view of an individual country, the international liquidity has the demand and supply aspects. The demand for international liquidity arises out of demand for imported goods and services, capital outflows and unilateral transfers. The supply of liquidity concerns the sources of international liquidity.

- These sources include gold mines in the country, export receipts, capital inflows and unilateral transfers. An excess of demand over supply causes depletion or shortage of international liquidity reserves. On the opposite, an excess of supply over demand would make addition to international liquidity reserves of a given country.
- A distinction can be made between the unconditional and conditional liquidity. The unconditional international liquidity is constituted by a country's official gold stock, its holding of foreign currencies and SDR's, its net position in the IMF and private holding of international assets. In case of all such reserves, there are no conditions or restrictions upon the user's right to borrow.
- The conditional international liquidity consists of borrowed funds of a country from other countries or international lending institutions. The lenders impose certain conditions or restrictions upon the use of funds by the borrowers. The conditions may be concerning specific projects or programmes, repayment provisions and specified economic policies. The purpose for enforcing these conditions is to prevent the misuse of liquidity by the borrowing country.
- In the absence of sufficient amount of international liquidity required to maintain balance of payments equilibrium, the deflation of incomes or the retention of direct controls over trade and payments will have to be resorted to. In the present day world economy, committed fully to the pursuit of full employment and high rates of economic growth, restoration of payments equilibrium through deflationary policies is unimaginable.

Similarly, taking recourse to controls and provoking retaliation from other countries, may prove to be self-offsetting. A proper solution to this problem is to supply the international economy an adequate amount of liquidity. But, unfortunately, the total gold and foreign exchange reserves with the countries other than the United States have dwindled greatly during the post-war decades. It is actually the depletion of international reserves that has forced many countries to persist with direct controls over trade and payments.

4.3 ASPECTS OF INTERNATIONAL LIQUIDITY :

There are three main aspects of international liquidity:

Nature : The outstanding external debts of a country may be settled in three different ways. Firstly, the debts may be liquidated through the transfers of gold or of some currency, universally acceptable and convertible to the creditor country. Throughout the latter half of the 19th century, sterling which was convertible into gold served as a universally acceptable currency, and side by side with gold, it constituted an international reserve. Since 1930's, the U.S. dollar has come to assume the predominant role in the settlement of external deficits.
Any currency which is to serve satisfactorily as a reserve currency must satisfy according to W.M. Scammel the following conditions :

i. It must be the currency of some great trading nation and one which may be earned easily through normal trade and whose balances carry the promise that these may be exchanged for goods both desirable in themselves and for the world demand which exists for them.
ii. The currency must be relatively more stable than other currencies.
iii. The currency must be supported in its home country by great and experienced banking institutions of skill and probity.
iv. The currency must be free from recurrent scarcity.

No currency of the world strictly conforms to these criteria. In the words of Scammel, "These are exacting criteria for an international currency to conform to and it is doubtful if they were met precisely by sterling in its heyday, still less by the post-war dollar. But any currency which is a candidate for international usage must approximate to these criteria and the extent to which it conforms is likely to determine its success."

Secondly, the international payments may be made through what we may call the "accumulation facilities". In this method of debt settlement, a country accepts the payments of debts in the debtor's currency, allowing the proceeds to accumulate in the debtor country as bank deposits or short-term assets. This form of debt settlement is, however, limited by the extent to which foreign countries are prepared to accumulate the currency of the debtor country.

The main instance of it is the accumulation of sterling balances in England for the supply of war materials and services during the Second World War. Such accumulation can be liquidated in various ways. The holder of accumulations may use them to buy goods or services in the country where it has accumulated. These may be used by the holder-country in a third country, which may provide the facility of convertibility into another currency or into all currencies. Another alternative is that these may become permanently funded debts held in debtor country by the creditors.

Thirdly, international debts may be settled by drawing rights upon foreign currencies. These may be in the form of foreign loans to the debtor nation or in the form of outright gifts such as those made by the United States of America under the European Recovery Programme. These may also include the drawing rights upon the International Monetary Fund which is in essence nothing more than a pool of currencies to provide additional drawing rights for member nations and thus raise the world stock of international liquidity.

Size : The consideration of the size of stock of international liquidity is very important, since it represents the resources whereby the existing exchange rate is maintained. The distinction must be made in this connection between the reserves which a country must hold for the purpose of dealing with balance of payments deficits, and the reserves required to sustain a high import surplus attendant upon the programme of economic development.

At present our main concern is with the payments difficulties. But still the necessity of international liquidity cannot be discussed in isolation of its requirements for development. A country which has reserves adequate only for alleviating payments difficulties, may find it difficult to cope with heavy demands of liquidity for financing economic development.

i. The aggregate world reserves of international liquidity necessary for smooth operation of the world payments are contingent upon the following three factors:

ii. The policies of leading economies, with regard to exchange rates are important. A larger world stock of international liquidity will be required under a regime of fixed exchange rates. In such a situation, even at equilibrium levels, more reserves will be required than in case of flexible exchange rates.

The policies of the leading economies with regard to the control of their levels of income and employment also help determine the optimum level of reserves. In a fully employed economy, the balance of payments deficit can be met through a deflation of income.

If the government in that country is committed to maintain a high level of income and employment, deficits must be met through drawings upon reserves. "As long as", says Scammel, "deflation as a means of balance adjustment is foresworn by the great economies,

they must be prepared for recurrent calls upon national currency reserves and must accumulate reserves large enough to meet these."

iii. The character of international trade— whether it is bilateral or multilateral, also influences the optimum size of international reserve holdings. If a mechanism of fully convertible currencies exists, the holding of a single national reserve of gold and currencies will be capable of liquidating liabilities in any country. If, on the opposite, the currencies are not convertible, a country must hold a reserve of the currency of every country (or group of countries), with which it trades and with whom it may incur a deficit.

Actually it is very difficult to estimate accurately the amount of international liquidity that a country commands. The published figures include only gold and foreign exchange in the hands of the monetary authority as the only known categories of reserves. It is not possible to assess accurately the quantum of reserves a country can draw upon in a situation of dire need.

For instance, when in the autumn of 1956 speculative pressure against sterling threatened the reserves, it was known that the British government could muster actual reserves greatly in excess of published figures of gold and dollars in the Exchange Equalization Account.

Distribution : The world stock of international liquidity must be ideally distributed among the countries in relation to their needs, which can be determined by the degree of fluctuation to which a country's balance of payments is subject, the volume of its trade and the requirements of its development. The present state of distribution of liquidity is by no means ideal.

- ❖ The underdeveloped world is in a dire need of liquidity both for the payments adjustments and economic development. But the resources available to them are utterly inadequate as compared with the excessive stocks of liquidity held by the more developed countries.
- ❖ The problem of the inadequacy of international liquidity is evident from the increasing balance of payments difficulties and poverty of the individual countries. It also fully impresses the fact that the media of international payment—gold and foreign exchange reserves—have failed to grow at a rate fast enough to meet the growing demand for them. This has been reflected in a consistently low ratio of reserves to imports for the world as a whole since the early 1950's. On an average, this ratio has been around 31.5 percent during 1970's and 1980's. It reflects an overall liquidity shortage faced by the world community.
- ❖ Although the international reserves (in SDR term) have expanded to a large extent from 46 billion dollars in 1949 to SDR 2170 billion in 2009, yet both the developed and under-developed countries have continued to feel their inadequacy.
- ❖ The problem of international reserves has become so acute that even the leading countries of the world today are under excessive strain. The gravity of the situation can be judged from the fact that the balance of payments compulsions forced even the United States to devalue her currency twice within a short span of 14 months between December 1971 and March 1973.

4.4 ROLE OF IMF IN ENLARGING INTERNATIONAL LIQUIDITY :

There is no doubt that the willingness of advanced countries to reduce their trade surpluses is the real long-term and permanent solution to the problem of international liquidity shortage. But so long as equitable trade arrangements are not made, the satisfactory short-term solution has to be evolved. Since the IMF has been the principal source of the

supply of world liquidity, it has a very vital role in resolving this problem in a satisfactory manner. In order to augment the world liquidity resources, the IMF has adopted various measures from time to time.

Increase in IMF Quotas : With the object of facilitating greater availability of exchange reserves to the member countries, the IMF has raised the member countries' quota from time to time. Upto the close of 1988, there had been eight revisions of IMF quota. The member countries' quota which was just 3.5 billion U.S. dollars originally, had raised upto 205 billion dollars or 145 billion SDR's by the end of 1993. In the Twelfth General Review of Quota in January 2003, the maximum quota of member country was raised to SDR 213.7 billion.

In 2009, the member countries' quota stood at SDR 217 billion, out of which India's share was SDR 4.16 billion. Out of it, about 21 percent was allocated only to the United States and 44 percent to five leading advanced nations. The access to international liquidity for the rest of the world was still inadequate.

Financial Accommodation : The IMF attempts to meet the short-term credit requirements of the members for the adjustment of balance of payments deficits. The member countries can borrow upto 25 percent of their quota almost automatically without any constraint. It is called as gold tranche. In subsequent years, they can borrow 25 percent of their quota each time, called as credit tranche. Such drawings are subject to progressively higher interest rates along with certain other conditions. The repayments have to be made within three to five years.

Raising of the Limit of Borrowing under Credit Tranche : The borrowing limit for the member nations under the credit tranche has been gradually raised over the years. At present the members can draw upto the equivalent of 450 percent of their new quotas on the total net use of Fund's resources. The limit of borrowing is to be reviewed every year. The raising of borrowing limit is a step in the right direction to relieve the shortage of international liquidity.

Standby Arrangements : In 1952, the standby arrangements were introduced to permit member countries assurance of additional reserves in the event of need or emergency. England got the assistance under this arrangement in 1956 after Suez Crisis. The other countries too availed of these arrangements from time to time.

Swap Arrangements : The central banks of the Group of Ten (Group of 10 leading industrialized countries) entered into an agreement in earlier 1960's, under which they could exchange each-others' currencies and also provide short term credit to tide over their temporary balance of payments disequilibrium. Such an arrangement has the approval of the IMF but it is not directly under the purview of it. This arrangement is very limited and cannot help relieve the liquidity shortage faced by the countries other than those included in the privileged Group of ten.

New Credit Facilities : With the object of relieving the international liquidity shortage, the IMF has been expanding credit facilities since 1960's. The new credit facilities instituted by it include Compensatory Financing Facility (CFF), Buffer Stock Financing Facility (BSFF), Extended Fund Facility (EFF), Supplementary Financing Facility (SFF), Oil Facility and Trust Fund.

Special Drawing Rights : A revolutionary innovation made by IMF to tackle the problem of international liquidity has been the introduction of the scheme of Special Drawing Rights (SDR's) in early 1970's. This scheme is intended to create and issue the SDR's as unconditional reserve assets.

The IMF creates SDR's at regular intervals and allocates them to the member countries on the basis of each member's quota. For this purpose, the Fund keeps a Special Drawing Account. A country can have easy access to the reserves of any currency by agreement and the intermediation of IMF. The transfer of reserves from one member to the other upto the limit of borrowing country's quota is facilitated through book entries in the Special Drawing Accounts of the borrowing and lending countries. In all these transactions, the IMF acts like a clearing house. Initially the Fund created SDR 9.3 billion over the three years between 1970 and 1972, allocating them to 112 participants in the SDR scheme. In 1978, the Fund decided to raise them by SDR 4 billion in each of the years 1979, 1980 and 1981. In 2009, allocation of SDR's by the IMF among the member countries stood at SDR 217 billion.

Although IMF has acted as the principal source of international liquidity creation and distribution, and it has achieved also some measure of success, yet the problem of international liquidity is still far from being resolved. The surplus countries even at present are not willing to recognise that their accumulations of large exchange reserves are the root cause of the whole problem and the solution of the problem of inadequacy of international liquidity fundamentally rests in the reduction of their surpluses. Unless they do recognize this fact and do reduce their surpluses, the LDC's cannot get rid of their deficits and the problem of international liquidity will continue to plague the international trade relations.

4.5 THE PROBLEM OF INTERNATIONAL LIQUIDITY :

The problem of international liquidity is associated with the problem of international payments. These payments arise in connection with international trade in goods and services and also in connection with capital movements between one country and another. International liquidity, in fact, refers to the generally accepted official means of settling imbalances in international payments. In its simplest form, thus, international liquidity is comprised of all reserves that are available in the monetary authorities of different countries for meeting international disbursements. Under the present international monetary order, among the member countries of the IMF, the chief components of the international liquidity structure are taken to be:

1. Gold reserves with the national monetary authorities — central banks — and with the **IMF.**
2. Dollar reserves of countries other than the USA.
3. Sterling reserves of countries other than the UK.

It should be noted that items (2) and (3) are regarded as key currencies of the world and their reserves held by member countries constitute the respective liabilities of the USA. and the UK. More recently, Swiss francs and German marks also have been regarded as ‘‘key currencies.”

4. IMF tranche position which represents the “drawing potential” of the IMF members.
5. Credit arrangements (bilateral and multi-lateral credit) between countries such as “swap agreements” and the “Ten” of the Paris Club.

Of all these components, however, gold and key currency like dollar today assumes greater significance in determining the international liquidity of the world. Broadly speaking, the problem of international liquidity has two aspects: quantitative and qualitative. The quantitative aspect of the problem relates to the adequacy of international liquidity. The qualitative aspect of the problem pertains to the nature and composition of international reserves for liquidity. A major source of worry in maintaining international economic relations is the quantitative aspect of the problem of international reserves. It is generally

feared that in future there is likely to arise a shortage of international liquidity. It is regarded that there is no guarantee that the present international monetary system will automatically provide an increase in the supply of international liquidity over the years to finance the expanding volume of international trade and payments. As such, the total quantity of international reserves under the present international monetary system is going to be extremely inadequate for the world's future demands.

Briefly, though there is no shortage of international liquidity at present it is feared that in future there will be a shortage of international means of payment, under the existing system of international monetary mechanism, which is bound to disrupt trade and international economic relations. This fear is the logical outcome of the slow growth of gold reserves in relation to the rate of increase in international trade and transactions and expanding international payments. The present payments system is essentially a gold exchange standard, one with a rather high ratio of gold in official monetary reserves. The gold base on which this payment system is based cannot increase by more than about two per cent per annum on an average. This rate of increase of gold reserves is considerably less than the rate of increase in the volume of international payment. It has been estimated that the volume of international trade and resulting payments have been expanding at more than double the rate of gold reserve expansion, i.e., about 58 per cent per annum. Naturally, then, there is bound to emerge a liquidity gap, "inadequacy", posing a serious problem of international liquidity.

In its qualitative aspect, the problem is related to the use of the dollar and sterling as reserve components. The U.S. dollar and the pound sterling are the principal reserve currencies or "key currencies" because of their role as the major trading currencies for carrying out a large number of international trade and investment transactions. However, since World War II, the world's international payments system has received its main support from the willingness of the world to hold dollar and use it as an international currency. Thus, today, dollar supply plays a pivotal role in determining the total reserves for international liquidity. In the composition of international liquidity, we now find that gold and dollar plus sterling — key currencies — are the major components.

But, since gold cannot be increased very much the requirements of growing international reserves may be sought to be met by increasing the supply of key currencies. Now, if currencies form an increasing part of international reserves, this implies an increase in relation to their gold stock of the liquid liabilities of the countries whose currencies are held as reserves by other countries.

But, should these liquid liabilities grow beyond the gold reserves owned by the reserve currency countries, confidence may be seriously weakened in their continued ability to maintain the par values of their currencies and the stability of the international payments system may be undermined. This is the precise situation which confronts the U.S. dollar today. As a matter of fact, the U.S. balance of payments deficits on capital account have added to the world's reserves, but its recent deficits have created a sense of insecurity about the future. Since 1959, the U.S.

Balance of payments has turned adverse and she has been losing gold. This loss of her gold was temporarily halted by the sale of gold by the USSR and later by the restoration of confidence through bilateral "swap" credit agreements and stand-by drawing arrangements with the IMF. However, there is a fear that if the situation is not substantially improved, European countries which have been accumulating dollars only as an act of persuasion, may any time start converting them into gold. If this happens, the USA. might lose large quantities of gold and the dollar might have to go off the gold link as the £ (pound). Sterling was forced

off the gold standard on September 21, 1931. In fact, confidence in dollar is weakening with a decline in American gold holdings.

Thus, there is the international liquidity dilemma. Under the present monetary set up, an increase in the supply of international liquidity commensurate with increased demand for liquidity due to the expanding world trade and transactions has been dependent on the USA's willingness to incur continuing deficits in its balance of payments. But persistent deficits in USA's balance of payments of the sort that involve accumulating dollar reserves with the European countries may disincline the latter to keep their international reserves in the form of dollars. They may start converting their dollar reserves into gold.

This may precipitate a crisis in the European dollar market. This crisis may further reduce United States gold holdings which in turn may generate lack of confidence in the stability of the gold value of the dollar. It may further accelerate a rush for gold. To avoid this danger, the balance of payments deficit of the USA has to be reduced. And if she reduces this deficit, to those extent worlds liquidity reserves will also be depleted under the present international monetary system. Another repercussion is that when the United States will reduce its grants of loans to newly-developing countries in order to improve her balance of payments, these countries will also have to make undesirable cuts in their development programmes. The problem of bridging the gap in the US balance of payments is, thus, interlinked with the problem of international liquidity.

4.6 FOREIGN EXCHANGE RESERVES: TOP 10 EMERGING ECONOMIES (END-MARCH 2008) :

The main purposes of holding foreign exchange reserves are :

i. to maintain public confidence in the capacity of the country to honor its international obligations; and
ii. to increase the capacity of the monetary authority to intervene in the foreign exchange market. In other words, foreign exchange reserves are mainly held for precautionary and transaction motives, and for achieving a balance between demand and supply of foreign currencies.

India faced a foreign exchange reserve crisis in the early 1990s, as the reserves were quite inadequate even for the essential needs of the country. At the end of March 1991, India's foreign exchange reserves were meager at just USD 5.8 billion. This was one of the factors behind the country embarking on the liberalization process and it resulted in the opening of the economy for foreign investments.

Following liberalization, the foreign exchange reserves of the country have increased at a fast pace. Foreign direct investments, ECBs, and portfolio investments have contributed enormously to the foreign exchange reserve kitty of the country. India had foreign exchange reserves of USD 309.723 billion at the end of March 2008, as against USD 199.179 billion at the end of March 2007. In terms of the cover of the total current account payments, the foreign exchange reserves were equivalent to 11.6 months at the end of March 2008 as against 9.5 months at the end of March 2007.

This increase reflects better economic performance on the government's part and is also a mark of financial strength. However, among the top ten emerging economies (EMEs), India stands at the third position (see Table 4.1), after China and Russia. Compared with China's foreign exchange reserves of USD 1682.2 billion, India is far behind. India cannot afford to

be complacent about its achievement in foreign exchange reserves as there is still much to be desired.

Table 4.1 Foreign exchange reserves: Top 10 emerging economies (end-March 2008)

Rank	Emerging economies	Forex reserves (USD billion
1	China	1682.2
2	Russia	493.3
3	India	309.7
4	Taiwan	286.9
5	South Korea	264.2
6	Brazil	195.3
7	Singapore	177.6
8	Hong Kong	160.2
9	Malaysia	120.0
10	Thailand	107.5

Source: Reserve Bank of India, Annual Report 2007–08.

Some countries may have a liquidity surplus while others may be in a liquidity deficit. One can find liquidity surplus pockets as well as liquidity deficit pockets in the world at any moment. If international reserves do not grow as fast as international trade, it will result in a global shortage of liquidity. The other side of the coin is that a vast build-up of reserves carries costs. Foreign exchange reserves are typically invested in low-yielding securities or deposits. During the year 2006–07, the return on foreign currency assets, after accounting for depreciation, was about 4.6 per cent. Further, huge foreign exchange reserves may also fuel inflation in the economy. Let us look at some ways to determine how much forex reserve is adequate for a country.

4.7 MEASURES OF ADEQUACY OF FOREIGN EXCHANGE RESERVES :

There are several indicators of the adequacy of foreign exchange reserves. Some of them are :

i. A rule of thumb that has evolved with the current account deficit, particularly for developing countries, is that foreign exchange reserves should be equal to at least three months of imports. This measure is more useful in situations where capital flows are strictly controlled. This is called import adequacy.

ii. In the context of a large volume of debt servicing, it is recommended that payment liabilities, in addition to imports, should be considered while determining the target level of reserves. This is called debt adequacy.
iii. In the context of volatility of capital flows, reserve adequacy can be measured in terms of a ratio of short-term debt and portfolio stocks to reserves. With such a cushion of reserves, in the event of a reversal of capital flows, the monetary authority would be able to prevent a precipitous depreciation of the exchange rate. This is called capital adequacy.
iv. Another measure of reserve adequacy is the net foreign exchange assets to currency ratio. This would prevent unwarranted expansion of currency and ensure remedial measures are put in place long before a balance of payment deficit reaches crisis levels. This is called monetary adequacy.

These alternative indicators of reserve adequacy should provide enough safeguards to countries to arm themselves against any contingency. Though it is very difficult to define the optimum level of reserves in terms of a quantifiable norm, a country may set its own reserve level by keeping in view:

i. The structural aspects of its balance of payments.
ii. The nature of shocks.
iii. The degree of flexibility in the exchange rate regime; and
iv. Its access to the international capital market.

The more open an economy and the greater the variability of its trade, the greater is the need for reserves. For example, a country that depends heavily on exports may have more volatile export earnings and, therefore, needs a good cushion of foreign exchange reserves. On the other hand, a country that has good access to international capital needs fewer reserves. However, it has been observed that a country that holds higher reserves usually prospers less than it logically should.

When a country is open to international trade and investments, it may face frequent ups and downs in its balance of payments. In other words, a country may be susceptible to a foreign exchange crunch as it becomes more open. The IMF has instituted several schemes to guard against such an eventuality. The scheme of creation and allotment of SDRs to member countries has helped many countries in solving the problem of international liquidity. The other initiatives under which the IMF can help countries increase their international liquidity are the compensatory financial facility, the buffer stock facility, the extended financing facility, and supplementary financing.

The management of international reserves should constantly include assessments of the benefits and costs of holding reserves. The main benefit of holding reserves is that it helps in preventing external crises. The cost is mostly the opportunity cost, which is the forgone return on investment. The reserves may be invested in assets of top quality, but a good proportion of reserves need to be easily convertible into required resources.

Among various currencies that form the world's foreign exchange reserves, the U.S. dollar is dominant, with more than a 65 per cent share, followed by the euro, the Japanese yen, and the British pound. With the decline in relative importance of gold as an international means of payment, the importance of currencies like the U.S. dollar, the British pound, and the euro has grown quite significantly. Although foreign currency assets are maintained as a multicurrency portfolio, they are valued in U.S. dollars.

4.8 DEPLOYMENT OF FOREIGN CURRENCY ASSETS :

As per the Reserve Bank of India Act, 1934, foreign currency reserves can be deployed in deposits with other central banks, the Bank for International Settlements (BIS), top-rated foreign commercial banks, securities representing debt of sovereigns and supra-national institutions with residual maturity not exceeding 10 years, and any other instruments or institutions approved by the central board of the Reserve Bank of India.

The deployment pattern of India's foreign currency assets for 2007 and 2008 is shown in Table 4.2. At the end of March 2008, India had foreign currency assets worth USD 299,230 million as against USD 191,924 million at the end of March 2007. It may be noted that as the foreign currency assets are denominated in USD, the movement of the USD against other currencies in which foreign currency assets are held also influences the level of foreign currency assets. As can be observed from the table, most foreign currency assets are in the form of deposits with other central banks, the Bank for International Settlement, and the IMF. The guiding principle in the deployment of foreign exchange reserves is one of stable returns with low risk.

Table 4.2 Deployment pattern of India's foreign currency assets (USD million)

Deployment of FCAs	**31 March 2007**	**31 March 2008**
(a) Securities	52,996	103,569
(b) Deposits with other central banks, BIS, and IMF	92,175	189,645
(c) Deposits with foreign commercial banks/funds placed with external asset managers	46,753	6,016
Total FCAs	191,924	299,230

Source: Reserve Bank of India, Annual Report 2007–08.

4.9 STERILIZATION :

The central bank of a country buys or sells foreign currency to set right the temporary mismatch between the demand and the supply of a foreign currency. Such intervention in the market affects the money supply in the economy. The purchase of foreign currency by the central bank will have an expansionary impact, and the sale of foreign currency will have a squeezing impact on the money supply, which in turn has implications for price stability and financial stability in the economy. For example, the Reserve Bank of India may purchase U.S. dollars from the market to create demand for U.S. dollars and thereby prevent the U.S. dollar from depreciating against the INR. When the central bank buys U.S. dollars, it releases fresh INR into the economy. The sterilization keeps the base money and the money supply unchanged, and thereby avoids the undesirable expansionary effects of capital inflows. If the central bank has enough international reserves, it can sterilize the money supply in the economy.

Sterilization is the process of neutralizing the additional money supply in the economy.

To neutralize the impact of excess foreign exchange inflows, and capital flows in particular, the Reserve Bank of India has mopped up the excess liquidity in the economy through open market operations. However, the intervention of the RBI in the foreign exchange market has been relatively small, which is evident from Table 4.3. Especially in recent years, the RBI's intervention has remained very low. In other words, the external value of the INR has been largely influenced by market forces. In addition to direct intervention in the foreign exchange market, the RBI has initiated several steps to manage the excess liquidity in the economy that is caused by foreign exchange inflows. These include a phased liberalization of the policy on current and capital accounts, issuing of Government of India–dated securities/treasury bills, and increasing the cash reserve ratio. In the process of managing the liquidity in the economy, the Reserve Bank of India has also announced a host of measures to liberalize overseas investments.

Table 4.3 Low intervention by the RBI

Year	Intervention (in USD billion)	Percentage of intervention to forex market turnover
2002–03	45.6	2.9
2003–04	80.4	3.8
2004–05	41.9	1.4
2005–06	22.3	0.5
2006–07	24.5	0.4

Source: Reserve Bank of India, Report on Currency, and Finance 2005–06, 2007.

4.5 SUMMARY :

The IMF looks after international liquidity. Initially, it was dependent upon the size of the global holding, the strength of the intervention currency, The US dollar, and the size of reserves pool with the IMF. In the early years of the IMF, there was no problem of international liquidity but with the weakening dollar and with the growing need of the member countries to meet the current account deficit, it proved in adequate. Thus, SDR's were created to substitute gold to enhance the strength of the reserves in the subsequent period. The creation of SDR's and their allocation enhanced international liquidity. Moreover, the various facilities created by the IMF for the purpose of balance of payments support eased the problem of liquidity.But the question of how far the balance of payments problem of the developing member countries has been really solved, remains unresolved.

4.6 TECHNICAL TERMS :

- **International Liquidity :** It refers to those financial resources and facilities that are available to a country for financing its balance of payments deficit.

- **Sterilization :** It refers to the process of neutralizing the additional money supply in the economy.

4.7 SELF-ASSESSMENT QUESTIONS :

1. What is the Meaning of International Liquidity ?
2. Discuss various Aspects of International Liquidity.
3. What is the Role of IMF in Enlarging International Liquidity?
4. What do you mean by sterilization? Why is sterilization required?
5. What is international liquidity? What constitutes international reserves?

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LESSON - 5

FOREIGN EXCHANGE RATE QUOTATIONS AND PRACTICES

LEARNING OBJECTIVES :

After studying this chapter, you should be able to:

- Gain insight into developments in the world economy that have influenced the foreign exchange market.
- Delve into the nature and operations of the foreign exchange market.
- Understand the meaning of foreign exchange rates and the process of quoting such rate
- Gain an overview of the foreign exchange market in India.

STRUCTURE :

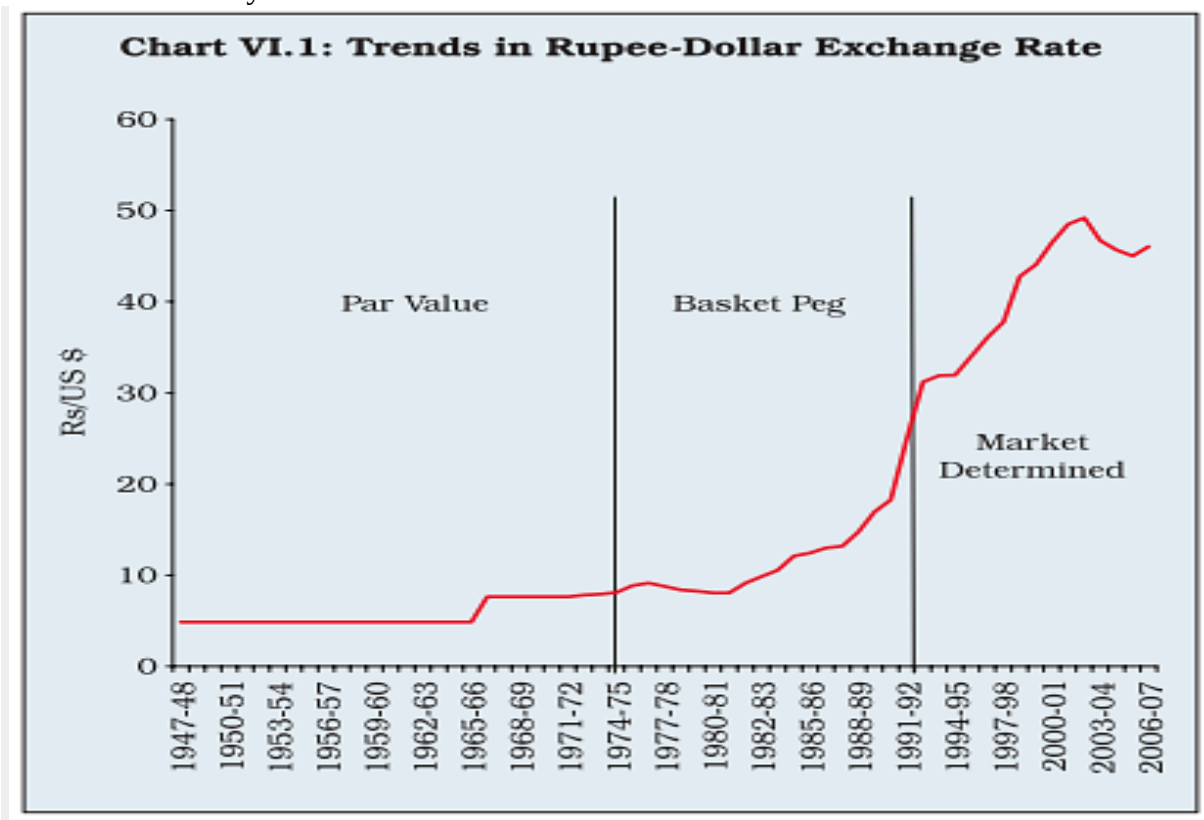
5.1 INTRODUCTION :

i. **Indian Foreign Exchange Market - Indian Economy Notes :** The Indian Foreign exchange market is where you may buy and sell other countries' currencies. The exchange rate of a currency is determined by the economy based on trades in other currencies. This is an institutional framework that permits the exchange of one national currency for another. In this article, we will study about Indian Foreign exchange market, which is important for UPSC Examination.

ii. **Foreign Exchange Market**: The Foreign Exchange Market, commonly known as the Forex market or the currencies market, is a global marketplace where currencies are traded. The value of currencies around the world is determined by the foreign exchange market. The foreign exchange market is a digital system that does not have a physical location. In the foreign exchange market, currency trading is always done in pairs, therefore the value of one of the currencies in the pair is related to the value of the others. This global market is divided into two levels: interbank and over-the-counter. It helps to provide international liquidity as well as relative, desired stability.

5.2 INDIAN FOREIGN EXCHANGE MARKET : A HISTORICAL PERSPECTIVE :

a. Early Stages: 1947 – 1977: The evolution of India's foreign exchange market can be connected to the country's exchange rate regulations, which have shifted from a par value system to a basket-peg and then to a managed float exchange rate system over the last few decades. India used the par value exchange rate system from 1947 to 1971. The external par value of the rupee was initially set at 4.15 grains of pure gold. Using pound sterling as the intervention currency, the Reserve Bank kept the rupee's par value within the allowed margin of 1%. For instance, if 4.15 grains of pure gold cost £ 0.25 (pound sterling), then 1 rupee was equated to it. therefore the exchange rate would be £ 1 = Rs.4. The par value of the rupee in terms of gold was reduced to 2.88 grains of fine gold in September 1949 and 1.83 grains of fine gold in June 1966, respectively, as a result of the devaluation of the rupee in terms of gold. Between 1966 and 1971, the rupee's exchange rate remained unchanged. Given the fixed exchange regime during this period, the foreign exchange market for all practical purposes was defunct. Only cover activities were permitted, and banks were required to maintain a square or 'near square' position at all times. The Foreign Exchange Regulation Act, which was first adopted in 1947, was made permanent in 1957. With the decline of the Bretton Woods System in 1971 and the floatation of major currencies, all central banks around the world faced a serious challenge in conducting exchange rate policy, as currency fluctuations provided enormous opportunities for market participants to trade currencies in a borderless market. The rupee was tied to the pound sterling in December 1971. The rupee has stayed constant against the dollar since the Smithsonian Agreement of 1971 set sterling in terms of the US currency.



Trends in Rupee-Dollar Exchange Rate :

b. Formative Period: 1978-1992:

i. The Reserve Bank of India approved intra-day foreign exchange trading in 1978, and banks were required to maintain a "square" or "near square" position only at the end of business hours each day.

ii. The rupee's exchange rate was officially determined by the Reserve Bank in terms of a weighted basket of currencies of India's major trading partners during this time, and the exchange rate regime was characterized by the Reserve Bank's daily announcement of its buying and selling rates to Authorised Dealers (ADs) for merchant transactions.

iii. In 1981, the 'Guidelines for Internal Control over Foreign Exchange Business' were drafted for banks to adopt.

iv. However, until the early 1990s, India's foreign exchange market was heavily regulated, with limitations on external transactions, entrance barriers, poor liquidity, and high transaction costs.

v. During this time, the exchange rate was mostly maintained to facilitate India's imports.

vi. The Foreign Exchange Regulations Act (FERA) imposed severe controls on foreign exchange transactions, resulting in one of the world's largest and most efficient alternative foreign exchange markets, the hawala (unofficial) market.

c. Post-Reform Period: 1992 onwards :

i. This period witnessed plenty of reforms aiming at broadening and strengthening the foreign exchange market as well as liberalizing exchange control regimes.

ii. To counter the significant loss in foreign exchange reserves, inspire confidence among investors, and increase domestic competitiveness, a two-step downward exchange rate adjustment of 9% and 11% was implemented between July 1 and 3, 1991 as a stabilization measure.

iii. In July 1991, a two-step exchange rate adjustment effectively brought the pegged exchange rate regime to an end.

iv. The fundamental foundation for external sector changes was spelled forth in the Report of the High-Level Committee on Balance of Payments after the Gulf crisis in 1990-91. (Chairman: Dr. C. Rangarajan).

v. The Liberalised Exchange Rate Management System (LERMS) was implemented in March 1992, originally with a dual exchange rate system, in response to the Committee's recommendations to move toward a market-determined exchange rate.

vi. All foreign exchange receipts on current account transactions (exports, remittances, and so on) have to be surrendered in full to Authorised Dealers (ADs) under the LERMS.

vii. The LERMS was essentially a transitional mechanism, with the official exchange rate being adjusted downward in early December 1992 and the ultimate convergence of the dual rates taking effect on March 1, 1993, leading to the adoption of a market-determined exchange rate regime.

viii. In March 1993, the dual exchange rate system was replaced by a single exchange rate system, allowing all foreign exchange receipts to be converted at market-determined exchange rates.

ix. The reform phase began with the Sodhani Committee (1994), which offered various proposals to loosen rules in order to revitalize the foreign currency market in its 1995 report.

d. FEMA (Foreign Exchange Management Act) :

i. The Foreign Exchange Management Act was enacted by the Indian Central Government to facilitate external payments and cross-border trade in India.
ii. FEMA (Foreign Exchange Management Act) was established in 1999 to replace FERA (Foreign Exchange Regulation Act). FEMA was created to address all of the flaws and shortcomings of FERA (Foreign Exchange Regulation Act), and as a result, it enacted a number of economic reforms (major reforms).
iii. FEMA was created primarily to de-regulate and liberalize India's economy.

5.3 LIBERALISED EXCHANGE RATE MANAGEMENT SYSTEM (LERMS) :

i. LERMS (Liberalized Exchange Rate Management System) was a new exchange rate management system. The Reserve Bank of India (RBI) purchased 40 percent of the proceeds of exports and inward remittances at the official exchange rate for official use under this scheme.
ii. Following the recommendations of the C. Rangarajan Committee, the Liberalized Exchange Rate Management System (LERMS) with the dual exchange rate was implemented. It came into effect on March 1, 1993.

5.4 IMPORTANCE OF FOREX RESERVES :

i. If Foreign exchange reserves rise and assist the RBI in managing India's external and domestic financial concerns during a period of a severe slowdown in economic development, the government will be in a favorable position.
ii. It assists the government in meeting its foreign exchange needs as well as its external debt obligations.
iii. The rupee's strength against the dollar has been boosted by rising foreign exchange reserves.
iv. In the case of a Balance of Payments crisis, increasing Forex Reserves acts as a cushion.
v. Markets and investors will have faith in a country's ability to meet its external obligations if it has sufficient forex reserves.

5.5 TYPES OF FOREIGN EXCHANGE MARKET :

Spot Market :

i. On the spot market, transactions involving currency pairs take to occur. It happens promptly and without a hitch.
ii. The transactions need rapid payment at the spot rate, which is the current exchange rate.
iii. Traders in the spot market are not susceptible to market uncertainty, which might cause a price difference between the agreement and the trade to increase or drop.

Future Market :

i. Futures market transactions need payment and distribution in the future at a previously agreed-upon exchange rate, referred to as the future rate.
ii. The transaction or agreement is more formal in nature, guaranteeing that the transaction's conditions are set in stone and cannot be altered.
iii. Traders who handle the majority of the transactions earn a stable return on their investments.
iv. Because they are standardized in terms of date, features, and size, these contracts cannot be negotiated.

Forward market :

i. Forward market trades are comparable to future market transactions.
ii. In this situation, the parties will negotiate the transaction's conditions, and the parties' agreed-upon terms can be modified and updated as needed.
iii. The forward market has more flexibility than the futures market.

Swap Market :

i. When two investors borrow and lend two distinct types of currencies at the same time, this is known as a swap transaction.
ii. In this scenario, one investor borrows a currency and pays the other in a different currency.
iii. The transaction is carried out so that they can pay off their debts without having to cope with the risk of foreign exchange.

Option Market :

i. The investor agrees on the currency of exchange from one denomination to another at a specified rate and on a specific date in the options market.
ii. The investor has the option to convert the currency at a later time but is not obligated to do so.
iii. Call and put options are the two types of options available. A put option gives you the choice to sell, whereas a call option gives you the opportunity to buy.

5.6 FOREIGN EXCHANGE MARKET – BENEFITS :

- **Low-Cost Transactions :** In these markets, there are no commissions. Unlike other investment alternatives, FOREX traders only charge a minimal fee. The difference between the purchasing and selling prices of currencies is the only cost of trading in the forex market. Because the costs are low, the risk of losing money is likewise low, allowing even modest investors to profit from trading.
- **Increased Leverage :** In the FOREX market, you can sell on margins, which are technically borrowed cash. The value of your investment is large because the rate of return on your investment is expanding rapidly. Trading with leverage (borrowed money) on the FOREX market can result in significant losses if the market goes against you. Trading foreign exchange is a two-edged sword. If the market is on your side, you will make a lot of money; if the market is against you, you will lose a lot of money.
- **Exceptionally Transparent :** The Indian foreign exchange market is open and transparent, with traders having full access to market data and information needed to complete transactions. Traders that trade on open markets have greater control over their investments and are better able to make informed judgments based on the information available to them.
- **Accessibility of the FOREX Market :** If you have an internet connection, you can access your foreign currency trading account from anywhere. You can trade at any time and from any location you like. The FOREX market has an advantage over other markets in that it allows dealers to time their trade activities.
- **High Liquidity :** The most liquid financial market on the planet is the foreign exchange market. It entails the international trade of multiple currencies. All traders on this market have complete freedom to purchase and sell currencies at any time. They have complete freedom to swap currencies without altering the rates of the currencies they are trading. Currency prices remain stable during order placement and execution, allowing you to profit at the predicted rates.

The foreign exchange market has witnessed unprecedented growth following developments that have taken place in the world economy over the last two decades. These developments, such as the introduction of the World Trade Organization (WTO), the globalization of trade, growth in international investments, and the consequent expansion of international trade, have brought about a perceptible transformation in the size, structure, coverage, and operations of the foreign exchange market.

The General Agreement on Tariffs and Trade (GATT) and the subsequent creation of the WTO have brought about a surge in international trade and cross-border investments. The WTO has been reasonably successful in dismantling many international trade barriers and in extending the scope of international trade to include a variety of commodities and services. Reductions in tariffs, controls, and quotas and the removal of other impediments have resulted in a phenomenal increase in international trade. With the entry of many commodities into the international market and the increasing proportion of services in international trade, the depth and breadth of international trade have increased tremendously in the twentieth and, especially, the twenty-first centuries.

Globalization of trade, which is based on the *theory of comparative advantage* propounded by David Ricardo, is another factor that influences the foreign exchange market to a great extent. According to Ricardo, countries can benefit by exploiting the comparative advantages in efficiency that arise from specialized production and economies of scale. Although globalization benefits every nation, countries with dynamic leadership, wide entrepreneurial class, and discerning buyers can gain a competitive advantage in the globalization process.3

Parallel to international trade, there has been tremendous increase in international investments. In fact, in some countries, foreign investments have exceeded domestic investments. The increase in the number of multinational corporations (MNCs) has also contributed to a substantial rise in foreign direct investments. In the early days, MNCs aimed at exploiting raw materials found overseas. Later, they began investing in countries with potential markets for their products. These days, MNCs seek out and invest in countries where they can create and maintain a competitive advantage.

The liberalization and privatization policies of some countries, the former socialist countries in particular, have spurred a tremendous increase in cross-border investments. Formal arrangements among countries of various regions, such as the European Union (EU), the North American Free Trade Agreement (NAFTA), the Association of South-East Asian Nations (ASEAN), and the Asia-Pacific Economic Cooperation (APEC), have also promoted economic integration. The introduction of the euro has had a profound effect on the world economy. Developments such as increasing financial disinter-mediation, a surge in mergers and acquisitions (M&A), and cross-border alliances among financial services providers have brought about revolutionary changes in the world economy, particularly in financial markets. Many countries have relaxed or repealed acts that restricted the activities and operations of financial institutions, including commercial and investment banks. The reduction of barriers to capital flow across countries has enabled corporations to raise capital in markets and currencies they find attractive. Financial service providers have thus been able to go global and bring about robust changes in the world of finance.

The expansion of international trade has caused financing needs to expand, which, in turn, has encouraged the development of new financial products. This has also made financial markets grow larger and more integrated, sophisticated, and efficient. A shortage of funds may compel capital-scarce countries to shelve even high-yielding projects. Cross-border investments can help these countries avoid such situations. Globalization of investments thus

allows a country where there is little scope for a high rate of return to invest its surplus resources in countries where there are better investment opportunities. It also enables countries to maximize their production of goods and services and provide opportunities to investors worldwide to maximize the return on their investment while reducing their risk by diversification. Thus, the developments in international trade have channelled cross-border investments into many new sectors of the world economy and created many challenges for business. At the same time, they have also created opportunities to increase returns while lowering risks.

International trade and investments have a profound effect on the foreign exchange market, but the reverse is also true. An example will help illustrate this relationship. International trade and investments cause a large flow of foreign currencies across countries, influencing the breadth and depth of the foreign exchange market. However, the foreign exchange market also influences international trade and international investments. Stability in exchange rates can facilitate robust growth in international trade and investments, while exchange-rate volatility can have an adverse effect on both trade and investments. This is thus a two-way relationship.

We shall discuss some of the developments outlined here in greater detail throughout the book. This chapter describes the foreign exchange market, discusses the mediums of exchange in this market, and explains its importance, structure, and operations. Some recent trends in the foreign exchange market and the structure of the Indian foreign exchange market are also discussed in the chapter.

5.7 MONEY AS A MEDIUM OF EXCHANGE :

In the past, the value of a commodity or service was expressed in terms of some other commodity or service. For instance, under the barter system, the value of a commodity like paddy could be expressed in terms of say, pulses; the value of apples could be measured in terms of a certain number of oranges; and so on. In the monetary world, however, the value of every commodity or service is expressed in terms of money. Money is a measure of value for all goods and services. By convention, the value of money is measured in terms of its purchasing power of goods and services. Money is thus a medium of exchange for most things in the world.

Different countries have different currencies as their monetary unit. For example, the Indian rupee is the currency or monetary unit in India, and the value of all goods and services in India is measured and expressed in terms of Indian rupees. Similarly, the U.S. dollar is the currency in the United States and the value of all goods and services in the United States is measured and expressed in terms of this currency. Although the terms *money* and *currency* have different connotations in economic terms, no distinction is observed between them in common parlance.

People in different countries can use their respective currencies as the medium of exchange for all goods and services within the geographical borders of their countries. However, when people from one country buy goods made in a foreign country or engage in financial transactions abroad, they usually need the currency of that country. In such situations, it should be possible to acquire the required amount of the foreign currency by exchanging a specific amount of domestic currency for it. There would be no need for foreign currency and a foreign exchange market if all the nations in the world were to have a single currency. However, since it is not practical to have a single currency for all nations (although the introduction of the euro is a step in this direction), it is imperative to have a foreign exchange market.

The International Organization for Standardization (ISO) has developed a system of three-letter codes or abbreviations for all the currencies in the world to facilitate easy and efficient currency trading. The codes under this standard, referred to as ISO 4217, indicate the name of the country and its currency.

5.8 THE FOREIGN EXCHANGE MARKET :

A foreign exchange transaction is a trade of one currency for another currency. The institutional set-up that facilitates the trading of currencies is known as the foreign exchange market, or the forex market or FX market. The foreign exchange market is not located in a physical space and does not have a central exchange. Rather, it is an electronically linked network of a large number of individual foreign exchange trading centres, in which the market participants deal directly with each other. Thus the forex market provides a single, cohesive, integrated, and worldwide market by linking various individual foreign exchange trading centres or markets spread all over the globe.

There is a large number of foreign exchange trading centres in the world as each country has its own centre(s). The functioning of each trading centre is governed by the respective country's laws, tax code, banking regulations, accounting rules, and financial system. Unlike the trading on stock exchanges or commodity exchanges, foreign exchange trading is not governed by any unified body.

Foreign exchange traders carry out their business through a network of communications. Although market participants are geographically for away from each other, high-speed communication systems have an instantaneous impact on market movements, making the foreign exchange market as efficient as other markets. Banks and dealers, who largely constitute the foreign exchange market, are connected by communication networks provided by the Society for Worldwide Interbank Financial Telecommunication (SWIFT). The Clearing House Interbank Payment System (CHIPS) links several banks and dealers involved in dollar currency transactions.

In the past, forex transactions were conducted primarily by telegram, telephone, or telex. But there has been a lot of progress in forex trading in recent years. The latest development in foreign exchange trading is electronic trading— a method of trading that enables market participants, particularly large financial institutions, to set up algorithmic trading systems and provide trading facilities to retail investors. Parties in the foreign exchange market can see bid-ask rates quoted by potential counterparties on their computer screens, match their orders, and make deals electronically. The electronic trading system has all the advantages of voice trading, besides being faster and more reliable. Electronic trading also manages credit lines.
With the advent of high-speed digital data lines and satellite-based communication systems, foreign exchange transactions are now carried out rapidly and in real time. In fact, in most cases of currency trading, there is no physical transfer of paper notes and coins, but a series of book or digital entries made in the accounts of the two parties—buyer of the currency and the seller of the currency—to record their parties—the new positions. In view of developments in computing and communication technologies, particularly in international communications networks, foreign exchange markets all over the world have virtually become one sophisticated global market with more than USD 3 trillion worth of trade taking place every day.

Foreign exchange markets were originally conceived to facilitate international trade. Over the years, these markets have become an integral organ of the world economy. Now, foreign exchange markets are indispensable institutional machinery that facilitates not only cross-border payments but also cross-border capital flows and overseas investments.

The global foreign exchange market is a twenty-four-hour, non-stop market. It has no fixed trading floor, no prescribed working hours, and no single governing authority. Currency trading is carried out round the clock, around the globe. As foreign exchange centres are spread throughout the world, at any given point in time, some centres are closed while others are open for trade. For instance, Europe's morning hours overlap with the late hours in Asia, and Europe's afternoon hours correspond to the morning hours in North America. The different time zones make the global foreign exchange market a real-time market. Some centres are characterized by very heavy trading during certain times when their business hours overlap with those of many other trading centres. For example, the morning business hours of New York and the afternoon business hours of London overlap, and therefore very heavy trading takes place during these hours in these two centres. This happens because participants can have access to the maximum number of potential buyers and sellers when many trading centres are open. London has become the largest foreign exchange trading centre, mainly because of the unique advantage of its business hours over lapping with those of many major foreign exchange trading centres such as New York, Frankfurt, Tokyo, and Singapore. During these overlapping hours, the largest number of potential foreign exchange traders will be available on a global basis. This also provides traders the best prices, in addition to greater market liquidity.

5.9 MARKET PARTICIPANTS :

Who requires foreign exchange? At the primary level, individuals who receive remittances denominated in a foreign currency may sell their foreign currency for domestic currency, and those who travel abroad may buy foreign currency. At the next level, businesses, including corporations engaged in international trade, may buy or sell foreign currency. Governments and other organizations such as banks may also buy or sell foreign currency to carry out their international transactions. Investors, including institutional investors, may also require foreign currency. To allow these individuals and institutions, to buy or sell foreign currencies, certain other institutions and individuals, called *facilitators*, have come to play a role. In market terminology, these facilitators are categorized as primary dealers and brokers. *Primary dealers* act as a principal in a transaction and conduct business in their own account by committing their own funds, while *brokers* act as agents for an actual buyer/seller of foreign exchange and do not commit their own funds. Brokers do not take positions and, therefore, are not exposed to foreign exchange risks. They rely on the brokerage commission or fees that they receive from their clients. Dealers, on the other hand, rely on their bid-ask spread.

Dealers may seek the help of *foreign exchange brokers* who have access to specific information and possess specialized knowledge in the fundamentals and market movements of different currencies. As each broker specializes in a particular currency or currencies, dealers may seek the services of a particular broker who has expertise in a particular currency. Besides bringing the buyer and seller together, brokers provide quick access to information and a wide choice of counterparties. Parties can save time and effort by using brokers in their foreign exchange transactions. Before the advent of electronic trading systems, forex brokers were the main driving force of the market. They may be organized as firms with branches in different countries, or be affiliated with brokers in other countries.

Individuals and organizations that participate in the foreign exchange market may also be classified as hedgers, arbitrageurs, and speculators. *Hedgers* are those who participate in the foreign exchange market to reduce the foreign exchange risk that they already face. They try to insure themselves against adverse foreign exchange rate movements while benefiting from favourable movements. *Arbitrageurs* attempt to make risk-less profits by entering into

foreign exchange transactions simultaneously in two or more market centres. *Speculators* are those who take positions in the foreign exchange market by anticipating whether the exchange rate will go up or down. They take positions to profit from exchange rate fluctuations. It should be noted here that it may sometimes be difficult to distinguish between a speculative activity and a prudent business activity. This is because even firms that restrict their foreign currency operations to their normal business needs may not hedge their foreign exchange exposure at times. So, their uncovered positions in the foreign exchange market may yield profits on the movement of exchange rates. Some participants, including banks and other financial services providers, also seek to derive gains out of fluctuations in foreign exchange rates.

According to the BIS Triennial Central Bank Survey (2007), market participants are broadly classified as dealers, other financial institutions, and non-financial customers. *Dealers* are financial institutions that actively participate in local and global foreign exchange and derivatives markets. These are mainly large commercial banks, investment banks, and securities houses. They participate in the inter-dealer market and/or have an active business with large customers such as corporate firms and governments. *Other financial institutions* comprise smaller commercial banks, investments banks, securities houses, mutual funds, pension funds, hedge funds, currency funds, money-market funds, building societies, leasing companies, insurance companies, and other financial subsidiaries of corporate firms and central banks. The category of *non-financial customers* covers any market participant other than those described in the preceding definition (corporations and governments, for example).

Though there are many kinds of participants in the foreign exchange market, it is the interbank market (trading between the banks) that accounts for a large proportion (43%) of foreign exchange trading. Forty per cent of foreign exchange trading takes place between dealers and other financial institutions, and 17 per cent trading is carried out between dealers and non-financial customers. In fact, there are about 10 major international banks that account for more than 70 per cent of currency trading in the world.

Market Makers : Many dealers in the foreign exchange market act as market makers by offering two quotes—*bid* and ask, or *price to buy* and *price to sell*, for the currencies in which they are dealing. Such quotations are known as *double-barrelled quotations.* Market makers stand ready to buy and sell standard amounts of the currencies for which they are making a market, and seek to make a profit on the spread between the two prices. Thus, market makers contribute to liquidity, price discovery, and price stability in the foreign exchange market by providing a continuous market and price-sensitive information.

Market Segments : The foreign exchange market may be divided into the wholesale segment and the retail segment. The **wholesale segment** is also known as the *interbank market*, as the exchange transactions take place between banks that are the primary dealers. The size of each transaction in the wholesale market is very large. Because of its size, the wholesale market remains the focus of study in international finance.

It consists of commercial banks, investments banks, central banks, corporations, and high-net-worth individuals. Let us discuss these entities briefly.

- **Commercial banks :** Originally, commercial banks used to buy and sell foreign currencies for their customers as part of their financial services. They later took on foreign exchange trading as their principal business. Commercial banks have also found it useful to trade with each other. As commercial banks trade in large volumes

of foreign exchange, the wholesale segment of the foreign exchange market has become an interbank market.

- **Investment banks and other financial institutions :** Although the interbank foreign exchange market was the exclusive domain of commercial banks for a long time, over the last two decades, investment banks, insurance companies, pension funds, mutual funds, hedge funds, and other financial institutions have also entered the foreign exchange market, and have become direct competitors to commercial banks. These new institutions have emerged as important foreign exchange service providers to a variety of customers in competition with commercial banks. Hedge funds, in particular, have become more aggressive in currency speculation. With their dealings in many millions of U.S. dollars every day, hedge funds can influence foreign exchange rates.
- **Corporations and high-net-worth individuals :** Domestic as well as multinational corporations participates in the foreign exchange market to convert their foreign currency—denominated export receipts, foreign borrowings, and foreign remittances into their home currency. They may also buy foreign currency to make import payments, interest payments, and loan repayments, and to invest funds abroad. Some high-net-worth individuals also participate in the foreign exchange market to meet their investment needs.
- **Central banks :** The central banks of different countries may also participate in the foreign exchange market in order to control factors such as money supply, inflation, and interest rates by influencing exchange rate movements in a particular direction. In other words, the intervention of the central bank is warranted when the government wants to maintain target exchange rates or avoid violent fluctuations in exchange rates. Even talk of possible central bank intervention may sometimes lead to stabilization of the exchange rate. Central banks may also use their foreign exchange reserves to intervene in the foreign exchange market.

The Reserve Bank of India (RBI) intervenes in the foreign exchange market, especially to arrest violent fluctuations in exchange rates due to demand-supply mismatch in the domestic foreign exchange market. Sale/purchase of foreign exchange by the RBI is generally guided by excess demand/supply.

In the interbank market, currency notes and coins rarely change hands. The buying/selling of a particular currency is actually the buying/selling of a demand deposit denominated in that currency. Thus, the exchange of currencies is, in reality, the exchange of a bank deposit denominated in one currency for a bank deposit denominated in another currency. For example, a dealer buying yen, no matter where the transaction takes place, is actually buying a yen-denominated deposit in a bank located in Japan or the claim of a bank located outside Japan on a yen-denominated deposit in a bank located in Japan.

The **retail segment** of the foreign exchange market consists of tourists, restaurants, hotels, shops, banks, and other bodies and individuals. Travellers and other individuals exchange one currency for another in order to meet their specific requirements. Currency notes, traveller's cheques, and bank drafts are the common instruments in the retail market. Authorized restaurants, hotels, shops, banks, and other entities buy and sell foreign currencies, bank drafts, and traveller's cheques to provide easy access to foreign exchange for individual customers, and also to convert their foreign currency into their home currency. Individuals who receive foreign remittances and those who send foreign currencies abroad may also participate in the retail segment of the foreign exchange market.

Although the foreign exchange needs of retail customers are usually small and account for a small fraction of the turnover in the foreign exchange market, the retail market assumes great importance, especially for people of small means. This is the reason behind the growing importance of the retail segment. The transaction costs, however, are higher because of the small size of the retail segment.

5.10 FOREIGN EXCHANGE RATES :

Depending on the perspective of the participant, a currency is identified as the domestic or home currency, or as a foreign currency. For example, from the perspective of an Indian participant, the Indian rupee is the home currency and any other currency is a foreign currency. Similarly, for a U.S. participant, the U.S. dollar is the home currency and any other currency is a foreign currency. The rate at which the home currency is exchanged for a foreign currency is known as the foreign exchange rate. In general, foreign exchange rate is the price of one currency quoted in terms of another currency. The foreign exchange rate is also known as the forex rate or FX rate.

Currencies are always traded in pairs. Foreign exchange trade involves the buying of one currency and the selling of another currency. Buying of one currency (taking a long position) always involves selling (shorting) another currency. Thus, a foreign exchange rate is always quoted for a pair of currencies. Traditionally, currency pairs are separated with a solidus (e.g., USD/INR) or a hyphen (e.g., USD-INR). According to established convention, the first currency in the pair is the base currency and the second currency is referred to as the counter or quote currency**.** One unit of the base currency, also known as the underlying or fixed currency, is traded for a variable amount of the quote currency. For example, in the currency pair USD/INR, USD is the base currency and INR is the quote currency. The rate of exchange between these two currencies is expressed in terms of the amount of INR to be received or paid per U.S. dollar.

American terms and European terms : Rates quoted in amounts of U.S. dollar per unit of foreign currency are known as quotes in *American terms,* while rates quoted in amounts of foreign currency per U.S. dollar are known as quotes in *European terms.* For example, USD 1.9569/GBP, read as "1.9569 U.S. dollars per British pound," is a quotation in American terms. Thus, in American terms, the foreign exchange quotation gives the U.S. dollar price of one unit of the foreign currency. In contrast, quotations in European terms state the foreign currency price of one U.S. dollar. For example, GBP 0.5110/USD, read as "0.5110 British pounds per U.S. dollar," is a quotation in European terms. As most Asian and European currencies are quoted in European terms (a certain number of units per U.S. dollar), the USD is the most frequently used base currency in the foreign exchange market. Of late, the euro has also become a base currency against many currencies, particularly for European countries. It should be noted that American terms and European terms are reciprocals.

Direct quotes and indirect quotes : There are two kinds of exchange rate quotations: direct and indirect. A direct quote is the number of units of home currency that can be exchanged for one unit of a foreign currency. An indirect quote is the number of units of a foreign currency that can be exchanged for one unit of the home currency. For example, the exchange rate between the Indian rupee and the U.S. dollar can be stated as either INR/USD or USD/INR. The expression INR/USD indicates the amount of Indian rupees necessary to acquire one U.S. dollar, and the expression USD/INR indicates the amount of U.S. dollars necessary to acquire one unit of the Indian rupee. For an Indian participant, USD/INR 44 is a direct quote, and INR/USD 0.0227 is an indirect quote. As the indirect quote is the reciprocal of the direct quote, one can obtain an indirect quote, given a direct quote and vice versa.

Bid/ask rates : In the foreign exchange market, market makers are always ready to buy or sell currencies by quoting two rates—the bid rate and the ask rate. For example, a bank may quote USD/INR: 39.5470/39.5480. The component before the solidus is the bid rate and the one after the solidus is the ask rate or the offer. Quotes are thus expressed as bid/ask. However, in the London foreign exchange market, the rates are quoted as ask/bid (or offer/bid). The bid rate is the rate at which the market maker giving the quotation is ready to buy one unit of the base currency by paying the quoted currency, while the ask rate is the rate at which the market maker is ready to sell one unit of the base currency for the quoted currency. In the USD/INR example discussed here, the market maker is ready to buy one U.S. dollar by paying INR 39.5470, and to sell one U.S. dollar, the market maker wants to be paid INR 39.5480. The quotations are conventionally shortened as, for example, USD/INR: 39.5470/80 or 70/80. The difference between the bid rate and ask rate is the bid-ask spread. The bid-ask spread is obtained in points or pips.

Direct quotations can be converted into indirect quotations and vice versa. For example, the USD is quoted at INR 39.5470/39.6570. The reciprocal of the bid (direct) of 39.5470 becomes the ask (indirect) of USD 0.0253, and the reciprocal of the ask (direct) of INR 39.6570 becomes the bid (indirect) of 0.0252, resulting in an indirect quotation of USD 0.0252/0.0253. Thus, when direct quotations are converted into indirect quotations, the bid and ask quotes are reversed.

Banks and dealers always follow the old adage: "Buy low, sell high." The ask rate is always more than the bid rate because banks and dealers want to earn a profit on currency dealings. The spreads are generally based on the currency's volatility as well as on the breadth and depth of the market for a given currency. Currencies with volatile foreign exchange rates may have higher spreads. Similarly, spreads tend to widen for currencies that are not widely traded. Spreads include commissions, which, in turn, depend on the size of the transactions. Therefore, the larger the transaction, the lower is the spread. Bid-ask spreads are more pronounced in the retail segment than in the interbank market. In the retail segment of the foreign exchange market, banks sell foreign currency at a rate higher than the interbank ask rate, and buy foreign currency from customers at a rate lower than the interbank bid rate. The bid-ask spread is large in the retail segment because of higher average costs of retail transactions. For the most actively traded currency pairs, the spread is generally at 3 pips. But sometimes, the spread can be at 1 pip or 2 pips because of competition. The bid-ask rates are reviewed and revised from time to time, keeping in view the market factors.

Pip and lot : A pip is the smallest price increment a currency can make against another currency in foreign exchange trading. One pip has a value of 0.0001 if the currencies are quoted to four decimal places. Its value is 0.01 if the currencies are quoted to two decimal places. For example, in the case of the currency pair EUR/USD, 1 pip equals 0.0001, and in the case of USD/JPY, 1 pip equals 0.01. An exchange rate quote of 1.2215/1.2220 (EUR/USD) has a spread of 5 pips. A pip may seem small, but a movement of 1 pip in either direction can result in substantial gains or losses in the interbank market. The value of the pip varies from currency pair to currency pair. For example, the pip value for EUR/USD is fixed at USD 10 for standard lots, USD 1 for mini lots and USD 0.10 for micro lots. A lot is the standard unit size of a foreign exchange transaction. Typically, one standard lot is equal to 100,000 units of the base currency; 10,000 units if it is a mini lot; and 1,000 units if it is a micro lot.

5.11 SUMMARY :

Over the last two decades, the foreign exchange market has witnessed unprecedented growth following developments in the world economy. The institutional set-up that facilitates

the exchange of currencies is known as the foreign exchange market. The rate at which the home currency is exchanged for a foreign currency is known as the rate of foreign exchange or the foreign exchange rate. The foreign exchange market has two segments—the wholesale segment and the retail segment. The wholesale segment is also known as the interbank market. There are two kinds of exchange rate quotations—direct quotations and indirect quotations. A direct quote refers to the number of units of home currency that can be exchanged for one unit of a foreign currency, while an indirect quote refers to the number of units of a foreign currency that can be exchanged for one unit of home currency. Depending on the time gap between the transaction date and the settlement date, foreign exchange transactions can be categorized into spot transactions and forward transactions. Spot transactions are for immediate delivery. Forward transactions involve settlement at a certain date in the future. Banks always quote two rates—the bid rate and the ask rate. In the case of direct quotations, banks follow the rule of buying high and selling low, and in indirect quotations, they follow the rule of buying low and selling high. Arbitrage is a process in which a market participant sells and buys a currency to profit from exchange rate discrepancies within a market centre or across market centres. Arbitrage may be a two-point simple arbitrage or a triangular arbitrage. If a forward foreign exchange rate in terms of home currency is greater than the spot rate, the foreign currency is at a forward premium. If it is less than the spot rate, the foreign currency is at a forward discount. The forward foreign exchange rate is based on certain expectations about the future spot rate. Depending on the actual movement of the spot rate of a currency, the participants in the forward market may make a gain or a loss. The forward rate is considered to be an unbiased predictor of the future spot rate of a currency. As a result of various initiatives of the Reserve Bank of India, the foreign exchange market in India has become a mature market with depth and liquidity. The foreign exchange market turnover has increased from USD 1,096 billion in 1997–1998 to USD 6,514 billion in 2006–2007. The foreign exchange derivatives available in India are foreign exchange forwards, foreign currency-INR swap, foreign currency-INR options, cross-currency options, cross-currency swaps, and currency futures.

5.12 TECHNICAL TERMS :

- **Foreign Exchange Market:** The institutional setup that facilitates the trading of currencies is known as the foreign exchange market. It is also referred to as the forex market, or the FX market.
- **Electronic trading,** or **e-trading:** It is a method of trading in which market participants can see the bid-ask rates quoted by potential counterparties on their computer screens, match orders, and make deals electronically.
- **Market makers**: Market makers stand ready to buy and sell standard amounts of the currencies for which they are making a market, and seek to profit on the spread between the two prices.
- **Foreign Exchange Rate:** The price of one currency in terms of another currency is known as the foreign exchange rate.
- **Direct quote:** It is the number of units of home currency that can be exchanged for one unit of a foreign currency.
- **Indirect quote:** It is the number of units of a foreign currency that can be exchanged for one unit of the home currency.
- **Bid rate:** It is the rate at which the bank giving the quotation is ready to buy one unit of the base currency by paying the quoted currency.
- **Ask rate**: It is the rate at which the bank giving the quotation is ready to sell one unit of the base currency for the quoted currency.

5.13 SELF-ASSESSMENT QUESTIONS :

1. Explain the structure of the foreign exchange market.
2. What is foreign exchange rate? How is the exchange rate of a currency determined?
3. Who are the participants in the foreign exchange market? What are their motives?
4. Distinguish between spot transactions and forward transactions.
5. What is arbitrage? How does arbitrage yield profit? How does it get eliminated?
6. Describe the structure of the Indian foreign exchange market. Critically evaluate the foreign exchange regulations in India.
7. The spot rate of the U.S. dollar is INR 45 and the 90-day forward rate is INR 45.60. Why do these rates differ?
8. Suppose a bank in India quotes spot rates of USD/INR 45 and GBP/INR 87.5. What is the direct spot quote for the British pound in New York?
9. Suppose that the direct spot quotations in New York and London are 1.9031/35 and 0.50/03, respectively. Calculate arbitrage profit per USD 10 million.
10. If GBP 1 = USD 1.9031 in New York, USD 1 = EUR 0.7830 in euro land, and EUR 1 = GBP 0.6710 in London, how can a market participant take profitable advantage of these rates?
11. Discuss forward rate and future spot rate parity. What are the causes of deviation?
12. The 180-day forward rate on the British pound is INR 87.79. A trader expects that the spot rate of the British pound will be INR 86.50 in six months. What is the expected profit on a forward sale of GBP 1 million?
13. If exchange rates are GBP/USD 1.92 and USD/JPY 116, what is the exchange rate between the yen and the British pound?
14. Show how one can make a triangular arbitrage profit by trading at the following rates:
    USD/GBP 0.525
    USD/AUD 1.303
    GBP/AUD 2.400
    What rate of USD/GBP can eliminate triangular arbitrage?
15. The current spot exchange rate is GBP/USD 1.92 and the three-month forward rate is GBP/USD 1.95. It is expected that the spot exchange rate will be GBP/USD 1.92 in three months. Mr Mehra would like to buy or sell GBP 1 million. How much profit can he make on speculation? What would be the speculative profit/loss if the spot rate actually turns out to be GBP/USD 1.90 in three months?

5.14 SUGGESTED FURTHER READING :

1. K. Alec Chrystal, "A Guide to Foreign Exchange Markets," *Federal Reserve Bank of St. Louis Review* (March 1984): 5–18.
2. Paul R. Krugman and Maurice Obstfeld, *International Economics: Theory and Policy* (Massachusetts: Addison-Wesley, 2002).
3. Michael E. Porter, *The Competitive Advantage of Nations* (Massachusetts: Harvard University Press, 1989).
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Dr. A. Kanaka Durga

LESSON - 6

FOREIGN EXCHANGE MARKET: SPOT MARKET & FORWARD MARKET

LEARNING OBJECTIVES :

After studying this lesson you should be able to:

- Explain the distinctive characteristics of foreign exchange market.
- Delineates who actually participates in the foreign exchange market
- Describes how various types of transactions take place in spot and forward markets.

STRUCTURE :

6.1 INTRODUCTION :

One of the major international financial functions is the exchange of currencies. Currencies are exchanged or, in other words, bought and sold in foreign exchange market that is spread around the globe. The present chapter thus deals with the various aspects of the foreign exchange market and with the varieties of transactions taking place therein. The foreign exchange market (also referred to as the forex or currency market) is the marketplace for exchanging currencies between all stakeholders such as governments, central and commercial banks, firms, forex dealers, brokers and individuals. Such players can use the market for trading, hedging and speculating in currencies as well as obtaining credit.

i. **History of the Foreign Exchange Market:** Following the collapse of the Bretton Woods system in 1971, foreign exchange operations gained momentum on a global scale as several countries shifted towards floating exchange rate regimes. In India, the foreign exchange market began in 1978 when banks were authorized to engage in intra-day trading. However, it wasn't until the 1990s that the Indian foreign exchange market underwent significant changes, coinciding with shifts in India's currency regime. In March 1992, the previously pegged rupee exchange rate was partially floated, followed by a full float in March 1993, in response to the recommendations of the Committee on Balance of Payments chaired by Dr C. Rangarajan. The unification of the exchange rate was a critical step towards developing a market-determined exchange rate for the rupee and achieving current account convertibility, which was attained in August 1994. The Expert Group on Foreign Exchange Markets in India (Chaired by O.P. Sodhani) submitted its report in June 1995, providing further momentum to the development of the Indian foreign exchange market by making several recommendations to deepen and broaden it. As a result, extensive reforms were implemented in the Indian foreign exchange market from January 1996 onwards.

ii. **Currency market in India :** As per the RBI, OTC and spot markets are dominant in the Indian currency market where around USD 33 billion was traded daily in 2019. Currency futures are traded on exchanges such as NSE, BSE, and MCX-SX.

iii. **Trends in the forex market:** The USD is the most traded currency in the world (being a part of over 85% of trades), which allows it to act as an unofficial reserve currency among other countries. The Euro and Yen come as distant second and third. As per a BIS report, trading in currency globally reached $6.6 trillion per day in April 2019.

iv. **How are exchange rates determined?** Currencies are always traded in pairs e.g.: USD-EUR, USD-INR etc. The relationship between the currencies is given by the formula: Base currency / Quotation Currency = Value. For example, if the base currency is USD and the quotation currency is INR then the value would be roughly around 79 as the rupee is trading at around INR 79 per USD. Now exchange rates are determined by various factors depending on whether the currencies in question have "free float" or "fixed float".

1. *Free floating currencies* are those whose value depends solely on the demand and supply of the currency relative to other currencies.
2. *Fixed floating currencies* are those whose value is fixed by the government or the central bank, sometimes by pegging it to a standard. For example, the Russian Ruble was recently pegged to gold at 5000 rubles per gram of gold.

v. **Types of Forex Market:** There are 5 types of currency markets in India – spot, forward, futures, options and swaps.

a) The ***spot market*** is the marketplace for currency trading at real-time exchange rates.

On the other hand, ***forward markets*** deal in over-the-counter (OTC) forward contracts. Forward contracts are agreements between parties to exchange a particular quantity of currency pair at a specific rate and on a given date. They help in hedging currency risks i.e. the risk of changing values of currency assets due to fluctuations in currency exchange rates. However, forward markets do not have a central exchange for their operations. Therefore:

1. They are highly illiquid (hard to find buyers or sellers randomly)
2. They usually do not require any collateral and thus have counterparty risk i.e. risk of parties not following through with an agreement

b) The ***futures markets*** are basically forward markets, but with centralised exchanges like the NSE. Therefore, they have higher liquidity and lower counterparty risk than forward markets. Currency futures or FX futures or currency derivatives are available on the NSE on INR and four currencies viz. US Dollars (USD), Euro (EUR), Japanese Yen (JPY) and Great Britain Pound (GBP). Cross Currency Futures & Options contracts on EUR-USD, USD-JPY and GBP-USD are also available for trading in the currency derivatives segment. Since all transactions are publicly available and settled in cash, it is easier to trade, speculate and perform arbitrage in the futures market.

c) The ***options market*** allows traders the right to buy/sell currency at a specified price on a specified date through a central exchange such as the NSE. The currencies available are the same as that of the NSE currency futures market.

d) ***Currency swaps*** are agreements between two parties to exchange a principal and interest amount in different currencies only to be re-exchanged at a specific later date. At least one of the interest rates in the agreement is fixed.

vi. Special features of the forex market :

i. The forex market has a higher degree of leverage than other markets (such as the stock market). Leverage is the loan given by a broker to a trader to allow the trader to invest in greater quantities than otherwise. However, higher leverage also means risk of higher losses.

ii. There are no central clearing houses that oversee international currency trade. However, the central banks and governments usually regulate the forex trade.

iii. The forex market has a large variety of currencies and is open 245 as it is an international market. The market opens on Sunday 5pm EST and closes on Friday 5pm EST. Therefore, there is a wider range of opportunities for trade. However, the risk also increases as an international incident in some far-away time-zone might devalue your currency assets while you are sleeping.

iv. There are fewer commissions and fees to be paid in currency trading.

vii. Advantages and Disadvantages of the Foreign Exchange Market
Advantages of the forex market in India :

1. **High Liquidity:** The foreign exchange market is one of the most liquid markets in the world, which means that traders can easily buy and sell currencies at any time, ensuring that there are always buyers and sellers available.
2. **24-Hour Trading:** Forex trading takes place around the clock, allowing traders to access the market at any time. This is particularly beneficial for traders with other commitments during regular trading hours.
3. **Diversification:** The forex market offers traders a variety of currency pairs to trade, which allows them to diversify their trading strategies and reduce risk.
4. **Low Entry Barrier:** The currency exchange market has a relatively low entry barrier, which means that traders can start with a small amount of capital and gradually increase their investment over time.
5. **Transparency**: The foreign exchange market is highly transparent, and traders can easily access real-time market data and pricing information.

viii. Disadvantages of the Forex Market in India :

1. **High Volatility:** The forex market is highly volatile, which means that prices can fluctuate rapidly and unpredictably, leading to high levels of risk.
2. **Risk of Fraud:** Due to the global nature of the foreign exchange market, there is a risk of fraud and scams. Traders should be cautious when selecting brokers and trading platforms.
3. **Lack of Regulation:** The currency market in India is not as heavily regulated as some other markets, which can increase the risk of fraudulent activities.
4. **Complexities:** Forex trading can be complex and requires significant knowledge and expertise to succeed. New traders may need help navigating the market.
5. **Exchange Rate Risk:** Forex trading involves exchanging one currency for another, and fluctuations in exchange rates can lead to losses. Traders should be aware of the risks involved in trading currency pairs.

6.2 DISTINCTIVE FEATURES :

The foreign exchange market is a market where foreign currencies are bought and sold. If an Indian importer imports goods from the USA and has to make payments in US

dollars, it will approach the foreign exchange market to buy US dollars for rupees. An exporter converts the export proceeds obtained in a foreign currency into its own currency. These two are the simplest examples of transactions in the foreign exchange market. There are many types of transactions that involve the purchase and sale of different currencies.

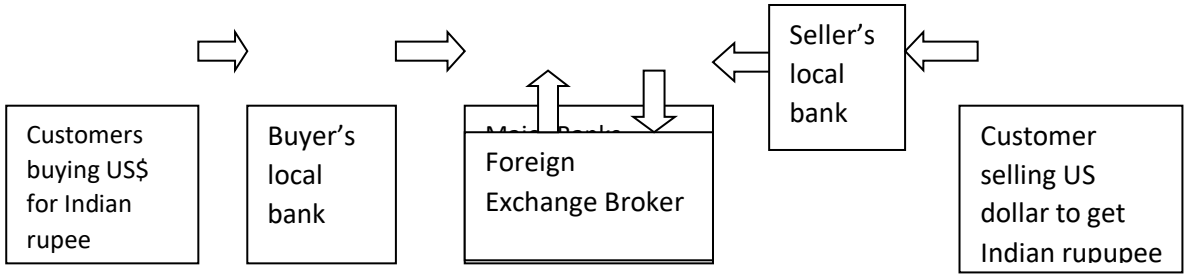
The foreign exchange market is an over-the-counter market. It does not denote a particular place or floor where dealers assemble and transact foreign currencies. Rather, it consists of trading desks at major agencies dealing in foreign exchange throughout the world that are connected by telephone, telex, etc. This is why transactions are based normally on oral followed by written communication. It may, however, be mentioned that although the market is global, the market features in each country are influenced by the local regulatory framework. In the UK or the USA, the market relies more on the communication network; while in Frankfurt, Paris and some other European and countries, physical meeting of participants at bourses is also customary.

Since foreign exchange dealers are spread all over the globe, the time of transaction differs from one place to another depending upon the longitude of the place. If a dealer in India transacts at 10 AM, it will just be 4.30 AM. in London. In order to accommodate dealers from different countries, the foreign exchange market has to function round-the-clock.

Again, the currencies transacted in the foreign exchange market are normally the strong, stable and convertible currencies which are in great demand because of their strength, stability and convertibility.

6.3 MAJOR PARTICIPANTS :

The participants in the foreign exchange market are individuals, firms, banks, governments, and occasionally the international agencies. Individuals are normally the tourists who exchange the currencies, as also migrants sending a part of their income to their family members living in their home countries. The firms are generally the importers and exporters. An exporter prefers to get the payments in its own currency or in a strong convertible currency. Importers need foreign exchange for making payments for their imports. When firms and individuals approach the local branch of a bank, the local branch in turn approaches the foreign exchange department in its regional office or head office. Latter deals actually in foreign exchange with other banks on behalf of the customers.



Thus, there are two tiers in the foreign exchange market: one tier involves the transactions between ultimate customers and the banks while the other tier consists of the transactions between banks. Since the purpose of inter-bank transactions is not only to meet the foreign exchange demand of the ultimate customers but also to reap gains out of movement in foreign exchange rates, it is the second tier of the market that accounts for the

largest segment of the total foreign exchange transactions in the market. In some cases, the inter-bank dealings take place directly without any help from an intermediary, but generally the banks operate through foreign exchange brokers.

It is either because of the length of transactions passing through two tiers of the market or because of the profit motive involved in the transactions that there is often a gap between the amount of purchase and the amount of sale of a currency by banks. If a bank buys less of a currency than it contracts to sell, the position is known as a short position in that currency. The reverse situation, where a bank buys more of a currency than it contracts to sell, is known as a long position in that currency. When the quantum of sale and purchase is equal, the equality denotes a square position.

Though it is a fact that the commercial banks dominate, the governments or monetary authorities too, participate in the foreign exchange market but to help stabilise the value of domestic currency. International agencies sometimes purchase and sell foreign currencies in the foreign exchange market, but that is not a routine affair.
Again, the participants may be grouped also according to their motive and behaviour in their foreign exchange transactions as follows:

- Non-banking entities which simply exchange currencies to honour their obligations or to get the desired currency.
- Non-banking entities such as traders that use the foreign exchange market for the purpose of hedging their foreign exchange exposure on account of changes in the exchange rate.
- Banks which exchange currencies on behalf of their customers. In such cases, their profit is limited to the amount of spread between the bid and the ask rates.
- Arbitrageurs who change currencies because of varying rates of exchange in different markets. The varying rates are the source of their profit.
- Speculators who buy or sell currencies when they expect movement in the exchange rate in a particular direction. They make their profit from movement of exchange rate in the desired direction.

6.4 SPOT MARKET :

The spot market is where financial instruments, such as commodities, currencies, and securities, are traded for immediate delivery. Delivery is the exchange of cash for the financial instrument. A futures contract, on the other hand, is based on the delivery of the underlying asset at a future date. Exchanges and over-the-counter (OTC) markets may provide spot trading and/or futures trading. Financial instruments trade for immediate delivery in the spot market. Many assets quote a “spot price” and a “futures or forward price.” Most spot market transactions have a T+2 settlement date. Spot market transactions can take place on an exchange or over-the-counter (OTC). Spot markets can be contrasted with derivatives markets that instead trade in forwards, futures, or options contracts. 1:10
How Spot Markets Work? Spot markets are also referred to as “physical markets” or “cash markets” because trades are swapped for the asset effectively immediately. While the official transfer of funds between the buyer and seller may take time, such as T+2 in the stock market and in most currency transactions, both parties agree to the trade “right now.” A non-spot, or futures transaction, is agreeing to a price now, but delivery and transfer of funds will take place at a later date. Futures trades in contracts that are about to expire are also sometimes called spot trades since the expiring contract means that the buyer and seller will be exchanging cash for the underlying asset immediately.

Spot Price : The current price of a financial instrument is called the spot price. It is the price at which an instrument can be sold or bought immediately. Buyers and sellers create the spot price by posting their buy and sell orders. In liquid markets, the spot price may change by the second, as orders get filled and new ones enter the marketplace. The word "spot" comes from the phrase "on the spot", where in these markets you can purchase an asset on the spot.

Spot Market and Exchanges : Exchanges bring together dealers and traders who buy and sell commodities, securities, futures, options, and other financial instruments. Based on all the orders provided by participants, the exchange provides the current price and volume available to traders with access to the exchange.

The New York Stock Exchange (NYSE) is an example of an exchange where traders buy and sell stocks for immediate delivery. This is a spot market. The Chicago Mercantile Exchange (CME) is an example of an exchange where traders buy and sell futures contracts. This is a futures market and not a spot market.

Spot Market and Over-the-Counter : Trades that occur directly between a buyer and seller are called over-the-counter (OTC). A centralized exchange does not facilitate these trades. The foreign exchange market (or forex market) is the world's largest OTC market with an average daily turnover of $5 trillion. In an OTC transaction, the price can be either based on a spot or a future price/date. In an OTC transaction the terms are not necessarily standardized, and therefore, may be subject to the discretion of the buyer and/or seller. As with exchanges, OTC stock transactions are typically spot trades, while futures or forward transactions are often not spot.

Example of a Spot Market : Let’s say an online furniture store in Germany offers a 30% discount to all international customers who pay within five business days after placing an order. Danielle, who operates an online furniture business in the United States, sees the offer and decides to purchase $10,000 worth of tables from the online store. Since she needs to buy euros for (almost) immediate delivery and is happy with the current EUR/USD exchange rate of 1.1233, Danielle executes a foreign exchange transaction at the spot price to buy the equivalent of $10,000 in euros, which works out to be €8,902.34 ($10,000/1.1233). The spot transaction has a settlement date of T+2, so Danielle receives her euros in two days and settles her account to receive the 30% discount.

Advantages and Disadvantages of Spot Markets : The spot price is the current quote for immediate purchase, payment, and delivery of a particular commodity. This means that it is incredibly important since prices in derivatives markets such as for futures and options will be inevitably based on these values. Spot markets also tend to be incredibly liquid and active for this reason. Commodity producers and consumers will engage in the spot market and then hedge in the derivatives market.

A disadvantage of the spot market, however, is taking delivery of the physical commodity. If you buy spot pork bellies, you now own some live hogs. While a meat processing plant may desire this, a speculator probably does not. Another downside is that spot markets cannot be used effectively to hedge against the production or consumption of goods in the future, which is where derivatives markets are better-suited.

Pros : Real-time prices of actual market prices- Active and liquid markets- Can take immediate delivery if desired

Cons : Must take physical delivery in many cases-.Not suited for hedging

What Does Spot Market Mean? Spot markets trade commodities or other assets for immediate (or very near-term) delivery. The word "spot" refers to the trade and receipt of the good being made "on the spot".

What Are Examples of Spot Markets? Many commodities have active spot markets, where physical spot commodities are bought and sold in real-time for cash. Foreign exchange (FX) also has spot currencies markets where the underlying currencies are physically exchanged following the settlement date. Delivery usually occurs within 2 days after execution as it generally takes 2 days to transfer funds between bank accounts. Stock markets can also be thought of as spot markets, with shares of companies changing hands in real-time.

What Is a Spot and Forward Market? A spot market is where spot commodities or other assets like currencies are traded for immediate delivery for cash. A forward market instead involves the trading of futures contracts (read on to the following question for more on this).

What Is the Difference Between Spot Markets and Futures Markets? Forwards and futures are derivatives contracts that use the spot market as the underlying asset. These are contracts that give the owner control of the underlying at some point in the future, for a price agreed upon today. Only when the contracts expire would physical delivery of the commodity or other asset take place, and often traders will roll over or close out their contracts in order to avoid making or taking delivery altogether. Forwards and futures are generically the same, except that forwards are customizable and trade over-the-counter (OTC), whereas futures are standardized and traded on exchanges.

Features : The foreign exchange market is classified either as spot market or as forward market. It is the timing of actual delivery of foreign exchange that distinguishes between spot market and forward market transactions. In the spot market, currencies are traded for immediate delivery at a rate existing on the day of transaction. For making book-keeping entries, delivery takes two working days after the transaction is complete although in the case of Canadian dollar the delivery of currencies takes place the very next working day. If a particular market is closed on Saturday and Sunday and if transaction takes place on Thursday, delivery of currency shall take place on Monday. Monday in this case is known as the value date or settlement date. Sometimes there are short- date contracts where the time zones permit the delivery of the currency even earlier. If the currency is delivered the same day, it is known as the value-same-day contract. If it is done the next day, the contract is known as the value-next-day contract.

In view of the huge amounts involved in the transactions, there is seldom any actual movement of currencies. Rather, debit and credit entries are made in the bank accounts of the seller and the purchaser. Most of the markets effect the transfer of funds electronically thus saving time and energy. The system existing in New York is known as the Clearing House Inter-bank Payment System (CHIPS)

Currency Arbitrage in Spot Market : With fast development in the telecommunication system, rates are expected to be uniform in different foreign exchange markets. Nevertheless, inconsistency exists at times. The arbitrageurs take advantage of the inconsistency and garner profit by buying and selling of currencies. They buy a particular currency at cheaper rat in one market and sell it at a higher rate in the other. This process is known a currency arbitrage. The process influences the demand for, and supply of, the particular currency in the two markets which leads ultimately to removal of inconsistency in the value of currencies in two markets.

Suppose,
In New York: $1.9800- 10/£; and In London: $1.9700 10/£
The arbitrageurs will sell pound in New York and buy pound in London making profit of $1.9800-1.9700 = $ 0.0100 per pound sterling.
In the above example, two currencies are involved and two markets where particular currency is bought or sold. This is why it is known as two-point arbitrage.
There are also examples of three-point arbitrage or triangular arbitrage where three currencies and three markets are involved.
Suppose, bid rate in:
New York: $1.9810/£
London: DM 3.1650/£ and
Frankfurt: $ 0.6250/DM
In this case, the arbitrager will exchange the dollar, say $1,000 for DM in Frankfurt to get DM 1600. He will convert DM 1,000 for pound sterling in London to get £505.63. Finally, he will sell £ 505.63 for dollars in New York to get $ 1.001.46. This means that he would gain $ 1.46 per $ 1,000 through triangular arbitrage
The above example does not, of course, include transaction cost. In real world a transaction cost exists that lowers the amount of gain. Suppose, transaction cost is 0.5 per cent. When $ 1,000 is converted into DM in Frankfurt, the arbitrageur would receive DM 1,600 x (1-0.005) or DM 1,592 and the receipt of the exchanged currency will be similarly lower at the other two points. It follows; therefore, that arbitrage will take place only when the burden of transaction cost is lower than the gain from the exchange.

PROBLEM 1 :
If the rate of exchange is :
US $ 2.0000-2.0100/£ in New York
US $ 1.9800-1.9810/£ in London
Explain how the arbitrageurs will gain.
Solution
The arbitrageur will sell Pound in New York and with the same dollar, buy Pound in London. The profit per pound, assuming no transaction cost, will be
$2.0100-1.9800=0.0300.
Note. It is the difference between the selling rate and the buying rates of Pound in the two markets.

Speculation in Spot Market : Speculation in the spot market occurs when the speculator anticipates a change in the value of a currency. Suppose the exchange rate today is Rs. 40/US $. The speculator anticipates this rate to become Rs. 41/US $ within the coming three months. Under these circumstances, he will buy US $ 1,000 for Rs. 40,000 and hold this amount for three months, although he is not committed to this particular time horizon. When the target exchange rate is reached, he will sell US $ 1,000 at the new exchange rate, that is at Rs. 41 per dollar and earn a profit of Rs. 41,000- 40,000 = Rs. 1,000.

PROBLEM 2 :
Presently, the spot rate is Rs. 44.50/US $. A speculator feels that, after a week, US dollar should appreciate to Rs. 44.60. What should he do if he has Rs. 10,000 at his disposal?

Solution :
The speculator should buy US dollar to-day to get 10,000/44.50= US$224.72
After a week, he should sell these dollars to get 224.72 x 44.00 = Rs. 10, 022.47.
The profit from speculation will be Rs. 10,022 .47- 10,000.00 = Rs. 22.47

6.5 FORWARD MARKET :

Features : In the forward market, contracts are made to buy and sell currencies for future delivery, say, after a fortnight, one month, two months and so on. The rate of exchange for the transaction is agreed upon on the very day the deal is finalised. The forward rates with varying maturity are quoted in the newspapers and those rates form the basis of the contract. Both parties have to abide by the contract at the exchange rate mentioned therein irrespective of whether the spot rate on the maturity date resembles the forward rate or not. In other words, no party can back out of the deal if changes in the future spot rate are not in his or her favour.

The value date value date in case of a forward contract lies definitely beyond the value date applicable to a spot contract. If it is a one-month forward contract, the value date will be the date in the next month corresponding to the spot value date. Suppose a currency is purchased on 1st August. If it is a spot transaction, the currency will be delivered on 3rd August.

But if it is a one-month forward contract, the value date will fall on 3rd September. If the value date falls on a holiday, the subsequent date will be the value date. In this case, the maturity date will be different from the value date. Then the maturity date will be the 3rd of September and the value date will be the 4th of September, if the value date does not exist in the calendar, such as the 29 February (if it is not a leap year), the value date will fall on the 28 February.

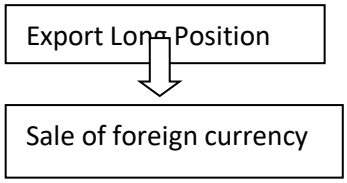
PROBLEM 3 :
Three one-month forward deals were contracted respectively on the 28th and 29th January 2001. What would be the settlement date?
Solution :
28th February
Sometimes the value date is structured to enable one of the parties to the transaction to have freedom to select a value date within the prescribed period. This happens when the party does not know in advance the precise date on which it would be able to deliver the currency, for instance, an exporter who sells a foreign currency forward without knowing in advance the precise date of shipment.
Again, the maturity period of forward contract is normally for one month, two months, and three months and so on but sometimes it may not be for the whole month and a fraction of a month may also be involved. A forward contract with a maturity period of 35 days is an apposite example. Naturally, in this case, the value date falls on a date between two whole months. Such a contract is known as a broken-date contract.

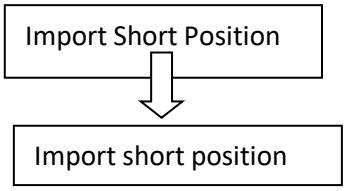
PROBLEM 4 :
What will be the forward rate for 1 month and 10 days (broken date contract) if
Spot: Rs. 40.00-40.10/$
1-month forward: Rs. 40.50-40.70/$
3-month forward: Rs. 40.80-41.10/$
Solution :
For one month and 10 days, swap points:
Buying rate: 50+ (80-50) x 10/60 = 55
Selling rate: 70+ (110-70) x 10/60= 77
The forward rate for one-month and 10 days= Rs. 40.55-40.77/$.

Arbitrage in Forward Market: Forward rate differential is approximately equal to the interest rate differential. Sometimes there may be marked deviation between these two

differentials. In such cases, covered interest arbitrage begins and continues till the two differentials become equal. This is arbitrage in a forward market.

Forward Market Hedging : The forward market is used not only by the arbitrageurs but by the hedgers too. Changes in the exchange rate are a usual phenomenon. Such changes entail some foreign exchange risk in terms of loss or gain to the traders and other participants in the foreign exchange market. The risk is reduced or hedged through forward market transactions. Under the process of hedging, currencies are bought and sold forward. Forward buying and selling depends upon whether the hedger finds himself in a long, or a short, position. An export billed in foreign currency creates a long position for the exporter. On the contrary, an import billed in foreign currency leads to a short position for the importer.





Let us first take the long position. An Indian exporter enters into a contract for mica export to the USA for US $1,000. The export proceeds are to be received within three months. The exporter fears a drop in the value of the US dollar that may diminish the export earnings in terms of rupee. To avoid this diminution, the exporter opts for a three-month forward contract and sells forward one thousand US dollars. Suppose the spot as well as the forward rate is Rs. 40/US $. If the dollar depreciates to Rs. 39 after three months, the export earnings will diminish to Rs. 39 thousand, but since the exporter has already sold forward similar amount in dollars, the loss due to depreciation of the dollar will be met through the forward contract. By selling dollars, it would fetch Rs. 40 thousand that will be equal to the original export value.

However, the forward deal has disadvantages too. The advantage is that if the value of the dollar falls, the exporter will not have to suffer any loss of income while the disadvantage is that if the value of the dollar appreciates, the exporter will not benefit from the appreciation. Moreover, in case a part of the merchandize is not accepted by the importer, the exporter will have to arrange for the dollars to honour the forward contract.

In the event of a short position where the Indian importer buys goods from the USA for US $ 1,000, and where the importer fears an appreciation in the value of the US dollar, the forward deal will involve the buying of dollars. If the dollar appreciates to Rs. 41 after the three-month period, the importer will have to pay Rs. 1,000 more but if he has opted for a forward deal to buy a similar amount in dollars, he will purchase US $ 1,000 with Rs. 40,000 and pay US $ 1,000 to the exporter and so save himself from the Rs. 1,000 loss. Here again, if the dollar appreciates, the importer eliminates the loss, but if it depreciates, the importer does not benefit from the depreciation.

PROBLEM 5 :

An Indian importer expects appreciation of US dollar while importing goods for US $ 1,000, So he go for buying $ 1,000 one-month forward coinciding the time of payment for the import. The spot rate and the forward rate is respectively Rs 40 and Rs. 40.50. Surprisingly, the future spot rate (on the maturity) is only Rs. 40.30/$ will the forward deal be beneficial?

Solution :
After entering into the contract, the importer has to abide by the contract. He will buy $1,000 for Rs. 40,500. Had he not gone for the contract, he would have bought US dollar only for Rs. 40,300. Thus forward contract causes a net loss of Rs. 200.
In these two examples of forward deals, we have assumed that the spot rate and the forward rate are equal but this is not always true. There may be either a forward premium or a forward discount. Suppose the spot rate is Rs. 40/US $. and, the three-month forward rate is Rs. 39.50/US $. In this case, if the spot rate after the expiry of three months turns out to be Rs. 39/US $, and if the Indian exporter has a forward contract for selling the same amount in dollars, he will be able to diminish the loss by Rs. 500 because he will get Rs. 39,500 from the forward deal. Had there been no forward contract, the exporter would have received only Rs 39,000 following the depreciation of the US dollar. If however, the US dollar depreciates only to Rs. 39.80, the forward deal will cause a loss for Rs. 300 because it would fetch only Rs. 39,500 instead of Rs. 39,800 that would have been received in the absence of a forward deal.

The advantage or disadvantage of the forward deal is reaped not only by the exporter but also by the importer. In case of a short position, a forward discount is favourable to the hedger because it enables the hedger to obtain foreign exchange at a rate lower than the current spot rate. On the contrary, a forward premium is unfavourable because it makes the forward foreign currency costlier. However, the exact magnitude of loss or gain to the importer depends upon the difference between the forward rate and the future spot rate that we have just discussed. If the forward rate is Rs. 39.50/US $ and if the future spot rate is Rs. 39.80/US $, the Indian importer will be able to save Rs. 300 because he will get US $ 1,000 only for Rs. 39,500 under the forward contract; whereas he would have had to pay Rs. 39,800 for one thousand dollars, had there been no forward contract. But if the future spot rate comes down to Rs. 39/US $, the importer will have to face a loss of Rs. 500 under the forward contract. Thus hedging in a forward market, whether it concerns a long position or a short position, is a double-edged sword and if the trend in the exchange rate movement is not according to expectations, it can result in a loss.

Speculation in Forward Market : In addition to the arbitrageur or the hedger, speculators are also very active in forward market operations. Their purpose is not to reduce the risk but to reap profits from the changes in the exchange rates. The source of profit to them being the difference between the forward rate and the future spot rate, they are not very concerned with the direction of the exchange rate change.

Suppose a speculator sells US $ 1,000 three-month forward at the rate of Rs. 40.50/US $. If, on maturity, the US dollar depreciates to Rs. 40, the speculator will get Rs. 40,500 under the forward contract. At the same time, he will exchange Rs. 40,500 at the then future spot rate of Rs. 40/US $ and will get US $ 1,012.50. Both these activities-the selling and the purchasing of US dollars will be simultaneous. Thus without making any investment, the speculator will make a profit of US $ 12.50 through the forward market deal. This is an example of speculation in the forward market.

Forward market speculation cannot be extended beyond the maturity date of the forward contract. However, if the speculator wants to close out the speculation operation prior to the maturity, say by 1-month, he may buy an off-setting contract. In other words, if he has already entered into a three-month forward contract for selling US dollars, he would have to opt for a two-month forward contract for buying US dollars. The profit or loss would naturally depend upon the exchange rate involved in the two forward contracts.

The above is a very simple example. Many other examples can be cited about speculation in the forward market. In fact, the type of speculation depends up the expected movement of the future spot rate.

PROBLEM 6 :

Spot rate is Rs. 44.50/$. Three-month forward rate is Rs 44.30/$. Speculator's own estimate is that the future spot rate after three months should Rs. 44.10/$. Will the speculator go for a forward contract if he has $ 10,000 at his disposal?

Solution :

The speculator will sell dollar in the forward market to get Rs 4, 43,000. Immediately after getting rupee, he will convert rupee into dollars in the open market to get $ 10,045.35. Profit will be: $ 10,045. 35-10,000= $ 45.35.

Swapping Of Forward Contracts : The purpose of swap in the forward market is to reap profits. There are two kinds of swap. One is known as an option forward while the other is known as a forward forward swap. In the former, the basis of swap is the difference between the spot rate and the forward rate and in the latter; it is the difference between the two forward rates.

Contracts for option forward take place normally between a bank and its customers. Two delivery dates are mentioned between which delivery of currencies is made. One of the two dates is the date on which the deal is finalised. The other is a future date that may be the date of maturity. Similarly, two exchange rates are mentioned. One is the spot rate prevailing on the date when the deal is finalised and the other is the forward rate. The bank exchanges the currency with the customer on any date between the two dates at one of the two rates which is favourable for it. Suppose there is a contract for an exchange between rupees and dollars and the two dates are 1st January and 1st April. The spot rate on 1st January is Rs. 40/US $ and the three- month forward rate is Rs. 39.50/US $. This shows depreciation of the dollar and in this case, if the customer sells rupees to the bank, the latter will buy them at the spot rate. If the customer buys rupees, the bank will sell them at the forward rate.

In case of a forward-forward swap, two future dates are chosen and profit emerges from the difference between the two forward rates. Suppose the trend of the quote shows appreciation in the dollar for the next six a currency forward months followed by depreciation during the following three months. The spot rate and the forward rates would be:

Spot rate: Rs. 40-40.20/US $
6-month forward rate: Rs. 41.50-41.80/US $
9-month forward rate: Rs. 40.25-40.75/US $

In this case, it would be beneficial for the customer to sell the dollar 6-month forward and buy the dollar 9-month forward. If it involves US $ 1,000, the profit will amount to: (Rs. 41.50 -40.75) x 1,000 or Rs, 750

6.6 SUMMARY :

The foreign exchange market is a market where foreign currencies are bought and sold. It is an over-the-counter market. It operates round-the-clock. The participants are the real customers, such as the individuals and the firms who have to actually exchange one currency for another. The commercial banks are the most important participants, although the monetary authorities of the country also participate for the purpose of stabilising the exchange rates. The international agencies are also occasional participants whose aim is either hedging or arbitraging or speculation or restoration of exchange rate stability.The market may have spot as well as forward transactions. The former involves immediate delivery of currencies, while the latter involves deliver at a future date. Normally, the rates

should not vary among different markets, but when they vary, arbitrage takes place conferring profits upon arbitrageurs an ultimately making the rates uniform among different markets. The forward market is normally used for hedging risk but sometimes it used by arbitrageurs who take advantages of differences in interest rate among different markets. Speculators too use the forward market for making profits. Forward options and forward-forward swap are common tools for making profits in the foreign exchange market.

6.7 TECHNICAL TERMS :

- **Spot Market:** It is a market where financial instruments such as commodities, currencies and securities are traded for immediate delivery.
- **Forward Market:** It is an auction market in which participants buy and sell commodity and futures contracts for delivery on a specified future date.
- **Arbitrage:** It is the simultaneous purchase and sale of the same or similar asset in different markets in order to profit out of divergence between the two markets.
- **Hedging:** It is the process to make the net position for a given currency at a given date equal to zero. It is normally adopted in forward market and the market for derivatives.
- **Speculation:** It is the purchase of an asset with the hope that it will become more valuable shortly.

6.8 SELF-ASSESSMENT QUESTIONS :

1. Who are the participants in foreign exchange market?
2. Explain with suitable examples hedging in a forward market.
3. How is speculation done in forward market?
4. Three one-month forward deals were contracted respectively on the 27th, 28th and 29th January 2001. What would be the settlement date?
5. The followings are the rates of forward market deals of different maturity. Explain what should be the process of forward-forward swap.
   One-month forward rate: Rs. 40.50/US $
   Two-month forward rate: Rs. 41.10/US $
   Three-month forward rate: Rs. 40.80/US $
6. If the rate of exchange is:
   US $ 2.0000-2.0100/£ in New York
   US $ 1.9800-1.9810/£ in London
   Explain how the arbitrageurs will gain.
7. An Indian importer expects appreciation of US dollar while importing goods for US $ 1,000. So he goes for buying $ 1,000 one-month forward coinciding the time of payment for the import. The spot rate and the forward rate are, respectively, Rs. 40 and Rs. 40.50 per US dollar. Surprisingly, the future spot rate (on maturity) is only Rs. 40.30/$. Will the forward deal be beneficial?

6.9 SUGGESTED FURTHER READINGS :

1. Bhardwaj, H.P. (1994), Foreign Exchange Handbook, New Delhi, Wheeler Publishing Co.
2. Walmsley, J. (1983), Foreign Exchange Handbook: A user's guide, New York, John Wiley.

Dr. A. Kanaka Durga

LESSON - 7

MARKET FOR CURRENCY FUTURES

LEARNING OBJECTIVES :

After studying this chapter you should be able to:

- Delineates the characteristics of currency futures market as distinct from a currency forward market.
- Discusses hedging in currency futures market.
- Explains how speculators go for futures deal.
- Examines the relationship between futures prices, forward prices and the expected spot prices on delivery.

Structure :

7.1 INTRODUCTION :

Currency futures are an exchange-traded futures contract that specify the price in one currency at which another currency can be bought or sold at a future date. Currency futures contracts are legally binding and counterparties that are still holding the contracts on the expiration date must deliver the currency amount at the specified price on the specified delivery date. Currency futures can be used to hedge other trades or currency risks, or to speculate on price movements in currencies. Currency futures may be contrasted with non-standardized currency forwards, which trade over-the-counter (OTC). Currency futures are futures contracts for currencies that specify the price of exchanging one currency for another at a future date. The rate for currency futures contracts is derived from spot rates of the currency pair. Currency futures are used to hedge the risk of receiving payments in a foreign currency.

Understanding Currency Futures : The first currency futures contract was created at the Chicago Mercantile Exchange (CME) in 1972 and it is the largest market for currency futures in the world today.1 Currency futures contracts are marked-to-market daily. This means traders are responsible for having enough capital in their account to cover margins and losses which result after taking the position.

Futures traders can exit their obligation to buy or sell the currency prior to the contract's delivery date. This is done by closing out the position. Except for contracts that involve the Mexican Peso and South African Rand, currency futures contracts are physically delivered four times in a year on the third Wednesday of March, June, September, and December.2. For example, buying a Euro FX future on the U.S. exchange at 1.20 means the buyer is agreeing to buy euros at $1.20 USD. If they let the contract expire, they are

responsible for buying 125,000 euros at $1.20 USD. Each Euro FX future on the Chicago Mercantile Exchange is 125,000 euros, which is why the buyer would need to buy this much. On the flip side, the seller of the contract would need to deliver the euros and would receive U.S. dollars. Most participants in the futures markets are speculators who close out their positions before the futures expiry date. They do not end up delivering the physical currency. Rather, they make or lose money based on the price change in the futures contracts themselves. The daily loss or gain on a futures contract is reflected in the trading account. It is the difference between the entry price and the current futures price, multiplied by the contract unit, which in the example above is 125,000. If the contract drops to 1.19 or rises to 1.21, for example, that would represent a gain or loss of $1,250 on one contract, depending on which side of the trade the investor is on. The prices of currency futures are determined when the trade is initiated.

Difference Between Spot Rate and Futures Rate : The currency spot rate is the current quoted rate that a currency, in exchange for another currency, can be bought or sold at. The two currencies involved are called a "pair." If an investor or hedger conducts a trade at the currency spot rate, the exchange of currencies takes place at the point at which the trade took place or shortly after the trade. Since currency forward rates are based on the currency spot rate, currency futures tend to change as the spot rates changes.

If the spot rate of a currency pair increases, the futures prices of the currency pair have a high probability of increasing. On the other hand, if the spot rate of a currency pair decreases, the futures prices have a high probability of decreasing. This isn't always the case, though. Sometimes the spot rate may move, but futures that expire at distant dates may not. This is because the spot rate move may be viewed as temporary or short-term, and thus is unlikely to affect long-term prices.

Currency Futures Example : Assume hypothetical company XYZ, which is based in the United States, is heavily exposed to foreign exchange risk and wishes to hedge against its projected receipt of 125 million euros in September. Prior to September, the company could sell futures contracts on the euros they will be receiving. Euro FX futures have a contract unit of 125,000 euros. They sell euro futures because they are a U.S. company, and don't need the euros. Therefore, since they know they will receive euros, they can sell them now and lock in a rate at which those euros can be exchanged for U.S. dollars. Company XYZ sells 1,000 futures contracts on the euro to hedge its projected receipt. Consequently, if the euro depreciates against the U.S. dollar, the company's projected receipt is protected. They locked in their rate, so they get to sell their euros at the rate they locked in. However, the company forfeits any benefits that would occur if the euro appreciates. They are still forced to sell their euros at the price of the futures contract, which means giving up the gain (relative to the price in August) they would have had if they had not sold the contracts.

Example of Currency Futures Trading: Think of an Indian company Kurmura & Co that pays a British company Fish Chips & Co in GBP for its services. Kurmura & Co would want to hedge their position by locking the price of the amount payable at a favorable rate. After all, adverse movements in GBP-INR have the potential to increase the expense of the Indian company. As it happens, the GBP has already shown signs of a potential gain on the Indian Rupee. There’s a chance that the forex rate may go from Rs. 90.0000 to Rs. 92.0000. Although there’s just been a Rs. 2 increase, it has the ability to significantly increase the cost borne by the Indian company.That’s why Kurmura & Co enters into a futures contract, locking the price of GBP-INR at a favorable rate of 91.0000. In this case, Kurmura & Co is not a speculative player in the market, they’re in it to hedge their position. Let’s consider another example. Say Mr. Cool Beans thinks the Euro’s price may rise relative to

the Indian Rupee. Mr. Beans will thus turn to NSE currency futures for EUR-INR and enter into a futures contract. The goal of currency trading online, in this case, is simple – to earn profits in INR. That's exactly what will happen. Whatever gains (or losses) Mr. Beans experiences will be settled in INR during the expiry month's final working day.

Where Are Currency Futures Traded? : Currency futures contracts are traded on derivatives exchanges around the world, including the Chicago Mercantile Exchange (CME), the Intercontinental Exchange (ICE), and Euronext exchanges. How Do Currency Futures and Forwards Differ? Currency futures and forwards are very similar in how they work. The difference is that futures contracts have standardized terms and are traded on exchanges. Forwards instead have customizable terms and are traded over-the-counter (OTC).

Why Do People Use Currency Futures? : Currency futures are used to lock in an exchange rate over some period of time. This can be used to hedge foreign currency fluctuations, which is especially useful in international trade and among multinational corporations. Besides spot and forward markets, foreign currencies are traded in the market for currency futures and the market for currency options. The market for currency futures and options is known as the market for derivatives because the prices in these markets are driven by the spot market price. Their discussion is an essential part of any discussion on the foreign exchange market as they are an integral part of the foreign exchange market. The present chapter deals with the market for currency futures, while the following chapter will deal with the currency options. Currency trading is possible in India through exchange traded derivatives like currency futures and options. But, currency futures contracts are known to be much more popular than options in India. The reason? There are seven forex pairs eligible for futures trading while only one pair is open for options trading. That's why this blog includes everything you need to know about trading currency futures, including the whats and the whys as well the pros and cons of trading futures of the seven eligible forex pairs. Join us!

7.2 WHAT ARE CURRENCY FUTURES? :

Currency futures are derivative contracts for a pair of underlying currencies like USD-INR, EUR-INR, GBP-INR, JPY-INR, and more. In total, there are seven forex pairs whose futures you can buy and sell in India. The underlying instrument in forex futures is always a pair of currencies because buying one currency without the other is simply not possible. Much like any other futures, forex futures also contain an expiration date and a pre-agreed price. This is the date and price at which you are obliged to exercise the futures contract. As per Indian currency trading rules, futures contracts expire at 12.30 PM, two business days before the last working day of the month. The price of a currency futures contract is an interesting one. It is based on multiple factors, but the forex rate of the currency pair is known to have the biggest impact on the price of the futures contract. If you're an experienced trader or have read about derivatives, you'd notice that forex futures are similar to currency forwards. That said, there's one major difference between them. Forex futures are exchange-traded, which means they're standardized contracts that have a set lot size, best price across trade sizes, and many other perks.

Here are all the components of a currency futures contract:

Traded on : NSE, BSE, & MSE
Underlying asset : a pair of currencies
Lot size : in multiples of 1000
Price : based on forex rate & other factors
Expiration : two business days before the last working day of the month

Now that you know how a forex futures contract works, it's time for you to understand the nuances. In India, currency futures are cash-settled – the profit or loss that you make on a forex pair will be added/deducted in INR. What this also means is that the foreign currency you've bought won't be delivered to your home. Furthermore, future contracts are settled on the last working day of the expiry month.

Who Trades Currency Futures? : There are two types of traders that engage with currency futures. The first persona is you, a retail trader aka a speculator who wants to make potentially lucrative returns by trading currencies. A speculative trader may or may not want to take delivery of the currency, which is not possible in India anyway. But it is an important differentiator. The speculative trader is only concerned with profits. The second persona is that of an entity that enters into a forex futures contract to hedge its position. Hedging simply means managing risk but securing a favorable position in the market. Let's compare both these personas that trade currency futures with the following examples.

Currency trading meme

Factors That Affect Currency Futures Price : The forex spot rate for a pair of currencies is known to affect the futures price for the same currency pair. The spot rate is the latest exchange rate for a pair of currencies. Another way to look at the spot rate? Simple.

i. It's the price at which one currency can be exchanged for another as per the latest exchange rates. If you've taken an international trip, you may have exchanged currencies at the airport at the most recent exchange rate.

ii. While the forex futures market and the derivative market are a relatively small subset of the forex market, it is affected by the spot because the value of the underlying currencies is, after all, decided by the forex rate.

iii. If the spot price increases, the futures may increase as well. Conversely, a drop in the spot rate can impact the futures price. The movement of the currency pair futures is known to be in and around the spot rate.

iv. As always, there are exceptions. For example, a futures contract for a pair of currencies that's set to expire in the distant future may not move in tandem with the rising or falling spot rates.

v. Forex market participants may simply dismiss the rise or fall as a temporary phenomenon. Either way, the market for trading currency futures is popular because there's potential for making money. But there are risks as well.

7.3 RECENT UPSURGE IN CURRENCY FUTURES CONTRACTS :

The foreign exchange market involving forward contracts has a long history but the market for currency futures has a comparatively recent origin. It came into being in 1972 when the Chicago Mercantile Exchange had set up its international monetary market division for trading of currency futures. Other exchanges were established for this purpose in the subsequent period. Notable among them are the Philadelphia Board of Trade, London International Financial Futures Exchange, Singapore International Monetary Exchange and Sydney Futures Exchange. The volume of transactions in the currency futures market is very low compared to that in the spot and the forward markets in general. As per an estimate, the volume of currency futures turnover during 2000 came to around 8-13 per cent of the turnover in the global spot and forward market (BIS, 2004). This percentage stands well maintained. In absolute terms the average daily volume of transactions swelled from $20 billion in early 2002 to $279 billion by mid-2006.

Currency Futures : Every country has a currency, and the value of that currency changes all the time in relation to other currencies. The value of a country's currency is determined by a variety of factors, including the status of the economy, foreign exchange reserves, supply and demand, and central bank policy. Investors are attracted to a currency that is stable and strong. NSE Currency futures can be used to do this. Currency futures are a forex futures trading instrument with a currency future exchange rate as the underlying asset, such as the euro to US dollar exchange rate or the British Pound to US dollar exchange rate. Currency futures are fundamentally the same as all other futures markets (index and commodity futures markets) and are traded in the same manner.

What are Currency Futures? : Currency futures are based on two different currencies' exchange rates. The euro and the dollar (EUR/USD) are an example of a currency pair with an exchange rate. The first currency indicated in the pair is the governing currency. Futures dealers are concerned about the euro price in this situation. Traders purchase a contract for a specific amount, and the contract's value fluctuates with the value of the euro. Currency futures only trade in one contract size, so traders must trade in multiples of that.

Importance of Investing in Currency Futures : Like other futures - foreign exchange futures can be utilized for hedging or speculative objectives. FX futures are purchased by a party who knows they will require foreign currency in the future but does not want to buy it now. This will function as a hedge against any potential exchange rate volatility. They will be assured of the FX futures contract's exchange rate when the contract expires, and they need to acquire the currency.

Similarly - if a party anticipates receiving a cash flow in a foreign currency in the future, they might use futures to hedge their position. Speculators frequently use currency futures as well. If a trader believes a currency would appreciate against another. He or she might buy the FX futures contracts to profit from the fluctuating exchange rate. Because the initial margin retained is typically a fraction of the contract size, these contracts can be beneficial to speculators. This effectively allows them to leverage up their position and increase their exposure to the exchange rate.

Interest rate parity can also be checked using currency futures. If interest rate parity does not hold - a trader may be able to earn solely on borrowed funds and the utilization of futures contracts by employing an arbitrage technique.

Due to the opportunity to modify these over-the-counter contracts, currency forwards is frequently used by investors wishing to hedge a position. Currency futures are popular among speculators because of their high liquidity and ability to leverage their positions.

Settlements of Currency Futures : A currency futures contract can be settled in one of two ways. The vast majority of the time, buyers and sellers will take an opposing position to offset the original positions before the last day of trading (which varies depending on the contract). The profit/loss is credited to or debited from the investor's account when an opposite position closes the trade before the last day of trading. Contracts are typically held until the maturity date, after which they are either cash-settled or physically delivered, depending on the contract and exchange. The physical delivery of most currency futures takes place four times a year, on the third Wednesday of March, June, September, and December. Only a small percentage of currency futures transactions are completed by a buyer and seller physically delivering foreign money. When a currency futures contract is kept until it expires and is physically settled, both the applicable exchange and the participant are responsible for completing the delivery.

7.4 FEATURES OF CURRENCY FUTURES CONTRACTS :

Features of Currency Futures

Mentioned below are the key attributes of currency futures prices:

Underlying Asset : This is the currency exchange rate that has been specified.

Expiration Date : This is the final settlement for cash-settled futures. It is the date on which the currencies are exchanged for physically delivered futures.

Size : The sizes of contracts are all the same.

Margin Requirement : An initial margin is necessary to enter into a futures contract. A maintenance margin will be established, and if the original margin goes lower than this level - a margin call will occur, requiring the trader or investor to deposit money in order to raise the initial margin over the maintenance margin.

Size and Maturity of the Contract : Despite the fact that a currency futures contract, like a forward contract, involves trading of an underlying currency at a specified exchange rate and for a fixed maturity, there are primary differences between the two Currencies futures are traded only in a limited number of currencies. The size of contract is standardized involving a fixed amount of different currencies. At the Chicago Mercantile Exchange, it is £ 62,500, Can $1, 00,000, Australian $ 1, 00,000, Euro 1, 25,000, Swiss fr. 1, 25,000, and Japanese ¥ 1, 25,00,000. The date of delivery is also fixed normally on the third Wednesday of January, March, April, June, July, September, October and December. On the contrary, in case of forward contract, many currencies are available for the contract; delivery date is not fixed; nor is the size of the contract.

Use of Pits : A forward contract is finalized on telephone, etc. meaning that it represents an over-the-country market. But in case of currency futures, brokers strike the deals sitting face to face under a trading roof, known as pits. The brokers can trade for themselves as well as on behalf of their customers. When they trade for themselves, they are called locals or floor traders. The locals are sometimes called scalpers who hold their position-long or short for not more than a few minutes. They make profit out of volume trading and at the same time provide liquidity to the market. Some locals are also known as day traders who hold their position for a comparatively long period that is less than a full trading session. They make profit out of movement in price but avoid the risk of holding a position for a longer period. Again, some locals are position traders who hold a position for a period ranging from overnight to a week or a month. On the other hand, when the brokers trade on behalf of their customers, they are known as commission brokers or floor brokers. They charge commission from their clients. This is why there are no bid and ask rates and the commission serves the purpose of spread. Traders acting for themselves as well as on behalf of their customers are known as dual traders. One of the demerits of the dual traders is that they act more for their own benefit and not so much for their clients. Such favorable treatment for their own account at the expense of their clients is known as front –running.

7.5 TRANSACTION THROUGH A CLEARING HOUSE :

In every deal, the exchange or the clearing house is necessarily involved as a party. Suppose A and B are traders. A strikes deal with the clearing house. B too strikes a deal with the clearing house. A, if it is a buyer of the currency shall acquire a long position with the clearing house while B being the seller of the currency shall acquire a short position with the clearing house. In fact, the obligation of the buyer and the seller does not lie with each other but with the clearing house. After a transaction is recorded, the clearing house substitutes itself for party, meaning that it becomes the seller to every buyer and buyer from every seller. This way it guarantees the performance of every transaction done on the floor of the exchange. If a buyer of a currency futures contract likes to close out its position before the settlement date, it sells an identical futures contract. The difference between the price of purchasing futures and the price of selling futures will determine the loss/gain to the party. Similarly, a seller of a futures contract closes out its position by purchasing a currency futures contract.

Margin Money : Trading in currency futures is subject to specific margin and maintenance requirements. A margin is justified on the ground that the traders represent a source of credit risk to the exchange or the clearing house as long futures traders may not have sufficient funds to buy the underlying foreign currency. In order to cover the risk, they are required to deposit margin money with the clearing house. This is normally in the form cash deposits, although liquid securities are also used. The initial margin amount varies from one exchange to the other. It is returned on the completion of the contract. If it is in the form of securities, the interest earned thereon is also paid to the traders. In case of forward contracts, there is no question of margin and maintenance requirements.

The margin money has two components. One is the initial margin which is the amount of money that must be deposited at the time of signing of the contract. The other is the maintenance margin. It denotes the minimum level to which the margin is allowed to fall in the sequel of loss. If the balance drops below the maintenance level, additional amount known as variation margin is deposited to restore the minimum balance.

The variation margin depends on the probability of exhaustion. The probability of exhaustion, $P = 2[1-N(w)]$

Where w= D/ (V x K x D/ (V x K x √T)

Here, D is the cash deposit for each futures contract, V is the standard deviation of daily change in the price of futures contract, K is the value of 1 futures contract. T is the number of trading days over which calculation is based and N (.) is the cumulative distribution function for a standardized normal variant.

Suppose a finance manager goes for a pound futures contract in the US futures market at an assumed spot rate of US $ /£. V is 0.0040. Exhaustion takes not more than 10 per cent of the time. And T is 9 days. In this case,

w= D/(0.0040 x 62,500 x √9)= D/750

If exhaustion occurs not more than 10 per cent of the time, P=1-0.90 = 0.10.

So w must be determined so that

0.10=2[1-N(w)] or N(w) = 0.95

From a normal distribution table, we find that

w= 1.90

Hence,

D/750 1.90

Or D= 750 x 1.90 = 1,425

This means that the finance manager should keep $ 1,425 deposited for each pound futures contract for the purpose of meeting variation margin calls in addition to the maintenance margin.

PROBLEM 1 :

Find out the size of variation margin call of a Euro futures contract with the help of the following data:

(a) 1 Euro futures contract

(b) Spot price is US $ 1.50/Euro

(c) 0.0040 is standard deviation of daily changes in the price of futures

(d) Probability of exhaustion is 0.05

(e) Number of days is 9 for which calculation is to be made

Solution :

One Euro futures contract involves Euro 1, 25,000. Converting this amount in terms of US $, it comes to US $ 1, 87,500.

Therefore w=D/(0.0040 x 1,87,500 x √9)= D/$ 2,250

Since P= 0.05, N(w)= 0.975, from the normal distribution table, it is found that

w= 1.96= D/2,250

D= 2,250 x 1.96 =$ 4,410

In other words, US $ 4,410 is the size of variation margin call.

Marking to the Market : In case of forward contracts, the deal is settled on the maturity but in case of currency futures, the rates are matched every day with the movements in spot rates; and on this basis, gains and losses are settled every day. This process is called marking to the market.

The process of marking to market can be explained with the help of an example. Suppose an investor buys Can. dollar futures (Can. $1, 00,000) at US $0.75 on a Monday morning which is to mature within two days. At the close of Tuesday, if the price moves up to US $ 0.755, the investor shall profit 1, 00,000 (US $ 0.755 - 0.750) or US $ 500, and if the price falls to US $ 0.749, the investor will have to bear the loss. The amount of loss will be deducted from the margin money. If the loss is big and as a result, the margin money falls below a certain level, which is known as the maintenance margin, the investor receives a margin call for depositing the margin money within a specified period. Again, on Wednesday, the prevailing price on that particular day will be compared with the price

prevailing on Tuesday and the gain or loss will be determined. On the maturity day, the investor receives the amount of the contract after the adjustment of the profit/loss. However, it may be mentioned that in very few cases, the amount of the contract flows to the investor. In majority of the case, there is a matching contract in the opposite direction. The investor gets only the difference.

PROBLEM 2 :
An importer buys Pound 62,500 in the futures market at $1,750/£ for the purpose of hedge on 20th September. The maturity falls on 27th September. The spot exchange rate of US dollar per pound is as follows 21/9: $ 1.752, 22/9: 1,755, 23/9: 1.753, 24/9: 1.753, 25/9: 1754, 26/9: 1.755 and on 27/9:1,758. Find out how much will be added to/subtracted from the margin money.

Solution :
21/9: $1.752-1.750 = 0.002
22/9: $1.755-1.752 = 0.003
23/9: $1.753-1.755=-0.002
24/9: $1.753-1.753 = 0
25/9: $1.754-1.753= 0.001
26/9: $1.755-1.754 = 0.001
27/9: $1.758-1.755= 0.003
Net gain = $ 0.008.
Total gain = $ 0.008 x 62,500 = $ 500 that will be added the margin money.

Hedging In Currency Futures Market :

Traders make use of the market for currency futures in order to hedge their foreign exchange risk. For instance, suppose a French importer importing goods from USA for $1.0 million needs this amount for making payments to the exporter. It will purchase US dollar future contract which would lock in the price to be paid to the exporter in terms of the US dollar at a future settlement date by holding a futures contract, the importer does not worry about any change in the spot rate of the US dollar over time. On the other hand, if the French exporter exports goods to a US firm and has to receive US dollars for the exports, the exporter would sell a US dollar futures contract. This way the exporter will be locking in the prow of the expert to be received in terms of US dollar It will protect itself from the loss that may occur in case of depreciation of the US dollar over time.

However, the question is whether futures hedge can be a perfect hedge. It is particularly in view of the fact that while forward deal can be tailored to any size of the currency transaction and to any maturity, the futures cannot be, insofar as both the size of the contract and the maturity of the futures deal are fixed. Suppose a German importer decides to import on 1st of September from Canada for which C$ 62,500 has to be paid on December 1. If the maturity in the futures market falls December 26, the maturity does not match with that of the actual cash transaction. Again, since the size of the Canadian dollar futures is C$ 1, 00,000, it does not match with the size of cash transaction. On this ground, futures hedge cannot normally be a perfect hedge.

If the maturity of futures contract mismatches, future hedging is known as a delta hedge. If maturity matches but the size of the futures contract does not match, one can go for a cross hedge. If both the size and maturity do not match, the edger can go for a delta-cross hedge.

Delta Hedge : Suppose for a moment that the value of import made on September 1 is C$ 1, 00,000. The amount is to be paid on December 1. If the German importer goes for a forward contract, he will buy Canadian dollar three-month forward. In case of forward contract, forward rate on the date of maturity can easily be calculated on the basis of the interest rate parity theory. As per the above example, if spot rate on September 1 is Euro 0.90/C$ and the interest rate is 5 per cent and 4 per cent respectively in Germany and Canada, the forward rate on December 1 will be Euro [(1.05/1.04)-1] x 0.90/4+0.90/ C$ or Euro 0.9092/C$. But in a futures hedge, where maturity falls on December 26, 25 days are still left for the maturity during which the interest rate differential may change. So a futures hedge cannot be a perfect hedge and there will be some variations in the hedged pay-offs. It can, however, be very nearly a perfect hedge if there is no change in the interest rate differential. It is because there is virtually no basis risk if interest rate differential does not change. It may be noted here that basis risk arises on account of unexpected change in the relationship between spot rate and futures rate.

Cross Hedge : Let us take another example where the value of import is C$ 62,500 the payment has to be made on December 26. Here the maturity matches but the size of the contract does not. In this case, the size of payment matches with that of the British pound futures. Importer can go for buying pound in the futures market if there is a high degree of correlation between British pound and the Canadian dollar. The future hedge can be made a perfect hedge this way.

Delta Cross Hedge : It is a case when there is both maturity and size mismatch. In such it is difficult to eliminate the basis risk. As a result, the futures hedge is normally not a perfect hedge. The hedger can, however, go simultaneously for a cross hedge and a delta hedge in order to make the hedge a perfect one as far as possible.

7.6 SPECULATION WITH CURRENCY FUTURES :

Speculators make use of the currency futures for reaping profits. When they expect that the spot rate of a particular currency will move up beyond those mentioned in the currency futures contract, they buy currency futures denominated in that particular currency. On the other hand, if the spot rate of a particular currency is expected to depreciate below the rate mentioned in the currency futures contract, the speculators will sell currency futures in that currency. It may be noted here that these transactions involve cost that is to be deducted from the gain. The transaction cost is very nominal for the locals, but is significant for the speculators

Intra-currency Spread : Speculators can buy or sell futures of the same currency for two delivery dates if the rates for those two dates differ. This is known as intra currency spread. To make the example simple, we ignore here any marking into market. Suppose pound is expected to appreciate till June and then it is expected to depreciate at least by September at a faster rate than the futures rate. In this case, a speculator will buy a pound futures contract for June delivery and sell another one for the September delivery. Suppose pound futures are available at $ 0.650/£ for June delivery and at $ 0.640/£ for September delivery. The spot rate of pound rises to $ 0.655 on the June maturity but, contrary to the speculator's expectations, falls only to 0.642/£ by September maturity date. The speculator will gain $ 0.005 per pound on the June-delivery contract but will lose $ 0.002 on the September contract. The net gain will be equal to $(0.005- 0.002) x 62,500 = $ 187.5.

Inter-currency Spread : Besides the intra-currency spread, inter-currency spread is also used by the speculators. Such spread occurs when the deal involves purchase and sale of future contracts with the same delivery date but with two different underlying currencies.

Suppose the speculator expects an appreciation of Canadian dollar relative to the British pound. He will reverse the two contracts. If the price difference of the two reverse contracts is less than the price difference of the original contracts. The speculator will make a profit.

PROBLEM 3 :
If a pound futures contract is available at $ 1.690 and Euro futures contract is available at $ 1.250. Pound is expected to appreciate and Euro is expected to depreciate. In such a situation, a speculator will buy a pound futures contract and sell Euro futures contract for the same maturity. If, contrary to the expectations, pound depreciates to $ 1.680 and Euro depreciates to $ 1.235, find out the gain to the speculator from the inter-currency spread.

Solution :

Loss on pound futures contract = $ 1.690-1.680 = $ 0.010 per pound or total loss = $ 0.010 x 62,500 = $ 625.
Gain on the Euro futures contract = $ 1.250-1.235 = $ 0.015 per pound or total gain = $ 0.015 x 1, 25,000 = $ 1,875.
Net gain = $ 1,875 – 625= $1,250.

How To Trade Currency Futures In India? The Complete Guide! :

How to Trade Currency Futures in India: The process of trading forex futures is more or less similar to any type of derivatives trading in India. There are minor differences, which we will highlight below in the steps to start trading currency futures.

Step 1: Choose a Broker : SEBI-authorized brokers are the only ones through which you can buy and sell exchange-traded currency futures in India. Moreover, the broker you choose will give you access to a forex trading platform. This forex trading platform is crucial to trading futures because it is the interface that allows you to place buy and sell orders. At the same time, the broker must also give you features that make forex trading stress-free. That's why you need to choose your broker wisely. Seasoned forex traders are known to evaluate a forex trading platform's reviews, perks, support, and other factors before making a decision.

Step 2 : Open a Currency Trading Account : Opening a currency trading account will allow you to buy and sell futures of all tradeable forex pairs. Without a trading account, you won't be able to engage with the currency futures market. There's a reason for this. That's because brokers (the ones who help you open a currency trading account) are the ones who can place buy or sell orders with an exchange. To get started, you will have to complete a KYC process.

Step 3 : Go Through KYC Process : A Know Your Customer (KYC) process generally requires you to submit a series of official documents that confirm your identity, residence, and income. These documents are mandatory in order to register you with an exchange. KYC approval and registration may take 24 to 48 hours. Meanwhile, you can use the time to solidify your trading strategies and scout the forex pairs whose futures you want to trade.

Step 4 : Research Currency Futures to Trade : There are, in total, seven currency pairs whose futures you can trade in India. Each pair of currencies are known to have varying pros and cons as well as liquidity and volatility. That's why it's best to research the futures for the types of forex pairs you want to trade before actually placing a buy or sell order. Once you're done with your research, the next step is to start trading.

Step 5 : Start Trading Currency Futures : Your forex trading platform will require you to transfer a margin before you can start trading currency futures. Once you deposit the required margin amount, you can place buy and sell orders. Bear in mind that you can trade futures for currency pairs between 9.00 AM to 7.30 PM in India. INR pairs are traded till 5.00 PM while cross-currency pair futures can be traded till 7.30 PM. That said, cross-currency pairs may struggle for liquidity. We've covered the detailed opening and closing times as well as the holidays in the Indian currency market in this blog: Forex Market Hours & Holidays in India for 2022

Conclusion : You can start trading currency futures in India by opening a trading account with a SEBI-authorized broker. You will be required to deposit a margin amount before you can trade futures for currencies.

- The currency market is truly global which means that the events, news, and happenings of foreign countries can have an impact on the forex pair whose futures you wish to trade.
- Furthermore, futures for currencies are speculative instruments that contain several pros and cons. Above all, currency trading is a highly leveraged principle that's why you as a trader need to be careful.
- Thus, it's important to understand your risk profile, risk management strategies, and other essential aspects of trading before you delve into the world of forex futures.

7.7 SUMMARY :

Currency futures are known as derivatives. Their market evolved in the early 1970s. They involve delivery of currencies on a future date and so, are similar to forward contracts. But in many ways, the two are different. To mention some of the more important differences, the size of the futures contract is fixed. The maturity date is fixed. The deals are transacted on the pits by locals or brokers for whom they charge commission from the principal traders or clients. On the other hand, the size of the contract and the maturity date in a forward contract are tailored to the needs of the traders. The forward market is an over-the-counter market. It does not involve any brokerage fee; rather the difference between the buying and the selling rates forms the profit of the bank. In the futures market, margin money is deposited to compensate the loss on daily settlements. In forward contracts, settlement is done only on maturity. Forward deals are contracted directly between two parties, but in case of futures, deals are contracted with the clearing house. When a client has to make a futures deal, it contacts the commission brokers through its own agent. After the deal is transacted, the client deposits the margin money with the clearing house. Daily settlement begins and continues till final settlement on maturity. In the majority of contracts, delivery of currencies is not made but is offset by a reversing deal. The client gets only the difference between the two deals. There are many types of orders that the commission brokers receive from their clients. Such a deal involves cots, such as brokerage commission, clearing house charges and the delivery fee. The market for currency futures is used by both the hedgers and the speculators. The former use it for reducing their risk appearing on account of changes in exchange rate. The latter use it for reaping profits. Apart from simple speculation, they involve themselves in intra-currency and inter currency spreads. The former takes place when the rate of the same currency varies on two maturity dates. The latter involves two currencies with the same maturity. Under the conditions of risk-neutrality and constant interest rates, forward prices, futures prices, and the expected spot prices at delivery, are equal. But, under conditions of varying interest rates, the futures prices and forward prices differ inasmuch as the former

involve daily settlement and the gain from settlement is reinvested at varying interest rates. Nevertheless, this difference is only short-lived. In the long run, the process of arbitrage helps wipe out such differences. Moreover, empirical studies show that the difference is not significant.

7.8 TECHNICAL TERMS :

- **Futures Market:** It is an organized market, and not over-the-counter, for the sale and purchase of specified amount of currencies.
- **Pit:** It is a place where currencies are traded.
- **Clearing House:** Clearing house is a part of the system in which traders strikes the deal.

7.9 SELF-ASSESSMENT QUESTIONS :

1. What are the different types of brokers operating in the market for currency futures?
2. Explain the role of clearing house in the market for currency futures.
3. What is marking to the market? Explain it with suitable example.
4. What are the different types of orders?
5. Distinguish between a forward contract and a futures contract. Is the value of a futures contract equal to the value of a forward contract?
6. How are transactions finalized in the market for currency futures?
7. Explain delta hedge, cross hedge and delta-cross hedge in the market for currency futures.
8. AUS importer negotiates to buy goods valuing Euro 1, 25,000, the payment of which coincides with the maturity date in the currency futures market. Expecting appreciation of Euro, he buys for a Euro future in order to hedge the exposure. The spot rate is US $ 0.60/Euro, the futures rate is US $ 0.63/Euro and the spot rate on the maturity is US $ 0.65/Euro. Explain whether futures contract is able to hedge the risk
9. Find out the basis as well as the futures price of a Euro futures contract based on the following data:

   Spot: US $ 0.60/Euro
   Days to maturity: 90 days
   Three-month interest rate in Germany and the USA is 6 per cent and 5 percent, respectively.
10. Find out the size of variation margin call of a Euro futures contract with the help of the following data:

    (a) One Euro futures contract
    (b) Spot price is US $ 1.50/Euro
    (c) 0.0040 is standard deviation of daily changes in the price
    (d) Probability of exhaustion is 0.05
    (e) Number of days is 9 for which calculation is to be made

7.10 SUGGESTED FURTHER READING :

Carlton, D. (1984), Futures Markets: Their Purpose, Their History, Their Growth, Their Success and Failures, Journal of Futures Markets. IV, 237-271.

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LESSON - 8

MARKET FOR CURRENCY OPTIONS

LEARNING OBJECTIVES :

After studying this lesson you should be able to:

- Delineates the broad features and types of a currency option contract.
- Describe different forms of the currency option market.
- Evaluates the gains and losses of the options traders.
- Examines how hedgers and speculators operate in this market.

Structure :

8.1 INTRODUCTION :

A currency option is a contract that will give the buyer the right, but not the responsibility, to buy or sell a specific currency at a predetermined exchange rate on or before a set date. A premium is paid to the seller for this right. Currency options are one of the most prevalent strategies for businesses, individuals, and financial institutions to protect themselves against exchange rate fluctuations. Long one currency pair and short another currency pair will still be part of the transaction. In essence, the customer will specify how much they want to spend, the price they want to pay, and the expiration date. The seller will then respond with a quote for the trade premium. Traditional options may have expiration dates that are similar to those in the United States or Europe. Traders have the right to choose between put and call options, but they are not obligated to do so. The options will expire worthless if the current exchange rate takes them out of the money (OTM). In India, currency futures were initially launched in 2008 and options in 2010. The National Stock Exchange's (NSE) derivatives sector now provides trading services in derivative instruments such as currency futures on four currency pairs, and they are cross-currency futures and options on three currency pairings. Currency options on the Indian rupee can be purchased against other currencies such as the euro, pound sterling, and the US dollar. Call and put options on the USD-INR pair that can be purchased through your stockbroker or through your internet trading platform. The options are European, which means you can only use them till they

expire. You can, however, complete the deal by reselling the options contract in the market. Your net loss or gain would be the difference between the premiums paid for buying and selling.

To trade them, you must pay a premium to the broker, who will then pass it on to the exchange, who will then pass it on to the option seller or writer. Since the premiums are relatively cheap, you can use a lot of leverage and trade in enormous volumes. This is because of the fact that you can trade a multiple of the premium. Now that you understand how to trade currency options, you can get started. Currency futures allow even individual investors to profit from fluctuations in exchange rates. The risk is minimal because you will only lose the premium you have paid. You must keep it in mind. However, currency markets are quite volatile, and getting the timing just right can be difficult.

Currency Options Definition : Currency Options are Derivative contracts that enable market participants which include both Buyers and sellers of these Options to buy and sell the currency pair at a pre-specified price (also known as Strike Price) on or before the date of expiry of such derivative contracts. These are Non-Linear instruments and are used by Market participants for both Hedging and Speculation purposes. The buyer of the Currency Option has the right but not the obligation to exercise the option, and to get the right; the buyer pays a premium to the Seller/Option writer.

How Does Currency Options Work? Currency options trading : are a kind of financial derivative contract which gives the holder of the contract the right and not the obligation to buy, which is called a call option or to sell, which is called a put option a certain amount of a particular currency by exchanging it with another currency at an exchange rate that is determined in advance at or before it expires. The rate of exchange is called a strike price.
It is commonly used by institutional investors , individuals or entities to hedge against exchange rate risk and protect themselves against any adverse exchange rate movements.

Currency options trading : comprises of two values that together determine the cost of the option, namely; Intrinsic Value and Extrinsic Value

a. Intrinsic value refers to the value by which the option is in the money. For example, Raven bought a USD/INR call with a strike price 72. The current price of the USD/INR is 73. In this case, the intrinsic value of this option is Rs 1, which is the amount by which the option is in the money.
b. Extrinsic value is the value attributed to time and volatility associated with the currency pair. The more the time to expiry and the higher the volatility, the greater will be the extrinsic value of an option.

This is an effective way to make the most out of Currency pairs and are used effectively by Traders, Speculators, and Corporate, etc.

8.2 FEATURES : HERE ARE THE MAIN FEATURES AND COMPONENTS OF THE SYSTEM :

- **Call Option** – The call option on any currency gives the holder of the contract a right to purchase the base currency at a particular exchange rate. The holder exercises the option when they believe that the base currency value will go up in comparison to the counter currency.
- **Put option** – This option gives the holder the right to sell the base currency and buy the counter currency at a previously fixed rate. This is done when the holder expects the value of base currency to fall.

- **Strike price** – The strike price is the rate at which the option holder exchanges the currencies. It is previously fixed when the option contract is made and does not change till the expiration date.
- **Expiration date** – It is the date beyond which the option contract will become invalid. Thus it is the time period within which the contract should be used.
- **Premium** – This is the price which the buyer pays to the seller so that they get the right to purchase or sell the currency. It depends on certain factors like the market volatility, expiration period, exchange rate, interest rate, etc.

8.3 BENEFITS OF CURRENCY OPTIONS :

There are several advantages in terms of investing in currency options, and they are:

i. It allows traders to leverage trades because the premium cost of the option contract is very cheap compared to the cost of actually buying the contract, allowing them to take a large position for a small premium.
ii. It is a low-cost hedging strategy that corporations can employ to protect themselves from unfavourable currency movements.
iii. The market for currency option is the other form of the derivatives market representing large-scale sale and purchase of currencies. This form of market possesses some distinguishing features and also the methods of operation are different. The present lesson thus acquaints the readers with the functioning of the market for currency options.

Advantages :

Some of the advantages of the concept are as follows:

i. It allows traders to take leverage trades as the premium cost of the currency options contracts is very minimal compared to the actual buying of the contract, which enables them to take a large position by paying a nominal premium.
ii. It is a low-cost tool for hedging and can be used by Corporate to hedge against any adverse currency movement.

Disadvantages :

Along with the advantages, it is necessary to identify the disadvantages of the concept, which are as given below:

i. Due to the high leveraged position, currency options contracts are prone to manipulation by speculators and cartels.
ii. The currency markets are controlled by the local government of each country, which impacts the Value of Currency Options.

8.4 TRADING STRATEGIES :

Some common strategies that are used for currency options trading are as follows :

- Hedging – This currency options hedge helps to protect against potential loss as a result of adverse movements of currency. If an organization has exposure to foreign currency and wants to protect itself from currency depreciation, it can go for put option to mitigate the risk of losses.
- Speculation – it is used to capitalize on currency movements that are anticipated in advance. The traders can go for call or put option as per their anticipated movements. Within a particular time period.
- Risk reversal – This is a combination of buying call option aand selling put option on the same currency and is commonly used by traders who want to offset the cost of their positions.

- ❖ Straddle – It involves simultaneously buying a call and also a put on the same expiration date and strike price. Traders use it when they expect that the currency market will be very volatile and is not sure of the direction that they should take.
- ❖ Covered call – A covered call strategy means holding a long position and and at the same time selling call option on that currency. In this case the premium received from selling the call is an income and provides a downside protection against the fall in currency value.
- ❖ Protective put – This is used by traders who want protection against currency fall. They purchase put option to establish a floor price for selling it. In case the currency falls, the put option gives the right to sell it at a predetermined strike price.

Examples : Let us try to understand the concept of **currency options market** with the help of some suitable examples.

Example 1 : Larsen International is undertaking a project in the United States of America and will receive revenue in Foreign Currency, which in this case, will be in US Dollars. The company wishes to protect itself against any adverse movement in the currency rate. To protect itself from any adverse moment which can arise on account of appreciation of local currency INR against the US Dollar, the company decided to purchase Currency Options. Larsen expects to receive the payment in the next three months, and the current USD/INR spot rate is 73, which means one dollar is equivalent to 73 rupees. By entering into an option with strike price 73 and expiry of three months, Larsen has covered its risk of fall in the price of foreign currency against the local currency Indian Rupee. Now, if the overseas currency US Dollar strengthens in the interim period, the company will benefit from stronger currency when translating its profits in Indian Rupee and will suffer the loss of the premium paid to purchase the option. However, on the contrary, if the foreign currency got weaker compared to the local currency INR (which means INR getting stronger against US Dollar), the currency option purchased by Larsen will ensure that it can translate its profit in India Rupee at the pre-specified rate, i.e., Strike Price. Avon Inc specializes in Hedge trades of such options. The firm believes that the current USD/INR spot rate of 73 can reach a maximum of up to Rs 74 against the dollar in the next three month and decided to profit from such a move and entered into a Strangle trade by buying and selling the call option and put option with strike price 74.

8.5 CURRENCY OPTIONS VS CURRENCY FUTURES :

Here are some basic differences between the two types of financial terms.

- ➢ The former gives the right but ot the obligation to the holder to purchase and sell the underlying currency, whereas the latter creates only an obligation for both the buyer and seller regarding the transaction related to the currency.
- ➢ The former is customised and flexible in terms of price, expiration date or size of the contract, but the latter is standardised and is traded in regulated exchanges.
- ➢ For the currency options market buyer, the loss is limited to the premium and the option seller's risk is unlimited, but in case of currency futures, the loss is unlimited for both seller and the buyer.
- ➢ For the former, the buyer pays premium to the seller whereas for the latter, a margin money is need which is a part of the contract value.

Example 2 : Position : Sold a three month USD put INR call option on $ 1 million with a strike price of 74.00 Bought a three month USD call INR put option on $ 2 million with a strike price of 74.00. To derive the value of the Currency Call and Put Option, the firm

calculates the price of the two options based on the Black Scholes Pricing Model. Derivation of rates is mentioned below –

	A	B	C	D	E
1	**Particular**	**Option Type**	**Call**	**Put**	
2	Notional Amount ($)	**N**	2,000,000.00	1,000,000.00	
3	Current Exchange Rate (Re/$)	**S**	73.0000	73.0000	
4	Strike Exchange Rate	**K**	74.0000	74.0000	
5	Re. Risk Free Rate (Continuously compounded, per annum)	r_d	6.50%	6.50%	
6		**T**	3 months	3 month	
7	Tenor of the Option in years		0.250	0.250	
8	Annual volatility of Logarithmic Returns on USD/INR Exchange Rate	**σ**	15%	15%	
9	$ Risk Free Rate (Continuously compounded, per annum)	r_f	2.50%	2.50%	
10		**d1**	-0.01	-0.01	**=(LN(D3/D4)+(D5-D9+((D8^2)/2))*D7)/(D8*SQRT(D7)**
11		**d2**	-0.09	-0.09	**=(LN(D3/D4)+(D5-D9-((D8^2)/2))*D7)/(D8*SQRT(D7))**
12		**N(d1)**	0.50	0.50	**=NORMSDIST(D10)**
13		**N(d2)**	0.47	0.47	**=NORMSDIST(D11)**
14	Value of the option on $1(in Rs.)	**v**	2.05	2.31	**=((1-D13)*D4*(EXP(-D5*D7))-D3*(EXP(-D9*D7))*(1-D12))**
15	Value of the option on Notional Amount of $ (in Rs.)	**V**	4,090,998.51	2,307,544.04	**=((1-D13)*D4*(EXP(-D5*D7))-D3*(EXP(-D9*D7))*(1-D12))*D2**

8.6 TYPES OF OPTION MARKET :

Listed currency options market: The first such market was set up at the Philadelphia Stock Exchange in December 1982. Initially, trading was done in British pounds, but subsequently, some other currencies such as the Australian dollar, Canadian dollar, Deutsche mark, French franc, Japanese yen and Swiss franc were added to the list. Listed currency options are standardised contracts. In such contracts, the clearinghouse is essentially a party to the contract. For the option-buyer, the clearinghouse is a seller of the options and for the seller of the options, it is a buyer. It guarantees both sides of the contract and charges a small fee for facilitating such contracts.

The writer of the currency options, especially a 'put' option, may not have sufficient funds to purchase the underlying currency when such an option is exercised. In order to avoid such a risk, the clearinghouse asks the writer to deposit margin money that is normally equal to the current market price of the option along with a specific percentage of the underlying currency's value. This percentage varies with the changes in the option's price.

The maturity is fixed in this market and expiration months are March, June, September and December. The expiration day is the Friday preceding the third Wednesday of the expiration month. The trading process begins when the customer places an order with a broker who is a member of the exchange. The broker relays the order to the broker's booth located on the exchange trading floor. The broker’s floor trader shouts out his bid that is answered by offers to sell from other traders. The offers are made either by specialists or market makers or by floor broken acting as agents for other customers. Specialists are normally the firms employed by the exchange to manage the limit orders for each currency. The market maker is a member firm that transacts on its own account. When a transaction is

finalised, it is recorded by the exchange's reporting system. The floor trader communicates the deal to the broker who passes on this information to the customer.

8.7 CURRENCY FUTURES OPTIONS MARKET :

In this market, which is basically a listed currency options market, the contracts present a mixture of currency futures and currency options. They are basically currency options because the buyer of the contract possesses the privilege of either exercising the option or letting it expire. The buyer and the seller of options have, however, to deposit margin money with the exchange that is equal to a small fraction of the contract price. The options are marked to market meaning that they undergo daily settlement as in the case of a futures contract.

Over-the-counter options market : The second type of market for currency options is known as the inter-bank currency options market or the over-the-counter options market. Such a market is centred in New York and London and the size of transactions is many times that of the market in the organised exchanges. The amount involved in a particular contract is also larger. It is usually US $ 1.0 million or more of foreign currency. Again, European options are usually found in over-the-counter market, while American options are prevalent in the organised exchanges. The number of currencies exchanged in the over-the-counter market is larger and the options are tailored to the client’s needs. The size of contract is standardised, but the banks repackage sizes according to the clients' needs. The organised clearinghouse is not in evidence, rather the commercial banks or investment banks write the options for the clients. In order to offset their exposure, these banks transact currency options on the listed stock exchanges

The over-the-counter market is a two-tier market. The retail market embracing non-bank customers dealing with the banks forms one tier while the other is the wholesale market representing transactions among the banks.

8.8 TYPES OF OPTIONS :

Broadly speaking, there are two types of options. In a call option, the buyer of the option agrees to buy the underlying currency, while in a put option contract; the buyer of the option agrees to sell the underlying currency. The call and put options are also of two types. One, known as the European option, is exercised only on maturity. The other, the American option, may be exercised even before maturity. It is normally in the buyer’s interest to exercise the option before maturity and so American options command higher prices than European options.: In recent years, some more variants of options often known as exotic options have become available. The first is, for example, known as a forward reversing option. In this case, a call option premium is paid only when the spot rate is below a specified level. The premium is quoted by the seller who charges the premium only when the options are not exercised. This way the buyer gets liberal terms. Secondly, there are preference options in which the buyer gets an additional privilege to designate the option either as a call option or as a put option. Though, this privilege is exercised only after the lapse of a specified period. In the case of average rate options, it is the arithmetic average of the spot rate during the life of the option that is taken into account at maturity instead of the spot rate. This type of option enables the buyer to hedge a series of daily cash inflows over a given period in one single contract. If the average rate on maturity is lower than the strike price, the buyer gets the difference between the two. If the average rate is higher than the strike rate, the buyer lets the option expire.

A look back option gives the holder the right to purchase or sell foreign currency at the most favourable exchange rate realised over the life of the option. For example, the buyer of a call has the right to buy the underlying currency at the lowest exchange rate realised between the creation of the call and the expiry date. The buyer of a put option has the right to sell the underlying currency at the highest exchange rate during the life of the option. All this means that the strike rate in a look-back option is not known until the expiry date. Naturally, because of this speciality, the premium of a look-back option is normally higher than the premium of a traditional option. In a cylinder or tunnel option, two strike rates exist. When the spot rate is lower than the lower strike rate, the buyer has to pay the lower strike rate. He pays the higher strike rate if the spot rate is higher than the higher strike rate. If the spot rate is between the two strike rates, the buyer pays the spot rate. There are also barrier options. In the case of down-and-out option, the option expires automatically if the spot rate reaches a level mentioned in the contract. In a down-and-in option, option is activated only when the spot rate reaches a specified barrier within the expiry date. The basket option caters to buyers who are confronted with foreign exchange risk in respect of many currencies.

Call Options : Such options are entered into with the intent to benefit and get currency options hedge from the increase in the price of the currency pair. It enables the buyer of the option to exercise his right to buy the currency pair at the pre-specified strike price on or before the expiry date of the contract. If on expiry, the currency pair is below the Strike Price, the option ends worthless, and the Option seller pockets the premium received.

These options are purchased with the intention of profiting from a rise in the price of the currency pair. It allows the option buyer to exercise his right to buy the currency pair at the predetermined strike price on or before the expiration date of the contract. If the currency pair is below the Strike Price when the option expires, the option is worthless, and the option seller would keep the premium. The buyer will gain if spot price is greater than the strike price along with the premium, C. This means:

Buyer's gain = S-X-C

Suppose a firm buys a call option at a strike price of Rs. 83.50/£ along with premium for Rs. 0.05 per pound sterling. If the spot rate at maturity is Rs.83.60, the gain to the option-buyer will be:

Rs. (83.60-81.50- 0.05) x 62,000= Rs. 3,125

If the spot rate at maturity is Rs. 83.55, gain to the option buyer will be zero. Any spot rate between Rs. 83.50 and Rs. 83.55 will make up partially any loss on account of the premium. If the spot rate is below Rs. 83.50, the buyer will let the option expire. The maximum loss will then be the amount of premium that is Rs. 3,125

For the seller of the call option, a profit profile is simply the mirror image of the loss profile of the option-buyer. If the buyer does not exercise the option, the gain accruing to the seller will be equal to the amount of the premium, but if the buyer exercises the option, the seller will have to face a loss equal to the excess of the spot price over the strike price.

PROBLEM 1 :

A pound options call contract has strike rate of $ 1.820/£ and a premium of $ 0.08 Spot rate on maturity is $ 1.920/£. Find gain/loss to options buyer/options seller.

Solution

Since S> (X+P), options buyer will gain. If options buyer gains, options seller has to lose.

Gain to the options buyer = $ 1.920- 1.820-0.08 = $0.02/£.

Total gain = $ 0.02 x 62,500= $1,250.

The seller of pound gets $ 0.10 less than the rate in the open market but he gets premium for $ 0.08. Thus his loss per pound is $ 0.02. Total loss is $ 0.02 x 62,500= $1,250.

PROBLEM 2

A pound options call contract has strike rate of $ 1.820/£ and a premium of $0.08. Spot rate on maturity is $ 1.812/£. Find gain/loss to options buyer/ options seller.

Solution

Here S<X and so contract is out-of-money. The buyer will not exercise the contract. His loss will be $ 0.08/£ as he has to pay the premium. The seller has nothing to pay; rather he will get the premium. Premium is the seller's gain.

PUT OPTIONS: Such options are entered into with the intent to benefit from the decrease in the price of the currency pair. It enables the buyer of the option to exercise his right to sell the currency pair at the pre-specified strike price on or before the expiry date of the contract. If on expiry, the currency pair is above the Strike Price, the option ends worthless, and the Option seller pockets the premium received.

These options are purchased with the intention of profiting from a drop in the price of the currency pair. It allows the option buyer to exercise his right to sell the currency pair at a predetermined strike price on or before the contract's expiration date. If the currency pair is above the Strike Price at expiration, the option is worthless, and the option seller keeps the premium. In the case of put option, the buyer will let the option expire if the spot rate is greater than the strike rate. The buyer will be put to a loss equivalent to the amount of premium, and profit will accrue to the buyer only if the spot price is lower than the strike price by more than the amount of the premium. That is,

Buyer's Gain =X-S-C

Suppose, the put option price of a deal is Rs. 83.50/£ along with a premium of Rs.0.02 per pound. If the spot price at maturity falls to Rs. 83.45, the profit to the buyer will be:

Rs. (83.50-83.45-0.02) x 62,500= Rs. 1,875

As far as the seller is concerned, the profit will be equal to the amount of premium when the buyer does not exercise the option. It occurs when the spot price is greater than the strike rate. On the other hand, the seller will face a loss if the option is exercised. The amount of loss will vary depending upon how much lower the spot price is

PROBLEM 3 :

A pound options put contract has strike rate of $ 1.820/£ and a premium of $0.08. Spot rate on maturity is $ 1.830/£. Find gain/loss to options buyer/ options seller

Solution :

The contract is out-of-money. The options buyer will not exercise the put. His loss will be equal to the amount of premium that he will pay to the seller. On the other hand, the premium received will be the seller's gain. The amount of gain/loss will be $0.08 x 62,500 = $ 5,000.

PROBLEM 4 :

A pound options put contract has strike rate of $ 1.910/£ and a premium of $0.05. Spot rate on maturity is $ 1.810/£. Find gain/loss to options buyer/options seller.

Solution :

The buyer will exercise the contract. The gain will be: $ 1.910- 1.810-0.05=$0.05. The seller will have to pay $ 0.10 more than the market rate, but he will get $0.05 premium. So his loss will be $ 0.10-0.05= $0.05.

8.9 HEDGING WITH CURRENCY OPTIONS :

Hedging through Purchase of Options : In order to hedge their foreign exchange risks, if it is a direct quote, the importers buy a call option and the exporters buy a put option. Take first the case of an importer. Suppose an Indian firm is importing goods for £ 62,500 and the

amount is to be paid after two months. If an appreciation in the pound is expected, the importer will buy a call option on it with maturity coinciding with the date of payment. If the strike price is Rs. 83.00/£, the premium is Rs. 0.05 per pound and the spot price at maturity is Rs. 83.20, the importer will exercise the option. It will have to pay Rs. 83.00 x 62,500+ 3,125 = 51, 90,625. If the importer had not opted for an option, it would have had to pay Rs. 62,500 x 83.20 = 52, 00,000. Buying of the call option reduces the importer's obligation by Rs. 52, 00,000-51,90,62= 9,375. If, on the other hand, the pound falls to Rs. 82.80, the importer will not exercise the option since his obligation will be lower even after paying the premium.

However, one question that arises is whether hedging through buying of an option is preferable to forward market hedging. Buying of currency options is preferred only when strong volatility in the exchange rate is expected and if volatility is only marginal, forward market hedging is preferred. Suppose, in the earlier example, the pound appreciates to only Rs. 83.04 or depreciates to only Rs. 82.97, the amount of premium paid by the importer will be more than the benefit from hedging through purchase of options. There will then be net positive cost of hedging through buying of option.

The exporter buys a put option. Suppose Indian exporter exports goods for £ 62,500. It fears a depreciation of pound within two months when payments are to be received. In order to avoid the risk, it will buy a put option for selling the pound for a two-month maturity. Suppose the strike rate is Rs. 83.00, the premium is Rs. 0.05 and the spot rate at the maturity is Rs. 82.80. In case of the hedge, it will receive Rs. 62,500 x 83.00 -3.125=51, 84,375. In the absence of a hedge, it will receive only Rs. 51, 75,000. This means, buying of a put option helps increase the exporter's earnings, or reduces its exposure, by Rs. 51,84,375-51,75,000 = Rs. 9,375,

Hedging through Selling of Options : Hedging through selling of options is advised when volatility in exchange rate is expected to be only marginal. The importer sells a put option and the exporter sells a call option. Let us first take the case of importers. Suppose an Indian importer imports for £ 62,500. It fears an appreciation in the pound and so it sells a put option on the pound at a strike price of Rs. 83.00/£ and at a premium of Rs. 0.15 per pound. If the spot price at maturity goes up to Rs. 83.05, the buyer of the option will not exercise the option. The importer as a seller of the put option will receive the premium of Rs. 9,375 which it would not have received if it had not sold the option. If the spot price at maturity falls to Rs. 82.95, the buyer of the option will exercise the option. But in that case, the importer received premium of Rs. 9,375. The net gain to the importer will be Rs. 9,375-3,125 = Rs. 6,250. The exporters sell the call option. If an Indian exporter exports for £ 62,500 and fears that the pound will depreciate and sells a call option on the pound at a strike price of Rs. 83.00 at a premium of Rs.0.15 per pound. If the spot rate at maturity really falls to Rs. 82.95, the buyer of the call option will not exercise the option. The exporter being the seller of the call option will get Rs. 9,375 as the premium.

8.10 TUNNELS: SIMULTANEOUS PURCHASE AND SALE OF OPTIONS :

Foreign exchange exposure can be hedged also through the use of tunnels or, through simultaneous sale and purchase of options. An importer buys a call and sells a put option. The exporter buys a put and sells a call option. The importer buys an out-of-the-money call and sells an out-of-the-money put option. As a result, neither the call, nor the put option is exercised if the exchange rate moves within a narrow margin. Here the premium to be received on the sale of the put must be enough to cover the premium to be paid on the purchase of the call option.

The exporter buys a put and sells a call-both out-of-the-money. If the exchange rate moves within a narrow margin, the premium received covers the premium paid. But if the currency depreciates sharply, the put option is there to guarantee a minimum price.

PROBLEM 5 : An American importer importing goods from UK fears an appreciation in pound. Pound options are available at a strike price of $1.830/£ with a premium of $ 0.03/£. The spot rate on the maturity rises to $ 1.930/£. How will he compensate his loss?

Solution: The importer will buy a call and sell a put. Call gives him a gain of $1.930- 1.830-0.03=$ 0.07/£. Selling put will bring him premium as put will not be exercised. The extent to which risk would be reduced is $0.03/£. The total amount of risk reduced will be $0.10/£=0.10 x62, 500 =$6,250

PROBLEM 6: An American exporter exporting goods to UK fears a depreciation of pound. Pound options are available at a strike price of $ 1.884/£ with a premium of $0.03/£. The spot rate on the maturity falls to $ 1.824/£. How will he compensate his loss?

Solution: The exporter will buy a put and sell a call. Put gives him a gain of $ 1.884-1.824 - 0.03=$0.03/£. Call will not be exercised by the buyer and so, as a seller of the call, the exporter will receive the premium of $ 0.03/£. Consequently, risk will be reduced to the extent of $ 0.06/£ or in all $ 0.06x 62,500= $3,750.

8.11 SPECULATING WITH OPTIONS :

Purchase of Options : Speculators make profit out of purchase of currency options. They normally buy call options when they expect upward movement in the value of the underlying currency. On the expiry date, they buy the currency at the agreed-upon rate and sell it in the open market at a higher rate and thereby reap profits. On the contrary, they buy put options when they expect depreciation of the underlying currency. They sell the underlying currency at an agreed-upon rate that is higher than the spot rate. This way they get more of the other currency than they could get in the open market. Besides these simple operations, they often go in for complicated deals mixing either two calls or two puts or one call and the other put. Here we explain some of the common modes of options transactions.

PROBLEM 7 : Pound is expected to appreciate to $ 1.930. Pound options are available at a strike price of $ 1.830/£ with a premium of $0.03/£. How do speculators react to the appreciation of pound?

Solution: Speculator will buy a call. On the maturity, he will get £ 62,500 at $ 1.830/£. Immediately after getting pound, he will sell those pounds in the open market to get dollar back and this way, he will gain $ (1.930 1.830-0.03) x 62,500 = $4,375.

PROBLEM 8: Pound is expected to depreciate to $ 1.730. Pound options are available at a strike price of $1.830/£ with a premium of $0.03/£. How do speculators react to the depreciation of pound?

Solution: Speculator will buy a put. On the maturity, he will get $ 1, 14,375 through selling £ 62,500 at $ 1.830/£. Immediately after getting dollar, he will sell those dollars in the open market at $ 1.730/£ to get pound back and this way, he will gain $ (1.830-1.730-0.03) x 62,500 = $4,375.

8.12 FIVE BASIC THINGS TO KNOW ABOUT CURRENCY OPTIONS :

Like in the case of options on equities and indices, currency options are also a right (without an obligation) to buy or sell a currency pair. In terms of rupee currency pairs, there are options on USDINR, GBPINR, EURINR and JPYINR. Let us look at 5 basics of currency options.

i. The right to buy the currency pair is called call option and the right to sell the currency pair is called put option
ii. The pre-specified price is called as strike price and the date at which the strike price is applicable is called expiration date
iii. The gap between the date of entering into the contract and the expiration date (in number of days) is called time to maturity
iv. The buyer of the call / put option pays premium to the seller of the call / put option. Buyer has limited loss but unlimited profits and the reverse is true for option seller
v. The asset which is bought or sold is also called as an underlying or underlying asset and in case of currency options it is the currency pair

Position limits – currency options :

i. Client level: Gross open position (across all contracts for futures and options on USDINR) shall not exceed 10% of total open interest or USD 10mn whichever is The exchange alerts clients when gross open position exceeds 3% of total open interest at the end of the previous day's trade.
ii. Trading member level: Gross open position of the trading member (across all contracts for futures and option on USDINR) shall not exceed 15% of total open interest or USD 50mn whichever is higher
iii. Bank: Gross open position of a trading member bank (across all contracts for futures and option on USDINR) shall not exceed 15% of total open interest of USD 100mn whichever is higher
iv. Clearing member level: No separate limit has been specified for a clearing However, clearing member's own positions and position of trading member clearing through him should follow the limits as specified above

What does the above live currency options chart represent? :

i. The contract is a call option (right to buy) the USDINR contract expiring on 28th August having a strike price of Rs.71.50.
ii. The price of the call option (option premium) is Rs.0.0725. It can be seen that the price has fallen sharply during the day due to strengthening of the INR during the day.
iii. There are two traded values here. The traded value represents the total lots multiplied by the lot size multiplied by the strike price. The other definition of value is premium value which is much lower.
iv. Open interest shows the number of lots of the specific contract that are still open in the market at this point of time.
v. All currency options are, by default, European options; meaning they can only be exercised on the date of expiry. They can be reversed at any time before that.

Rupee Currency Options And Cross Currency Options : Like in the case of currency futures, you have rupee pairs and cross currency pairs in currency options too. Cross currency pairs are non-rupee based pairs. Let us first look at the sample of rupee pair options on the NSE and their contract specifications.

Like in case of currency futures, the currency options on rupee pairs are also available on the same four pairs. How do you trade currency options? If you expect the dollar to strengthen versus the rupee, you can buy a call option on the USDINR. You can select the strike price based on your view. Similarly, if you are expecting the dollar to weaken versus the rupee, you can buy a put option on the USDINR. In case of options, while the lot size is denominated in the international currency value, the premiums are denominated in Indian rupees. Let us now turn to cross currency options.

Cross currency options are denominated in the principal currency that is the first currency of the pair. However, the option premiums even for cross currency options are denominated in rupees only.

Moneyness of Currency Options (ITM / OTM / ATM) : When are options valuable to the buyer of the option? For example, the buyer of the call option would exercise his right to buy only if the spot price of the currency pair is higher than the strike price on the maturity date. On the other hand, the buyer of a put option would exercise his right to sell only if the spot price of the currency pair is lower than the strike price on maturity date. There are also transaction costs and statutory costs but for simplicity purpose, we will ignore them for the time being.

In simple terms, moneyness of an option indicates whether the contract would result in a positive cash flow (in-the-money), negative cash flow (out-of-the-money) or zero cash flow (at-the-money) for the option buyer at the time of exercising it. Therefore, based on moneyness, options can be classified under 3 categories as under.

In the money (ITM) option : For Call Option it is ITM if the (Spot Price > Strike Price)
E.g. If USDINR call option of Rs.72 strike is having spot price of Rs.72.50, it is ITM
For Put Option it is ITM if the (Strike Price > Spot Price) E.g. If USDINR put option of Rs.72 strike is having spot price of Rs.71.50, it is ITM

Out of the money (OTM) option : For Call Option it is OTM if the (Strike Price > Spot Price)
E.g. If USDINR call option of Rs.72 strike is having spot price of Rs.71.50, it is OTM. or Put Option it is OTM if the (Spot Price > Strike Price)
E.g. If USDINR put option of Rs.72 strike is having spot price of Rs.72.50, it is OTM

In the money (ITM) option : For Call Option and put options it is ATM if the (Market Price = Strike Price). Since ATM options are practically difficult, traders consider the two contiguous strikes as near the money (NTM), which is an extended version of ATM options.

Option Pricing And Concept Of Intrinsic Value : There are some basic formulae we will draw from our discussion till now. The option price or option premium can be defined as (intrinsic value + time value). Intrinsic value is fairly straight forward because it is measured by moneyness. The residual value in the option premium is the time value. Time value of the option is one of the most important concepts and helps in options trading.

Illustration 1 : The USDINR September call option of 70 strike price is quoting at a premium of Rs.0.80 when the UDINR spot price is at Rs.70.60. What is the intrinsic value and time value of the option? In the above case; intrinsic value of call = (Spot – Strike) = (70.60 – 70) = Rs.0.60. Time Value (residual value) = (Option premium – Intrinsic Value) = (0.80 – 0.60) = 0.20. While the intrinsic value of the option above is based on moneyness, the time value is based on time to expiry and the volatility of the stock price. From the above we can conclude 3 things about pricing of options. ITM options have intrinsic value and time value. ATM / NTM options have larger proportion of time value than intrinsic value. OTM options have only time value and zero intrinsic value.

8.13 SUMMARY:

Currency options are derivatives like currency futures. They involve trading of currencies normally for hedging of exchange risk or for speculative purposes. However, they differ from the futures and also from forward contracts insofar as the buyer of currency options possesses the freedom of exercising the options or letting them expire. For this privilege, the buyer pays a small premium to the option seller. The currency options market exists normally at the organized exchanges, although there is also an over-the-counter market

for them. The futures- type options are traded in the currency futures option market. The features of the options traded in these markets are broadly the same, though the details vary among them. Options are either call options or put options. In the former, the option buyer agrees to buy the underlying currency. In the latter, it agrees to sell the underlying currency. European options cannot be exercised before expiry, but the American options can be. Over the years, a few other variants of the options have emerged. These are known as the second-generation options. The gain of the buyer of call option is represented by the excess of the spot rate over the sum of the strike rate and the premium. In case of the put option, it is represented by how far the spot rate is lower than the sum of the strike rate and the premium. The loss to the option-buyer is limited to the amount of premium. On the other hand, the loss to the option-seller is unlimited while the gain is limited to the amount of premium. The value of the options, which is equal to the sum of intrinsic value and time value, depends, inter alia, upon changes in the forward rate and spot rate, time to expiration, degree of volatility of the exchange rate, the interest rate differentials and the strike rate. American options that may be exercised earlier command greater value than the European options.

8.14 TECHNICAL TERMS :

- **Money Market:** Financial institutions dealing in short-term funds
- **Option Swap:** A right to enter into a swap on or before a particular date.
- **Pip:** The most junior digit in a currency quotation.

8.15 SELF-ASSESSMENT QUESTIONS :

1. How do you arrive at the gain from the options contract accruing both to the options buyers and sellers?
2. What are the factors on which the values of an options contract depend?
3. Hoe do the exporters and importers hedge in the market for currency options?
4. How do the speculators operate in the market for currency options.
5. On the basis of the following figures, find out

The intrinsic value of the British Pound options contract assuming it
(i) Call option, and (ii) Put option.
(b) Gain/loss to the option buyer assuming it (i) Call option, and (ii) Put option
(c) Gain/loss to the option seller assuming it (i) Call option, and Put option
(i) Spot rate on maturity: US $ 1.68/£
(ii) Strike rate: US $ 1.60/E
(iii) Premium: US $ 0.05/E

6. A US importer importing goods for Pound 62.500 fears an appreciation of Pound. He likes to hedge the risk through options. Options are available to him at two different strike rates. One is US$ 1.50/£, and the other is US $ 1.70/£. The premium in both the cases is US $ 0.03/£. If the spot rate on the maturity goes up to US 1.65/£, what will be his course of action?

8.16 SUGGESTED FURTHER READING :

1. Hull, J. (1989), Options, Futures and Other Derivative Securities, Englewood Cliffs, New Jersey, Prentice Hall.
2. Ritchken, P. (1987), Options: Theory, Strategy and Applications, Illinois, Scott

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LESSON - 9

EXCHANGE RATE DETERMINATION

LEARNING OBJECTIVES :

After studying this chapter, you should be able to:

- Explain how exchange rates are determined.
- Discuss the factors that influence the demand and supply of currency.

STRUCTURE :

9.1 INTRODUCTION :

The flexible exchange rates are determined and fixed by the government or the central bank while the floating exchange rate is determined by the market forces of demand and supply. This is a major difference between flexible and fixed exchange rates. There is a price for everything, good service or finance and money. Just like interest rate is the price for borrowing money or ready cash, or credit, exchange rate is the price of any currency in terms of other currencies. Each nation state has its own currency and is valid and acceptable in the state or nation. If one nation must pay to any other nation the currency of the former has to be exchanged for the later. In the similar manner, the residents of one nation pay to any other nation. They must convert their currency into the currency of the receiving country. Then the rate of conversion of the currency unit of one country into the currency units of any other country is called the exchange rate. The exchange rate is fixed by the government of the country under strict trade and exchange control. Exchange rates are important not only for business organizations but also for governments and individuals. Any change in exchange rates in either direction influences their cash flows. So, it is in everyone's interest to know how exchange rates move and what factors influence them. Broadly speaking, exchange rates are influenced by product prices and interest rates, which, in turn, are determined by several factors. Exchange rates are one such factor. Changes in exchange rates cause and are caused

by changes in product prices and interest rates. Exchange rates (spot as well as forward), product prices, and interest rates have equilibrium relationships, also known as *parity relationships*, which are governed by the law of one price. Parity relationships are driven by arbitrage. This chapter explains the essence of these parity relationships or conditions.

9.2 PARTICIPANTS IN FOREX MARKET :

The foreign exchange market structure constitutes various participants, and a few of them are:

i. **International Companies:** International business enhances the flow of cash across markets. For example, suppose a U.S.-based company sells tools in the United Kingdom. The trade will involve the conversion of pounds into dollars for repatriation. This makes them participants in the foreign exchange market.

ii. **Traders:** Individuals who trade their own money for profit are called traders. Retail traders account for a sizable and rapidly expanding sector of the market. These retail dealers serve customers seeking to buy or sell foreign currency for educational, travel, or tourism purposes.

iii. **Central Banks:** From the foreign exchange market history days, these institutions have been participants in the forex market. They control the money supply in their country, interest rates, and inflation to stabilize their economy (examples: the U.S. Central Bank – U.S. Federal Reserve (Fed) and European Central Bank (ECB)). Interventions from them reduce the fluctuation of the domestic currency and ensure the exchange rate is following the requirements of their economy. For example, if the euro shows signs of depreciation, the central bank may decide to sell a certain amount of its foreign currency holdings. The increased supply of foreign currency will reduce the demand and help pause the declining trend of the euro.

9.3 TYPES OF FOREX MARKET :

The foreign exchange market features different modes of trading, and they are embodied as follows: Different types of Forex markets, such as the spot market, swap market, forward market, options market, futures market, and participants, make up the foreign exchange market structure.

i. **Spot Market :** Transactions demand quick payments at the prevailing exchange rates. It requires immediate currency delivery or exchange on the spot- often within 48 hours. Spot transactions are those in which currency exchange occurs two days following the contract date. The spot rate is the effective exchange rate for a spot transaction, and the spot market is the market for such transactions. When an increase or decrease in the commodity's price occurs between the actual agreements and traded time, traders face uncertainty. Spot market traders are less prone to such uncertainties in the market.

ii. **Forward Market :** The forward market involves transactions in which exchange takes place at a specified date in the future for a specific price. In other words, the forward currency market entails making a contract today to purchase or sell foreign currency in the future. Forward rates are similar to spot rates, except the delivery takes place much later. However, there may be differences between the spot and forward rates. The difference is the forwarding margin or swap points. In addition, traders can customize the period of delivery at their will. This exchange helps exporters and importers avoid the challenges of rate fluctuations by using relevant forward exchange contracts.

iii. **Future Market :** A futures contract is another version of a forward contract traded publicly on a futures exchange. It includes the price and the time in the future to buy or sell an asset, just like a forward contract. Unlike a forward contract, a futures

contract has a fixed contract size and maturity date. Futures can only be exchanged on an organized exchange and they undergo competitive trading. A forward contract does not require margins, unlike all players in the futures market. Furthermore, traders must pay an initial margin into a collateral account to create a future position.

iv. **Swap Market :** Swaps allow the exchange of two streams of cash flows in two different currencies. Swaps, or double transactions, are operations in which a purchase or sale of the same currency for forwarding delivery follows a simultaneous sale or purchase of spot currency. The spot currency is swapped against the forward currency. Commercial banks that engage in forwarding exchange activity may use a swap operation to alter their fund position.

v. **Options Market :** Options are derivative instruments that allow a foreign exchange market operator to buy or sell a foreign currency at a predetermined rate (strike price) on or before a specific date (maturity date). A call option allows traders to buy the underlying asset, whereas a put option allows them to sell it. Exercising the option means purchasing or selling the underlying asset through the option. In the options market, exercising the option is not an obligation for traders.

9.4 TYPES OF EXCHANGE RATE :

Exchange rates of a currency can be either fixed or floating. Fixed exchange rate is determined by the central bank of the country while the floating rate is determined by the dynamics of market demand and supply. The three major types of exchange rate systems are the float, the fixed rate, and the pegged float. There are four main types of exchange rate regimes: freely floating, fixed, pegged (also known as adjustable peg, crawling peg, basket peg, or target zone or bands), and managed float. The most common regime today that is adopted in most countries are floating exchange rates. Mostly used yen, dollar, Euro, and British pound are the different types of currencies that fall under this category. A fixed exchange rate system is undertaken by the government or central bank which ties the country's official currency exchange rate to another country's currency or the price of gold. A fixed exchange rate system keeps a currency's value within a narrow band. By the central bank of the country while the floating rate is determined by the dynamics of market demand and supply. Exchange rates can be free-floating or fixed. A free-floating exchange rate rises and falls due to changes in the foreign exchange market. A fixed exchange rate is pegged to the value of another currency. The Hong Kong dollar is pegged to the U.S. dollar in a range of 7.75 to 7.85.

Fixed Exchange Rate : A fixed exchange rate is a regime applied by a government or central bank that ties the country's official currency exchange rate to another country's currency or the price of gold. The purpose of a fixed exchange rate system is to keep a currency's value within a narrow band. Currencies with fixed exchange rates are usually pegged to a more stable or globally prominent currency, such as the euro or the US dollar. For example, the Danish krone (DKK) is pegged to the euro at a central rate of 746.038 kroner per 100 euro, with a 'fluctuation band' of +/- 2.25 per cent.

Floating Exchange Rate : A floating exchange rate is a regime where the currency price of a nation is set by the forex market based on supply and demand relative to other currencies. This is in contrast to a fixed exchange rate, in which the government entirely or predominantly determines the rate. One United States Dollar equals 0.78 Pound Sterling on a particular day. But a day before, the same was 0.76-Pound Sterling which might increase or decrease the next day based on the demand and supply forces prevailing in the market.

Managed Floating Exchange rate : Manage Floating exchange rate lies in between of the two extremes of fixed and floating exchange rate. Under such a system, the exchange is allowed to move freely and determined by the forces of the market (Demand and Supply). But when a difficult situation arises, the central banks of the country can intervene to stabilise the exchange rate. There are mainly three sub categories under managed floating exchange rate :

i. **Adjusted Peg System :** In this system, a country should try to hold on to a fixed exchange rate system for as long as it can, i.e. until the country's foreign exchange reserves got exhausted. Once the country's foreign exchange reserves got exhausted, the country should undergo devaluation of currency and move to another equilibrium exchange rate.

ii. **Crawling Peg System :** In this system, a country keeps on adjusting its exchange rate to new demand and supply conditions. The system requires that instead of devaluing currency at the time of crisis, a country should follow regular checks at the exchange rate and when require must undertake small devaluations.

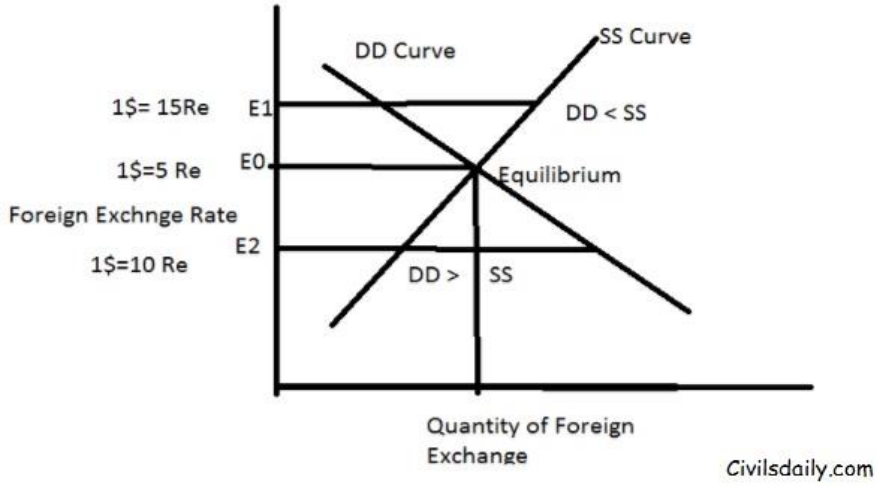
iii. **Clean Floating**: In the clean float system, the exchange rate is determined by market forces of demand and supply. The exchange rate appreciates or depreciates as per market forces and with no government intervention. It is identical to floating exchange rate.

iv. **Dirty Floating :** In the dirty float system, the exchange rate is to a very large extent is determined by the market forces of demand and supply (so far identical to clean floating), but occasionally the central banks of the countries intervene in foreign exchange markets to smoothen or remove excessive fluctuations from the foreign exchange markets.

9.5 Forces Behind Exchange Rate Determination :

Foreign Exchange is a price of one country currency in relation to other country currency, which like the price of any other commodity is determined by the demand and supply factors. The demand and supply of the foreign exchange rate come from the residents of the respective countries.

Demand for Foreign Exchange (Foreign Money goes out)	**Supply of Foreign Exchange (Foreign Money Comes in)**
Foreign Currency is needed to carry out transactions in foreign countries or for the purchase of foreign goods and services (IMPORTS).	The source of foreign currency available to the domestic country are foreigners purchasing our goods and services (Exports).
Foreign currency is needed to invest in foreign country assets/shares/bonds etc.	Foreigners investing in Indian Stock markets, Assets, Bonds etc. (FPIs and FDIs)
Foreign currency is needed to make transfer payments. Example: Indian Parents sending Money to his/her son/daughter studying in the USA.	Transfer payments. Example: Indian working in the USA, sending money to his/her old aged parents.
Indians holding money in overseas Banks	Foreigners holding assets in Indian Banks.
Indians Travelling abroad for Tourism Purpose.	Foreigners travelling to India.



- The DD curve represents the demand for foreign exchange by India. The SS curve represents the supply of foreign exchange to India.
- The point where both DD and SS curves intersect is the point of equilibrium. At this point demand for foreign exchange is exactly equal to the supply of foreign exchange.
- At equilibrium point E0, the exchange rate is 1 $ equal to 5 Re.
- In normal day to day functioning of markets, the exchange rate may fluctuate. If at any point in time, the exchange rate is at E1, then the demand for foreign exchange falls short of supply of foreign exchange, as a result at this point Indians are demanding less foreign currency due to which Re will appreciate vis-à-vis foreign currency. The appreciation mainly occurs due to a favourable balance of payment situation (Surplus).
- By the same token at point E2, demand for foreign exchange is greater than the supply of foreign exchange, at this point Indians are demanding excess foreign exchange than what the foreigners are willing to supply, as a result, at E2 Re will depreciate vis-à-vis foreign currency. The depreciation mainly occurs due to the unfavourable balance of payments situation(Deficits).

9.6. Fixed Exchange Rate versus Floating Exchange Rate

Fixed Exchange Rate	Floating Exchange Rate
Under this system, there is complete government intervention in the foreign exchange markets.	Under this system, the market is allowed to determine the value of exchange rate freely.
The government or central bank determines the official exchange rate by linking exchange rate to the price of gold or major currencies like US dollar.	The exchange rate is determined by the forces of demand and supply.
If due to any reason, the exchange rate fluctuates, government intervenes and make sure that equilibrium pre-determined level is maintained.	If due to any reason exchange rate fluctuates, the government never intervenes and allows the market to function and determine the true value of exchange rate.
The only merit of fixed exchange rate system is that it assures the stability of exchange rate. It prevents both currency appreciation and depreciation.	The only demerit of floating exchange rate system is that exchange rate fluctuates a lot on day to day basis.

The many disadvantages of such a system are: It puts a heavy burden on governments to maintain exchange rate. This especially happens during the time of deficits, as the governments need to infuse a lot of money to maintain exchange rate. The foreign investors avoid investing in such countries as they fear to lose their investments because they believe that exchange rate does not reflect the true value of the economy.	The advantages of such a system are: the exchange rate is determined in well-functioning foreign exchange markets with no government interference. The exchange rate reflects the true value of the domestic currency which helps in establishing the trust among foreign investor. A country can easily access funds/ loans from IMF and other international institutions if the exchange rate is market determined.

9.7 FOREIGN EXCHANGE RATE DETERMINATION IN INDIA :

The following procedure is observed in India for the determination of Exchange Rate : In theory terms exchange rate determination is explained by two main models: 1. Flexible/floating exchange rate model 2. Fixed/pegged exchange model

Flexible Exchange Rate Model : When we treat exchange as a price of any foreign currency, then we can use the tools of demand and supply to determine this 'price'. Foreign exchange is treated as a 'good' with its own demand and supply curves as we learnt in Microeconomics course. Any shifts in each or both of these curves will determine the changes in price of foreign exchange.

Demand for Foreign Exchange : Any transaction that leads to outflow of foreign exchange from India will create a demand for it.
Foreign exchange is demanded when residents of India (in terms of individuals or private companies) and government want to spend in terms of foreign currency, instead of Rupees. If a non-resident provides any service, she must be paid dollars by the Indian employer, which adds to demand for dollars.

This may happen in the following ways:
Indian importers who want to buy German machines must pay the machine manufacturers in dollars.

- Non-residents who provide services in India must be paid in dollars. For example, if a US consultant conducts a workshop for engineers of Maruti Ltd. he will have to be paid in dollars.
- Foreign companies that set up production in India will send profits to home country in dollar terms. This is also called profit repatriation.
- If an Indian mother wants to send money to her daughter studying in the US, she needs dollars.
- A loan taken in US by an Indian citizen (who went on a 2 year training exercise to US) will have to be repaid in dollar terms only, even though the Indian may come back to India and earn in rupees.
- NRIs have a facility to open accounts in India under special schemes which allow them to withdraw money in terms of foreign currency. For example Ravi opens an account with $100 in such a special account. When he needs to withdraw $25 it creates demand for $25.
- If an Indian resident wants to buy shares of a US company she will have to pay in dollar terms, creating a demand for dollars. This kind of investment is also possible in US mutual funds, stock markets and other financial instruments. This financial investment generates demand for dollars.

Supply of Foreign Exchange : Any transaction that leads to an inflow of foreign exchange will generate supply of it. Foreign exchange is supplied when non-residents (in terms of individuals or private companies) and government want to spend in terms of Indian rupees. For this they provide supply foreign currency to banks and receive Indian rupees. Also if any services activity is done by a resident in India for a non-resident (like a foreign company) he must be paid in rupees, which generates supply of foreign exchange that is converted into rupees.

This may happen in the following ways :
Indian exporters, who want to sell in Germany, must be paid in rupees. The German buyer supplies Euros which are converted into Rupees. These Euros become supply of Euros for India.

- Residents of India who provide services to foreign companies are paid in non rupee currency. When they want to spend in India they convert their income into Indian rupees, providing India with supply of foreign exchange. For example, Ravi is a consultant works in Mumbai for a foreign consultancy firm based in USA. He supplies the income he earns in dollars to Indian banks when he wants rupees to spend in India.
- Indian companies that set up production outside India will send profits to India in dollar terms, which is part of supply of dollars.
- If a mother in Nepal wants to send money to her daughter studying in India, she will supply foreign exchange to Indian banks and take rupees in return to give to her daughter.
- A loan taken in India by a non-Indian (who came and worked in India on a 2 year training exercise) will have to be repaid in rupee terms only, even though this person is paid his salary in dollars.
- If a foreigner or (from USA) wants to buy shares of an Indian company she will have to pay in rupee terms, creating a supply of dollars. This kind of investment is also possible in Indian mutual funds, stock markets and other financial instruments. This financial investment by non-residents of India generates a supply of dollars.

Based on the above demand and supply sources we can draw the familiar demand-supply diagram to show the exchange in equilibrium. In figure 5.1, on the X axis we have quantity of foreign exchange (or Dollars, as we treat it as the foreign currency as compared to domestic currency Rupee). The Y axis denotes the price of 1 dollar in Rs. terms. The commodity depicted here is 'foreign exchange' (dollars in this case). As shown we have a downward sloping demand curve for dollars. This implies that as the price of a dollar in Rs. terms falls the demand for dollars will rise. This is the same logic that we use for any other good. The law of demand gives us an inverse relation between price and quantity of any good, represented as a down sloping demand curve. The supply curve is upward sloping, implying that as price of $ 1 rises its supply will increase. Equilibrium is found at the point where demand= supply. At E, $ 1 = Rs.70 and this is the market determined equilibrium Exchange Rate for dollars. A model as shown in figure 5.1 lies at the core of flexible exchange rate model. As the name suggests, in this model the exchange rate is flexible, as it changes in response to changes in demand and supply of foreign currency. Any factor that directly or indirectly affects demand/supply will cause exchange rate to change.

There is no government intervention in this model. Buyers and sellers are 'free' to buy and sell any quantity of foreign exchange – there is no limit on this quantity.\ Also there is no limit on the exchange rate, in terms of how low or high it can be. The flexible exchange rate is dictated purely by demand and supply considerations. Economic and financial factors can affect exchange rate only through demand and supply forces.

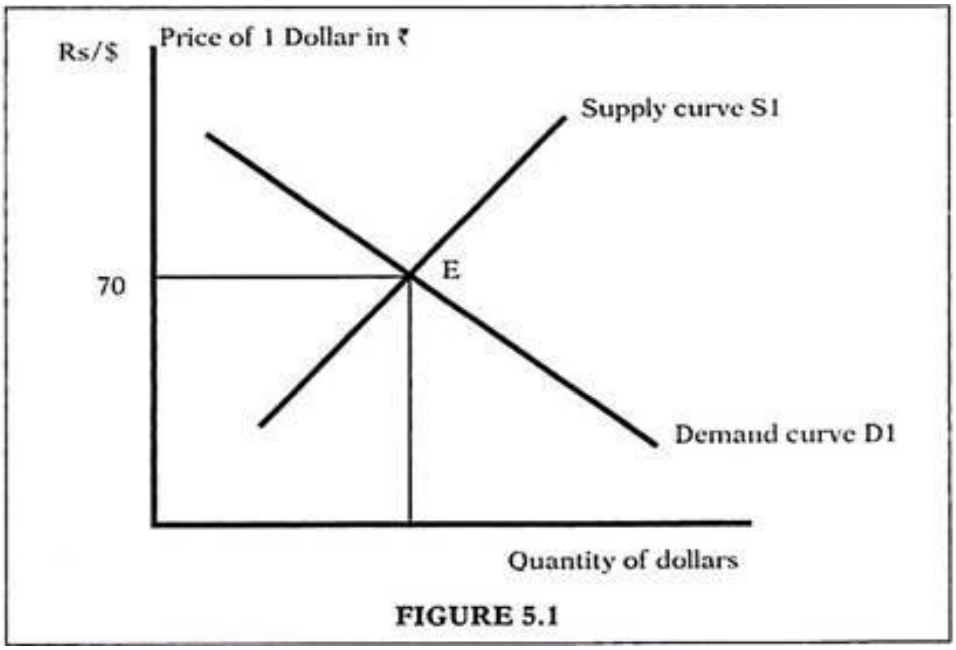


FIGURE 5.1

We must now understand two common words used with reference to foreign exchange.

Depreciation of domestic currency refers to an increase in the domestic price of foreign exchange.

Appreciation of domestic currency refers to a fall in the domestic price of foreign exchange.

EXAMPLE : Let's compare two rates to understand appreciation and depreciation in common sensual way. Start at a point where $ 1 = Rs.70. Consider another rate where $ 1 = Rs.75 now, so that we can compare the two points. This means that every dollar now gets you Rs.5 more. Does this mean that Rupee has improved its value or has the Rupee value diminished? The answer lies in understanding that for every Re now we get fewer dollars. Earlier we got 1/70 = 0.014286 dollars per Re. In the new equilibrium we end up with 1/75 = 0.01333 dollars per Rupee. Since we end up with lesser dollars this is depreciation of the Rupee.

In the same way an appreciation of rupee will mean that we get more dollars per Rupee. Consider another equilibrium rate of Rs.60 now. This gets us 1/60 = 0.0666 dollars for each Rupee, as compared to 0.01333 dollars when rate was Rs.70. As we get more dollars with Rs.60 as the rate, we say that Rupee has appreciated.

The exchange rate is also called the value of the currency, which is something we often see as newspaper headlines. When the value of Rupee rises we say it has appreciated, while depreciation means its value has fallen. The rise and fall in value of any currency is thus, correlated with the exchange rate.

The change in the value of a currency comes from the change in exchange rate. This change in exchange rate is driven by changes in demand and supply that affect

equilibrium exchange rate. This flexibility can be seen through many cases that outline movements in demand and supply separately as well as in a joint manner.

9.8 WE NOW CONSIDER SOME SUCH CHANGES, USING DOLLARS AS THE FOREIGN CURRENCY :

Increase in Demand for Dollars: Let us start at equilibrium at point E1 where demand = supply of foreign exchange and equilibrium exchange rate is 1 $ = Rs.70 in figure 5.2. A rise in demand for dollars is shown as a rightward shift of demand curve from D1 to D2. The new equilibrium is now at E2, where exchange rate is Rs.75 for $ 1. This may happen when imports rise and importers need dollars to pay for goods bought from abroad. This change is also called depreciation of the Rupee.

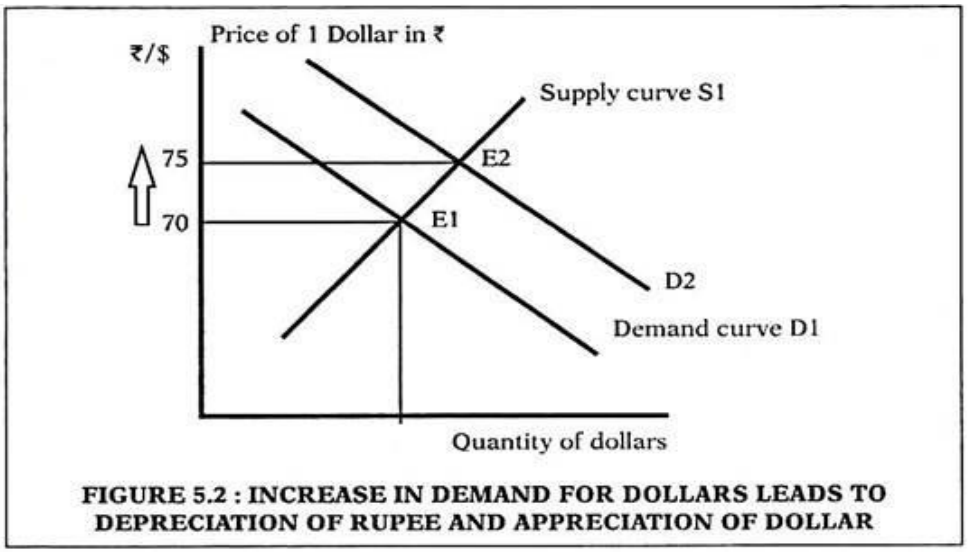


FIGURE 5.2 : INCREASE IN DEMAND FOR DOLLARS LEADS TO DEPRECIATION OF RUPEE AND APPRECIATION OF DOLLAR

Increase in Supply of Dollars: Let us start again at equilibrium at point E1 where demand = supply of foreign exchange and equilibrium exchange rate is 1 $ = Rs.70 in figure 5.3. An increase in supply of dollars is shown as a rightward shift of supply curve from SI to S2. The new equilibrium is now at E3, where exchange rate is Rs.65 for $1.
This may happen when exports rise and sellers from abroad need to pay Indian exporters in Rupee terms. To do so they must supply more foreign exchange to Indian banks in return for Rupees. This change from Rs.70 to Rs.65 is also called appreciation of the Rupee.

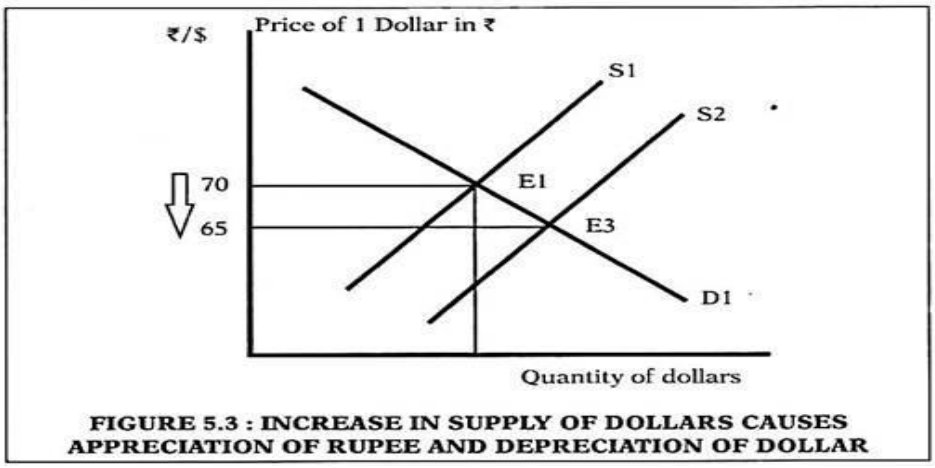


FIGURE 5.3 : INCREASE IN SUPPLY OF DOLLARS CAUSES APPRECIATION OF RUPEE AND DEPRECIATION OF DOLLAR

Simultaneous Increase in Demand and Supply of Dollars : Let us start at equilibrium at point E1 where demand = supply of foreign exchange and equilibrium exchange rate is 1 $ = Rs.70 in figures 5.4A, 5.4B and 5.4B. We now allow both demand and supply to change. This is shown by a simultaneous move from D1 to D2 (depicting increase in demand for foreign exchange) and from S1 to S2 (depicting increase in supply for foreign exchange).

9.9 NOW THERE CAN BE THREE POSSIBLE CASES AS SHOWN BELOW :

Figure 5.4A- A move from E1 to E4, causing an appreciation of the Rupee. This happens if increase in demand is more than the increase in supply. This is clearly shown as the amount of shift of D1 exceeds the shift of S1

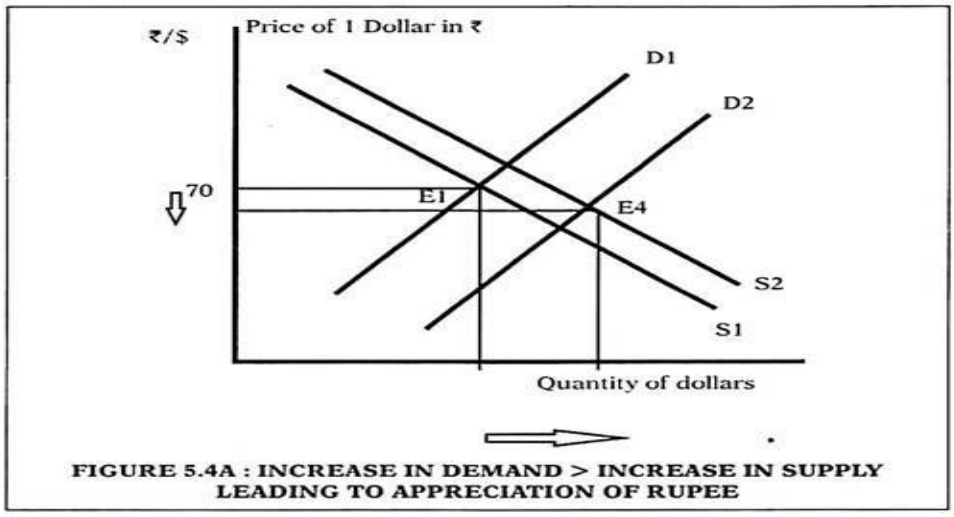


FIGURE 5.4A : INCREASE IN DEMAND > INCREASE IN SUPPLY LEADING TO APPRECIATION OF RUPEE

Figure 5.4B- A move from E1 to E5, causing depreciation of the Rupee. This happen if increase in supply is more than the increase in demand.

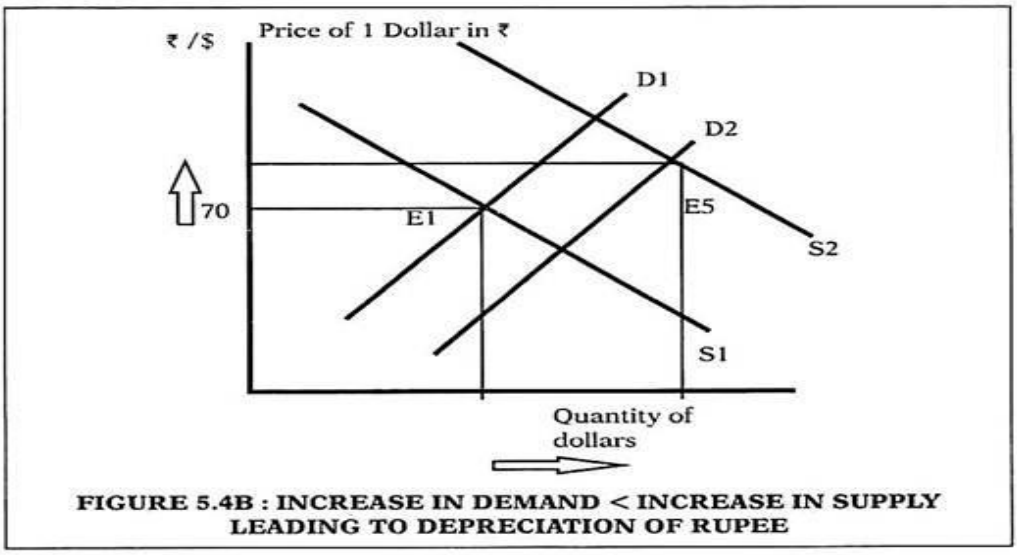


FIGURE 5.4B : INCREASE IN DEMAND < INCREASE IN SUPPLY LEADING TO DEPRECIATION OF RUPEE

Figure 5.4C- This is the last case where we have equal increase in demand and supply of dollars. This causes a move from E1 to E6 in equilibrium position, causing no change in the foreign exchange rate. This is happening as increase in demand is matched exactly by

the increase in supply. The only effect is that quantity of dollars traded in the market increases as shown by the arrow under X axis.

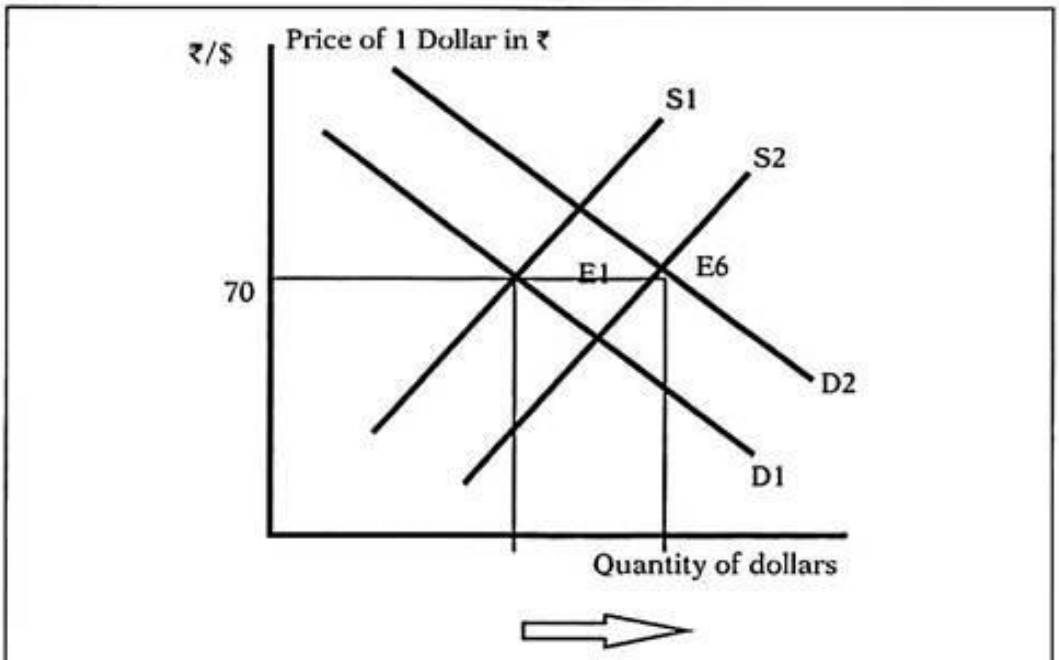


FIGURE 5.4C : INCREASE IN DEMAND = INCREASE IN SUPPLY LEADING TO NO CHANGE IN EXCHANGE RATE

Thus we can see that the effect on exchange rate in a flexible exchange rate model depends on the relative change in demand and supply for dollars. Similar effects can also be seen for other simultaneous changes in demand and supply.

9.10 WHO BENEFITS/LOSES FROM DEPRECIATION :

i. **Exporters benefit from depreciation** : Let's look at our jewellery exporter again. For every $ 1000 worth of jewellery sold he got 70 x 1000= Rs.70000 in the beginning. Now of the Re depreciates, he will end up with 1000 x 75= Rs.75000. This makes him happier as he realized more revenues without any change in goods sold. So exporters benefit from depreciation.

ii. **Importers lose out if rupee depreciates** By the opposite logic, importers will lose. Let Shalini be an importer of designer bags from Italy. Assume that she bought bags worth $ 1000 from An Italian designer. She will pay 1000 x 70 = Rs.70000 to an Indian bank in order to get $ 1000 and pay the designer. If the Rupee depreciates, she will have to pay 75 x 1000= Rs.75000 to the bank now. She still receives bags worth $ 1000 but her cost in rupee terms rises. Importers lose out if rupee depreciates.

This explains why nations that fixed exchange rate like to fix rates at a level that exceeds the rate determined in the market. Export earnings are higher in such a scenario. China did this for many years, until recently when it shifted to a flexible rate regime.

Fixed Exchange Rate Model : In this model, exchange rate is not allowed to vary and change in response to market conditions and economic performances or economic indicators. The government or the central bank of a country may decide to 'fix' the rate at some level that suits the economy. For example the government may decide to 'fix'

exchange rate at Rs.75, while the real conditions in the economy and foreign exchange market may put the rate at Rs.70 only.

In this case the supply of foreign exchange for conversion of dollars to Rupees will be higher than demand for dollars from Indians who want to convert Rupees to dollars. This is because the dollar will fetch Rs.75, though its actual value is only Rs.70. This will encourage more people to convert dollars to rupees, leading to higher supply of dollars as compared to its demand. This is a situation of excess supply- a situation where supply of foreign currency exceeds the demand. Why is this fixing done? Such fixing is often done to support exporters who can earn more at fixed rates. In this case an exporter who sells goods worth $ 1000, will end up with Rs.75 x 1000 = Rs.75000 in fixed scenario. In a free market he would realize only Rs.70000. (see figure 5.5)

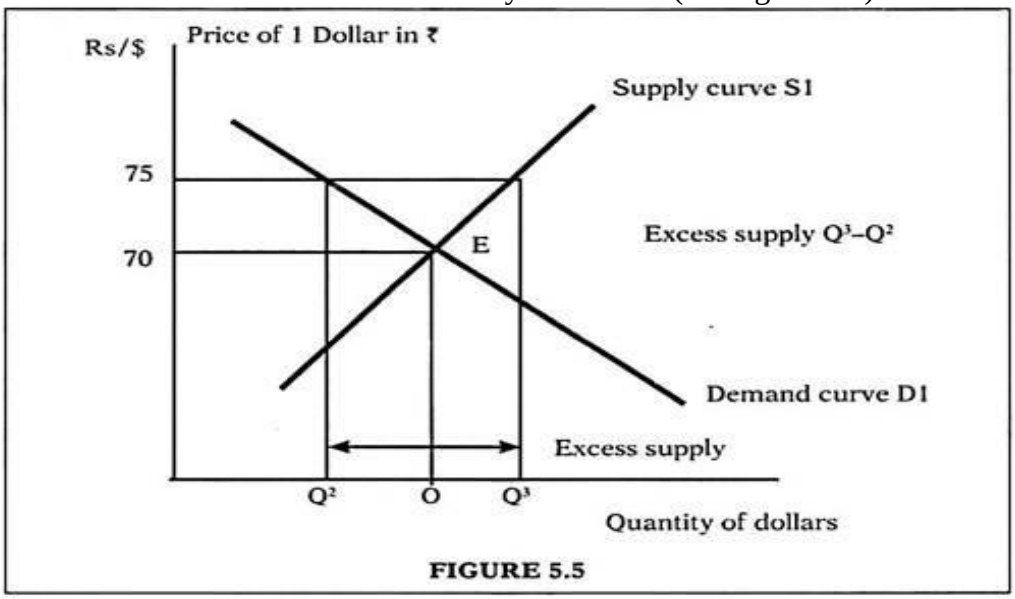


FIGURE 5.5

While most nations remain on flexible exchange rate system, Africa is the continent which has maximum number of nations on fixed exchange rate system. Most nations 'fix' their exchange rate with respect to the dollar, as US is considered a very strong economy (probably the strongest economy in the world). China was on this system for many years in the past. It shifted to flexible exchange rates only recently. Bahrain, Cuba, Eritrea Hong Kong, Jordan, Lebanon, Oman, Panama, Qatar, and Saudi Arabia are some nations that are still on fixed rate regime.

Merits and Demerits of Fixed Exchange Rate Model :

Merits of Fixed Exchange Rates :

- Smaller and newer nations often fix exchange rates to induce discipline in their foreign exchange transactions and economy. It allows the central bank time to set appropriate systems in place for smooth functioning of the economy.
- A fixed exchange rate regime leads to lesser volatility and fluctuations in prices of commodities in any nation. This is more relevant when the nation depends heavily on exports and imports.
- International trade and investment flows between countries are more certain when exchange rates are fixed. Capital controls are better if fixed exchange rate is followed.
- Inflation is better controlled with fixed exchange rate. When a central bank is unable to streamline its monetary policy to rein in inflation, it is best to shift to fixed regime.

Demerits of Fixed Exchange Rates :

- Often the 'fixed' exchange rate does not coincide with the free market exchange rate. This causes a 'black' market to emerge for foreign exchange, as demand does not meet supply of foreign exchange. The announced exchange rate may not coincide with the market equilibrium exchange rate, thus leading to excess demand or excess supply of foreign exchange.
- 'Wrong' exchange rates can lead to loss of exports if the fixed rate is lower than free market rate of exchange.
- The central bank is required to hold stocks of both foreign and domestic currencies at all times, adding to its responsibilities.
- Management of exchange rate is the responsibility of the central bank. To maintain the fixed rate the bank needs to continuously sell foreign exchange reserves to buy its own currency. A change in rate of interest is also necessitated to attract enough investments funds, which adds to the targets assigned to central bank.

Merits and Demerits of Flexible Exchange Rate Model :

Merits of Flexible Exchange Rates :

- Flexible exchange rate system allows the central bank to pursue an independent monetary policy.
- Flexible exchange rates work as an automatic policy to maintain equilibrium in balance of payments. For example, if there is a deficit in BOP, there is an excess supply of home currency. This leads to fall in exchange rate as supply curve shifts to the right. The depreciation of domestic currency will increase exports and decrease imports, leading to a self-correction in BOP deficit levels.
- Since a flexible exchange rate does not need any active management it is relatively freer from any government interference, leading to more transparency in international transactions. The flow of capital is easier and trade is boosted under flexible exchange rates.
- The system of flexible exchange rates minimizes the requirement of maintaining official foreign exchange reserves by the central bank. This allows greater liquidity in currencies across the world.
- Since the flexible exchange rate system allows market forces to work, there is greater allocative efficiency. The market clears automatically, with minimal scope of imbalances in demand and supply that could lead to scarcity or surplus of foreign exchange.

Demerits of Flexible Exchange Rates :

Due to its very nature, a flexible exchange rate system is more uncertain and instable as compared to fixed regime. For example if an Indian exporter agrees to sell goods worth $100 to a French buyer and deliver after 30 days, he is unsure of the actual amount he will receive after 1 month. This is because there is no surety of the exchange rate on the 30th day. This uncertainty can reduce the volume of international trade and foreign investment. Long-term foreign investments are also subject to fluctuations and higher risks.

- The system of flexible exchange rates has widest impact on BOP of a nation. Fluctuating exchange rates lead to changes in the price of imports and exports goods which affect BOP systematically. This can lead to trade deficits that are unsustainable in the long run.
- Capital inflows and outflows of a nation depend on exchange rates and other factors like interest rates. Changes in rates of exchange can cause large-scale

capital outflows and inflows which can potentially impair an economy and cause financial instability- Such movements have far reaching effects on the structure of the economy itself. These effects include high liquidity preference, currency hoarding, black money generation and illegal transactions in foreign exchange.

- ❖ Flexible exchange rate system is associated with greater fluctuations in prices, especially when imports are high. These inflationary pressures further depreciate the value of the domestic currency, exaggerating BOP problems.
- ❖ To protect themselves from fluctuations in currency rate changes, foreign exchange traders, exporters and importers indulge in speculation, and hedging to protect themselves from uncertainty. The development of a forward market in foreign exchange is a result of speculation. In affixed regime there is no scope for such activities.

So, the exchange rates of currencies are determined by a number of factors that include demand & supply, macroeconomic factors, geo-political stability, interest rates, GDP data, among other reasons**.**Foreign Exchange Rate is the amount of domestic currency that must be paid in order to get a unit of foreign currency. According to Purchasing Power Parity theory, the foreign exchange rate is determined by the relative purchasing powers of the two currencies. Example: If a Mac Donald Burger costs $20 in the USA and Re 100 in India, then the exchange rate between India and the USA will be (100/20=5), 1 $ = 5 Re.

9.11 EXCHANGE RATE MANAGEMENT IN INDIA :

The Bretton Woods system of exchange rate which was in operation from 1944 till 1971, was one of relative fixed exchange rate as opposed to rigid fixed exchange rate. As a matter of fact, rigid fixed exchange rate as defined above, is never been used in history. Even under the system of Gold Standard 1870-1941, the exchange was relatively fixed and not rigidly fixed. Over the last six decades since independence the exchange rate system in India has transited from fixed exchange rate regime where the Indian Rupee was pegged to the UK Pound to a basket of currencies during the 1970s and 1980s and eventually to the present form of market determined exchange rate regime since 1993.

i. **Par Value System (1974-1971):** After Independence Indian followed the 'Par Value System' whereby the rupee's external par value was fixed with gold and UK pound sterling. This system was followed up to 1966 when the rupee was devalued by 36 percent.

ii. **Pegged Regime (1971-1992):** India pegged its currency to the US dollar (1971-1991) and to pound (1971-75). Following the breakdown of Breton Woods system, the value of pound collapsed, and India witnessed misalignment of the rupee. To overcome the pressure of devaluation India pegged its currency to a basket of currencies. During this period, the exchange rate was officially determined by the RBI within a nominal band of +/- 5 percent of the weighted average of a basket of currencies of India's major trading partners.

iii. **The period since 1991**: The transition to market-based exchange rate was in response to the BOP crisis of 1991. As a first step towards transition, India introduces partial convertibility of rupee in 1992-93 under LERMS.

iv. **Liberalised Exchange Rate Management System (LERMS):** The LERMS involved partial convertibility of rupee. Under this system, India followed a dual exchange rate policy, where 40 percent of the exchange rate were to be converted at the official exchange rate and the remaining 60 percent were to be converted at the market-based exchange rate. The exchange rate converted at the official rate were to be used for essential imports like crude, oil, fertilizers, life savings drugs etc. All other imports should be financed at the market-based exchange rate.

v. **Market-Based Exchange rate Regime (1993-** till present): The LERMS was a transitional mechanism to provide stability during the crisis period. Once the stability is achieved, India transited from LERMS to a full flash market exchange rate system. As a result, since 1993, exchange rate fluctuations are marker determined. In the 1994 budget, 60:40 ratio was removed, and 100 percent conversion at market-based rate was allowed for all goods and capital movements.

9.12 EXCHANGE RATE DETERMINATION MECHANISM :

The exchange rate is the price of one country's currency in terms of another country's currency. As in the case of commodities, goods, or services, the price of a currency is influenced by the demand for and supply of the currency. So, any change in the exchange rate is the result of a change in the supply and demand forces. The point of intersection of the demand and supply gives the equilibrium exchange rate.

The foreign exchange rate is determined by several forces, which are known as demand forces and supply forces.

Demand for Currency : A country's currency is in demand when foreigners buy the goods and services exported by that country, or when they desire to buy financial assets denominated in that currency. For example, demand for the U.S. dollar is derived from demand in other countries for U.S. goods and services, as well as USD-denominated financial assets. Any increase in the foreign currency's dollar value is an increase in the foreign currency's price of U.S. goods and services, and USD-denominated assets. This results in a reduced demand for U.S. goods, services, and USD-denominated assets abroad. The converse happens when the foreign currency's U.S. dollar value decreases. With the appreciation of a foreign currency relative to the U.S. dollar, U.S. goods, services, and USD-denominated assets become cheap in the foreign country. Suppose the exchange rate of INR against the U.S. dollar is at INR 43.75. If the exchange rate increases to USD/INR 45, the price of U.S. goods and services in terms of INR increases. As a result, the demand for U.S. goods and services in India decreases, leading to a fall in the demand for U.S. dollars. The opposite happens if the exchange rate decreases to USD/INR 42.

Taking another example, assume the exchange rate of the U.S. dollar against the Indian rupee is INR/USD 0.022. The U.S. dollar price of a colour television set is USD 500. The Indian consumer pays INR 22,727 for the CTV set. If the exchange rate increases to INR/USD 0.025, then the Indian consumer must pay only INR 20,000 for the same CTV set. In view of the reduction in the price of the U.S. CTV set in terms of Indian rupees, the demand for U.S. CTVs will increase. This would, in turn, increase the demand for U.S. dollars to import more CTVs. Thus, the demand for a currency in the foreign exchange market increases with the depreciation of that currency.

The demand curve is the graphical representation of the demand schedule. It shows various quantities of a currency that participants in the foreign exchange market are willing and able to buy at each exchange rate during a specific period. Thus, the demand curve of a currency shows the price of the currency that is demanded at each possible exchange rate. As shown in Figure 3.1, the demand curve slopes downward, which implies that as the exchange rate goes down, other things remaining the same, the demand for the currency goes up, and vice versa. In other words, the exchange rate and the demand for the currency are inversely related. However, the demand for the currency is influenced not only by its exchange rate, but also by other factors. Therefore, the relationship between the exchange rate and the quantity demanded is established by assuming other factors remaining constant. When other factors do

not remain constant, the law of demand fails to hold, and demand may lose its inverse relationship with the exchange rate.

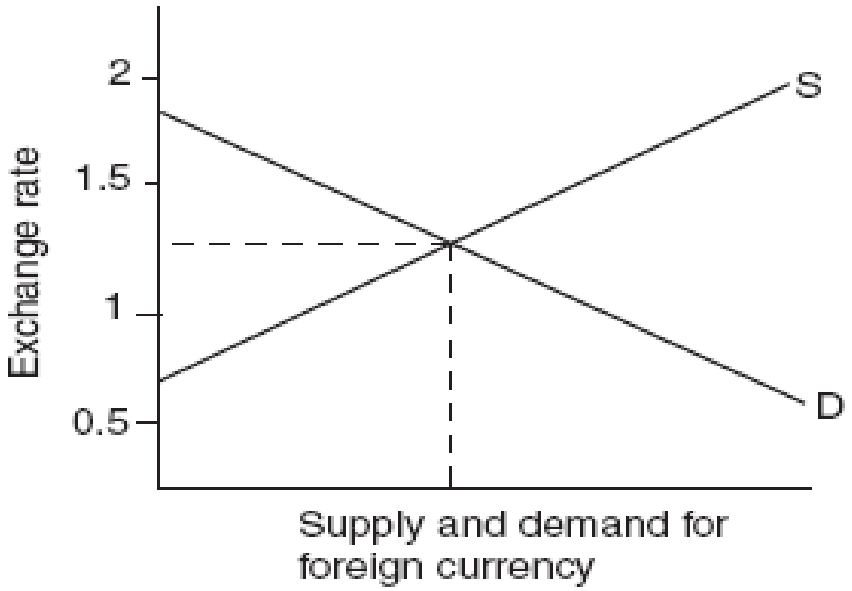


Figure 9.1 Demand and supply of a currency

Taking India as an example, the demand for foreign exchange emanates mainly from the import of goods and services, invisible payments in the current account, repayment of external debt including external commercial borrowings (ECBs) and short-term trade credit, redemption of bank deposits made by foreign residents including NRIs, and outflows on account of direct foreign investments and portfolio investments.

Supply of Currency : A country's currency is supplied while paying for that country's imports. The supply of a currency also takes place when foreign currency–denominated assets are purchased by the residents of that country. Thus, the supply of a currency derives from the demand for imported goods, services, and assets denominated in the foreign currency. In India, for example, the major sources of supply of foreign exchange are:

- receipts in the current account through exports and remittances.
- inflows in the capital account through foreign direct investment, portfolio investment, and ECBs; and
- bank deposits made by foreigners including NRIs.

When a country's imports are priced (invoiced) in a foreign currency, the resident buyers sell their domestic currency for the foreign currency to pay for imported goods and services. Even if the imports are invoiced in the domestic currency, the foreign recipients would instantly sell the domestic currency for foreign currency, which again contributes to the supply of the currency in the foreign exchange market. For example, the supply of the U.S. dollar as against the Indian rupee depends upon the demand for Indian goods, services, and INR-denominated financial assets in the United States. If the exchange rate between the USD and INR decreases to, say, 0.0222 from 0.0227, the cost of Indian goods and services in terms of USD comes down. As a result, U.S. demand for Indian goods increases, ultimately leading to an increase in the supply of U.S. dollars. Suppose the exchange rate of the U.S. dollar as against the Indian rupee is INR/USD 0.0227. An Indian car in the United States is priced at INR 500,000. So, the U.S. customer must pay USD 11,350 to buy the car. If the exchange rate becomes INR/USD 0.0222, the U.S. customer must pay only USD 11,100 to get the same car. In other words, the price of the Indian car in terms of U.S. dollars comes down with the

appreciation of USD against INR. As a result, there will be an increased supply of Indian cars to meet the increased demand, ultimately leading to an increased supply of U.S. dollars. Therefore, the supply curve of the U.S. dollar slopes upward with its appreciation. The same is true with any other currency in the foreign exchange market. As in the demand for a currency, other factors also influence the supply of a currency. However, the other factors are assumed to be constant in establishing the relationship between the exchange rate and the supply of a currency. The supply curve is also shown in Figure 3.1. The supply curve shows the volume of a currency that would be supplied at various exchange rates.

Note that the elasticity of demand for imports determines the direction of the supply curve of the currency. If the demand for imports is elastic, the supply curve of the currency slopes upward. But if the demand for imports is inelastic, the supply curve of the currency slopes downward. When the demand for imports is inelastic, depreciation of the home currency raises the prices of imports more than it reduces the quantity of imports. As a result, the value of imports increases, leading to a downward-sloping currency supply curve. This will have implications for exchange rate stability.

The point of intersection of the demand and supply curves in the graph (Figure 3.1) is the equilibrium exchange rate. The **equilibrium exchange rate** is the exchange rate at which the demand for a currency is equivalent to the supply of the same currency.

However, there are several factors other than the exchange rate that also influence the value of exports and imports, and thus the currency demand and supply. As can be seen from Figure 3.2, a shift in currency demand and supply curves creates new equilibrium exchange rates.

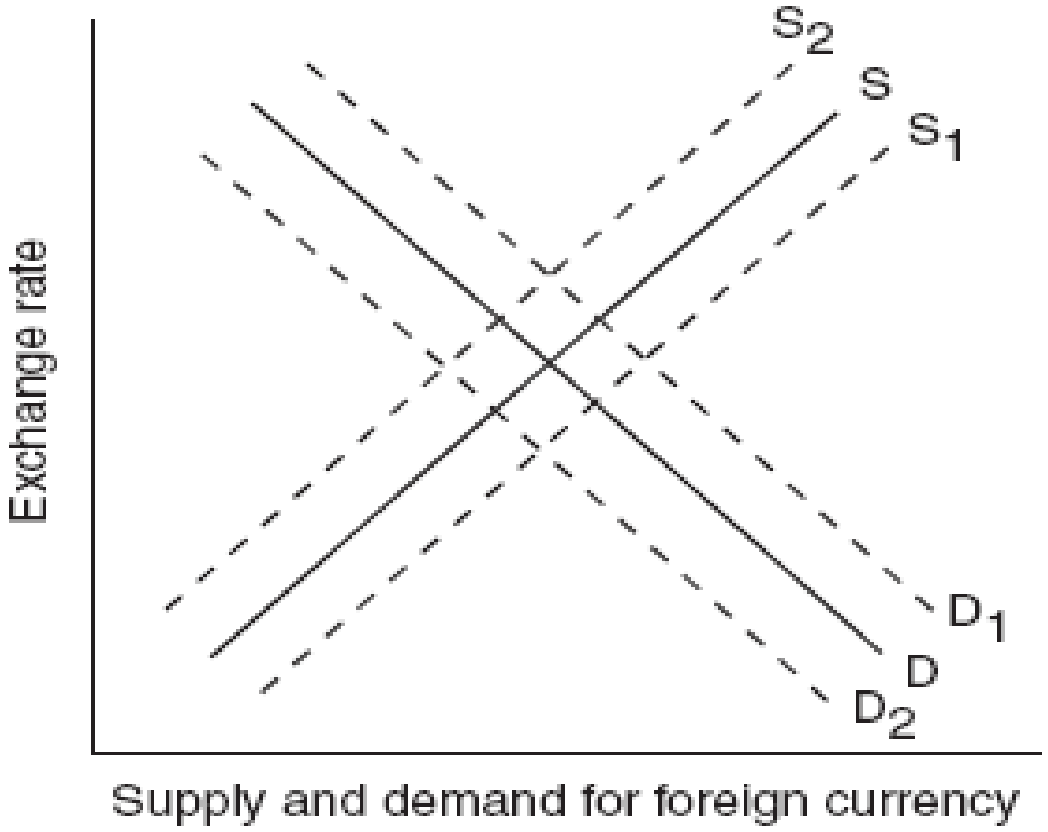


Figure 9.2 Shift in currency demand and supply

9.13 FACTORS AFFECTING EXCHANGE RATES :

There are several factors that influence the exchange rate through their effects on the currency demand and supply, leading to a new equilibrium exchange rate. This section outlines the important factors.

Inflation Rates : The term *inflation* is defined in different ways to indicate its various underlying causes. Inflation was first defined by the new-classical economists as a galloping rise in prices consequent to an excessive increase in the quantity of money. This definition implies that inflation is the result of expansion of the money supply more than real output growth in the economy. The traditional approach classifies the theory of inflation into *demand-pull theory* and *supply* or *cost-push theory*. According to the demand-pull theory, the general price level rises because the demand for goods and services exceeds the supply at the existing prices. This is due to changes in government spending, taxes, and money supply. The supply-side inflation may be a wage-push inflation, profit-push inflation, or supply-shock inflation. But other economists including Harry G. Johnson, Edward Shapiro, and J. R. Hicks, who did not subscribe to the argument that money supply alone is the cause of inflation, defined inflation as a persistent and appreciable rise in the general level of prices. According to them, inflation is not always a monetary phenomenon. Apart from money supply, there are other factors that influence general price levels (or cause inflation) in the economy.

The Economic Growth Rate : The country's economic growth rate also influences the demand and supply of foreign currency. The higher the economic growth rate, the more economic transactions there are, both within the country and across countries. This will cause outflow and inflow of foreign currency, leading to a new equilibrium exchange rate.

Interest Rates : The interest rates in the economy also influence the exchange rate through supply and demand for foreign exchange. When the interest rate in an economy rises, investors pump in more funds by subscribing to various debt securities. If foreign investors bring in foreign currency to buy the domestic currency for investment, the supply of foreign currency increases. This causes the domestic currency to appreciate.

Similarly, if the interest rates in other countries rise, there will be a shift of investible funds to other countries, leading to an increase in the value of other currencies. Thus, the increase or decrease in interest rates in the economy results in an increase or decrease in the supply and demand for foreign currency. This shifts the demand and supply curves to new positions and, thereby, a new equilibrium exchange rate is determined. However, the increase or decrease in interest rates would be effective only if the relative change in interest rates is more than that in other countries.

Political Factors : Political factors do influence the demand and supply of foreign currency. Political stability in the country may attract a large amount of investment funding in foreign currencies, as investors may find the country to be less risky and more rewarding in which to invest. On the other hand, any instability in the political governance of a country may drive away investors from the country and cause the outflow of funds to other economies. It is not only the political stability, but also the political ideology or policies of the government that may influence the exchange rate. For example, a particular political party may accelerate the process of liberalization and opening of the economy, thereby attracting foreign funds.

A different political party in power with an opposite political ideology may keep foreign investors at a distance, and thereby curtail the flow of foreign currency into the economy. Some political decisions may also influence the exports and imports of the country,

thereby influencing exchange rates. Thus, the actions and activities of the political institutions in the country may influence the foreign exchange rate through the supply and demand for foreign currencies.

Social Factors : The demand and supply of foreign currency are also influenced by social factors like literacy, education levels, communal and religious harmony, risk perceptions of people, and demographic characteristics. For example, communal and religious harmony in a country may attract large foreign investments. Similarly, high literacy and education levels may increase cross-border movement of people and cross-border flow of funds. This will have influence on the demand and supply of currencies on the foreign exchange market.

Government Controls : Governments may impose several controls and barriers on imports, exports, remittances, and investments. All such controls influence the demand and supply of currencies on the foreign exchange market. Governments may also directly intervene in the foreign exchange market and influence exchange rates. Therefore, exchange rates are highly susceptible to government controls, barriers, and interventions.

It is evident from our discussion that the demand and supply of foreign exchange are influenced by several interrelated and interactive factors, ranging from economic factors and government controls to social and political factors. Some of these factors may have a negative effect, while others have a strong positive influence on exchange rates. Further, some of these factors have a long-term impact, while others may have a temporary and short-term effect. For example, speculative and psychological factors may cause short-term fluctuations, while strong economic fundamentals may have a long-lasting impact on the demand and supply of foreign exchange.

9.14 SUMMARY:

The exchange rate of a currency is determined by the forces of demand and supply of the currency. A country's currency in the foreign exchange market is in demand when foreigners buy the goods and services exported by that country. The demand for a currency also arises when foreigners desire to buy financial assets denominated in that currency. A country's currency is supplied while paying for imports of goods and services.

The supply of a currency also increases when foreign currency–denominated financial assets are purchased by the residents of that country. The graphical representations of the demand schedule and the supply schedule are called the *demand curve* and the *supply curve*, respectively. The point of intersection of the demand and supply curves gives the equilibrium exchange rate of a currency vis-à-vis another currency. The quantity of a currency supplied equals the quantity demanded at the equilibrium exchange rate.

The factors other than the exchange rate that influence the currency supply and demand are inflation, economic growth rate, interest rates, political factors, social factors, etc. The equilibrium exchange rate changes whenever the positions of the demand and supply curves change under the influence of these factors.

9.15 TECHNICAL TERMS :

- **Exchange rate:** It is the rate of conversion of the currency unit of one country into the currency units of any other country.
- **Equilibrium exchange rate:** It is the exchange rate at which the demand for a currency is equivalent to the supply of the same currency

9.16 SELF-ASSESSMENT QUESTIONS :

1. How do you derive the demand for a currency?
2. How is the supply curve of a currency derived?
3. What are the factors that influence the demand for a currency?
4. How is the exchange rate determined by the forces of demand and supply?
5. How does inflation shift the supply curve of a currency?
6. How do factors other than the exchange rate influences the currency demand and supply?

9.17 SUGGESTED READINGS :

1) M. Berg and G. Moore, "Foreign Exchange Strategies: Spot, Forward and Options," *journal of Business Finance and Accounting* 18 (April 1990): 449–457.
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Dr. G. Malathi

LESSON - 10

EXCHANGE RATE DETERMINATION IN SPOT AND FORWARD MARKET

LEARNING OBJECTIVES :

After studying this chapter, you should be able to:

- To explain how the exchange rate in the spot market is determined and the factors influencing such process.
- To discuss exchange rate determination in the forward market and the relevance of interest-rate parity theory in this context.
- To understand the application of covered interest arbitrage and uncovered interest arbitrage.

STRUCTURE :

10.1 INTRODUCTION :

With growing liberalisation and globalisation of economic policies, corporate financial decisions cannot remain isolated of the changes in the international economic scenario. Changes in the exchange rate, behaviour of the foreign exchange market, international interest rate scenario, etc., influence corporate financial decisions. However, the discussion in the present lessonfocusses on how the exchange rate is determined in the spot market and the factors influencing the exchange rate. And focuses on the exchange rate determination in the forward market and the relevance of interest-rate parity theory in this context. A Multitude of Factors, Including Supply And Demand, Interest Rates, And Various Economic Conditions, Determines The Value of A Spot Exchange Rate. The Expected Future Spot Exchange Rate Can Be Calculated By Multiplying The Ratio of Interest Rates (Foreign/ Domestic) With The Current Spot Rate. The spot exchange rate is the price (set by the forex market) at which you can buy a currency today. Think of it as buying on the spot. The settlement date for your transaction will take place two business days later (for the majority of currencies). According to a New York Fed survey, the more than $399 million in average daily volume of spot forex transactions was higher than any other type of forex transaction (such as forward contracts, options, and swaps). You pay the spot price (as well as related fees, potentially). It's the price available at the time you get that currency from a forex dealer in your town or order it through your bank. The spot price changes all the time because currency exchange rates constantly change

What Is a Spot Exchange Rate? A spot exchange rate is the current price at which a person could exchange one currency for another, for delivery on the earliest possible value date. Cash delivery for spot currency transactions is usually the standard settlement date of two business days after the transaction date (T+2).

i. The spot exchange rate is the current market price for exchanging one currency for another.
ii. Generally, the spot rate is set by the forex market.
iii. Some countries actively set or influence spot exchange rates through mechanisms like a currency peg.
iv. Currency traders follow spot rates to identify trading opportunities not only in the spot market but also in futures, forwards, and options markets.
v. The forex market is considered the largest and most liquid market in the world.

10.2 UNDERSTANDING SPOT EXCHANGE RATES :

The spot exchange rate is best thought of as how much you would have to pay in one currency to buy another at any moment in time. Spot rates are usually set through the global foreign exchange market (forex) where currency traders, institutions, and countries clear transactions and trades. The forex market is the largest and most liquid market in the world, with trillions of dollars changing hands daily. The most actively traded currencies are the U.S. dollar, the euro, the British pound, the Japanese yen and the Canadian dollar. The euro is used in many continental European countries including Germany, France, and Italy. Global forex trading takes place electronically between large, multinational banks, corporations, mutual funds, hedge funds, insurance companies, and government entities. Transactions are made for a wide range of purposes, including import and export payments, short- and long-term investments, loans, and speculation. Some currencies, especially in developing economies, are controlled by governments that set the spot exchange rate. For instance, the central government of China has a currency peg policy that sets the yuan and keeps it within a tight trading range against the U.S. dollar.

Spot Exchange Rate Transactions : For most spot foreign exchange transactions, the settlement date is two business days after the transaction date. The most common exception to the rule is a U.S. dollar vs. the Canadian dollar transaction, which settles on the next business day. Weekends and holidays mean that two business days is often far more than two calendar days, especially during the various holiday seasons around the world.

On the transaction date, the two parties involved in the transaction agree on the amount of currency A that will be exchanged for currency B. They also agree on the rate of exchange. Finally, the parties also agree on the value of the transaction in both currencies and the settlement date. If the currencies are to be delivered, the parties also exchange bank information. Speculators often buy and sell multiple times for the same settlement date, in which case the transactions are netted and only the gain or loss is settled. Currency is never meant to be delivered. An October 2021 New York Fed survey found that the average daily trading volume for all forex instruments (including spot, forwards, swaps, and options) was $989.4 million. The largest average daily volume in spot transactions was in the EUR/USD and USD/JPY currency pairs.

Special Considerations : The Spot Market
The foreign exchange spot market can be very volatile. In the short term, rates are often driven by news, speculation, and technical trading. In the long term, rates are generally driven by a combination of national economic fundamentals and interest rate differentials.

Central banks sometimes intervene to smooth the market, either by buying or selling the local currency or adjusting interest rates. Countries with large foreign currency reserves are much better positioned to influence their domestic currency's spot exchange rate.
How to Execute a Spot Exchange: There are a number of different ways in which traders and investors can execute a spot forex exchange.

i. The exchange can be made directly between two parties, eliminating the need for a third party.
ii. Traders can use electronic brokering systems for automated order matching.
iii. Traders can also use electronic single- or multi-bank trading systems.
iv. Trades can be made by voice over the phone with a foreign exchange intermediary.

10.3 Main Factors for Determining Spot Exchange Rates | Foreign Exchange :

Some factors which affect the exchange rates are as follows:- 1. Balance of Payments 2. Inflation 3. Interest Rates 4. Money Supply 5. National Income 6. Resource Discoveries 7. Capital Movements 8. Political Factors 9. Psychological Factors and Speculation.

1. **Balance of Payments :** Balance of payments is a statement which shows the total demand and supply of a foreign currency which helps in determining the value of the currency. Various exports (whether of goods or services) and the imports, affect the balance of payment continuously.
2. **Inflation :** Inflation rate means the rate at which the cost of living of people of a country is increasing. Putting it in different words, the inflation rate depicts the rates at which the cost of various goods and services under its scope are increasing. The case where they are reducing it is known as deflation. The relative changes in the inflation rates of different countries results into different value of the local or domestic currency. This results into different exchange rates. Suppose, in India inflation is at 10%, and in USA is at 3%, then the prices of goods and services would be higher in India, in comparison to USA. Thus, the rupee is a weaker currency in comparison to US $. Thus, the value of rupee will depreciate in relation to USA. Thus, the inflation rate across the countries of the globe influences the exchange rates.
3. **Interest Rates :** The interest rates on various deposits and on loans are different across the countries of the globe. This is due to the economics concept of demand and supply. If the capital is available in abundance in a country, then the rate offered on deposits will be low. And if the requirement of capital is more than its supply, the rates of which loans will be given will be high. Now if the capital is scarcely available then the rate of the deposits will be higher, so as to attract more deposits. And if the requirement of capital is less than its supply, then the rates on which loans will be given will be low, to encourage people to take more loans. Now due to change in interest rates among different countries, and supply and demand of capital differs from a country to another in the globe, they exists some difference in their value. Thus, the money, which is in a country where supply is low, the interest rates offered, will be more. Thus, its currency will value more than the countries where the capital supply is more.
4. **Money Supply :** The total money quantum available in a country during a period is known as money supply. The money supply shows the total money available in an economy during a period, which helps in determining the rates of interest, inflation, etc.

Increase in money supply, is normally taken as increase in spare money in the country. The money supply increase with increase in domestic production and service capacity of the

country. This results into increase in spending on foreign goods and purchase of foreign investments. Because with increase in money supply, the interest rate decreases; thus the investors are tempted to invest in other countries where interest rates are higher. This results into excess supply of money getting transferred to other countries. Due to this the value of currency reduces in foreign market, and results into increase in value of imports. This in turn results into increase in inflation rate.

5. **National Income :** National income shows the total income of the residents of an economy. The increase in national income results into increase in supply of money and in turn results into increase in production or creation of production capacities.
6. The increase in production results into increase in exports, directly or indirectly. The increase in incomes of the residents of economy results into increase in imports. This in turn results into dilution of the domestic currency of the country in the foreign exchange market. Thus, in turn increase in inflation will also affect exchange rate
7. **Resource Discoveries :** When a country discovers resources, and starts exporting them, it results into their strong position in exchange market. A good example can be of the oil, which plays a significant role in foreign exchange market through its export and import in the International market, through International Trade Thus, when the supply of oil, in raw or finished form from its major suppliers, such as Middle East, becomes insecure, the demand of the currencies of this countries increase. Previous oil crisis favoured USA, Canada, UK and Norway and adversely affected the currencies of oil-importing countries like Japan and Germany. Similarly, discovery of oil by some countries helped their currencies to gain in value. The discovery of North Sea oil by Britain helped pound-sterling to rise in foreign exchange market. Canadian dollar also benefited from discoveries of oil and gas off the Canadian East Coast and the Arctic.
8. **Capital Movements :** Short-term movement of capital from one country to another is normally influenced by the interest rates in a country. As seen in the discussion of interest rates, the country with higher rate of interest will get more capital supply in comparison to the countries providing lower rate of interest. If interest rate in a country rises due to change in various key indicators of economy and policies of the country, there will be a flow of short-term funds into that country and the exchange rate of the currency will increase in the foreign exchange market. Reverse will happen in case of fall in interest rates. If there is increase in the interest rate of the country and other factors remains constant, the foreign investment in that country will see an upward trend, thus leading it to a strong position in the foreign exchange market. Reverse will happen in a country where there is decrease in the interest rate, and the upward trend will not be as high as said above, if the other factors don't remain constant. The external borrowing and assistance in various ways will result into a favourable effect on the exchange rate of the country. But, when the repatriation of principal with interest is done or started the exchange rate will move in opposite direction.
9. **Political Factors :** The look out of government towards the foreign market and international trade and commerce define their policies. A steady government of a country provides more time to investors of different countries to decide their strategies and take steps of investing. The turbulence in government of a country will affect the investors of different countries, and might reduce the overall foreign investment in the country. Thus, the policy of a country decides the ratio and proportion of the foreign investment in the country. The policy of the government depends on the economic situation in an economy. For Example, if a country is moving with deficit in balance of payments and lower inflation rate (some rate of

inflation is required in a country to sustain itself), the government will take measures to increase the exports, decreasing the imports, calling for foreign capital and in – built capital creation, etc. The pattern which government decides to follow will result into creation of that kind of policies, thus will provide an idea to foreign investors, that what a government of a country is planning and how the economy of a country is proceeding. Government will initiate various steps in like intervening in the market, if there is wide variation between the market rates from predetermined rate.

10. **Psychological Factors and Speculation:** The perception and speculative motives in the mind of an individual player or firm will play a significant role in the movement of prices of the foreign currency. Many a times, the market maker in the market can influence the rate, to move differently from that determined by long-term economic forces, by buying or selling a particular foreign currency or group of freeing currency on large scale and conversion to take place immediately from one currency to another. A large-scale purchase or sale of foreign exchange by speculators with expectation of fall or rise in exchange rates in addition to change in the interest rates or taking the support of capital account convertibility, accelerates the fall or rise in the foreign exchange conversion rate. The speculator may purchase heavily a foreign currency by expecting a rise in price (known as bull player) or sell heavily by assuming future fall in prices (known as bear). The speculator may also rake the form of leads (pre or early) and lags (post or delay) in delivery of foreign currency, with an intention to gain benefits of the price movements. The exchange rates are influenced by numerous factors. Some are interrelated while some are independent. Factors together decide the trend.

Illustration 1: Based on Spot and forward rates given below, you are required to compute the annual appreciation or depreciation of the home currency in each case.

	Spot	Rate is found in	Forward
1	SGD 0.0370 = Re 1	Singapore	3 month = 0.0360
2.	Rs.13.05 = 1 AED	India	1 month = 13.10
3.	US$ 1.5865 = 1£	UK	1 month=1.5833

Solution : WN 1: Nature of quote and impact
i. Direct Quote. F < S. Home currency SCD is appreciating.
ii. Direct Quote. F > S. Home currency Re is depreciating.
iii. Indirect Quote. F < S. Home currency GBP is depreciating

Computing appreciation or depreciation (For home currency (F – S/F))

	Step 1	Step 2	Step 3	Step 4		Step 5
	F (-) S	Tenor	Identify	Base	Percent	Annualize
1	0.001	3 m	DQ - Price	Forward 0.0360	2.78% Appreciation	11.11%
2	0.05	1 m	DQ- Price	Forward 13.10	0.381% Depreciation	4.58%
3	0.0032	1 m	IDQ- Commodity	Spot 1.5865	0.2017% Depreciation	2.42%

Illustration 2 : Determine the percentage of appreciation or depreciation in the home currency as also in the foreign currency in each of the following situations:
a. Spot Re/CAD 34.50 i. if 3 months forward is 34.68, ii. if 6 months forward is 34. 15
b. Spot Yen/$ = 106.14- i. if 1 month forward is 106.03, ii. if 1 year forward is 106.98

Solution :
Movements in Rupee/CAD :
1. The exchange rate is a direct rupee quote for Canadian Dollar. CAD is the commodity being bought and sold.

Period	Relate forward and spot	Foreign currency CAD is	Home currency rupee is
3 months	F > S	Appreciating /Strengthening	Depreciating /Weakening
6 months	F < S	Depreciating	Appreciating

2. Computing % of appreciation – depreciation
2.1 For the commodity (Foreign currency is – CAD)

	Step 1	Step 2	Step 3	Step 4		Step5
	F (-) S	Tenor	Identify	Base	Percent	Annualize
1	0.18	3m	DQ- Commodity	Spot 34.50	0.5217	2.0868%
2	0.35	6m	DQ- Commodity	Spot 34.50	1.0144	2.0289%

2.2 For the price (Home currency is – Rupee)

	Step 1	Step 2	Step 3	Step 4		Step5
	F (-) S	Tenor	Identify	Base	Percent	Annualize
1	0.18	3m	DQ- Price	Fwd 34.68	0.519	2.076%
2	0.35	6m	DQ- Price	Fwd 34.15	1.0249	2.049%

b. Movements in Yen/$:
1. The exchange rate is a direct yen quote for USD. USD is the commodity being bought and sold.

Period	Relate forward and spot	Foreign currency CAD is	Home currency rupee is
3 months	F > S	Depreciating	Appreciating
6 months	F < S	Strengthening	Weakening

2. Computing % of appreciation – depreciation
2(a) For the commodity (Foreign currency is – USD)

	Step 1	Step 2	Step 3	Step 4		Step5
	F (-) S	Tenor	Identify	Denominator	Percent	Annualize
1	0.11	1m	DQ- Commodity	Spot 106.14	0.1036	1.243%
2	0.84	12m	DQ- Commodity	Spot 106.14	0.7914	0.791%

2(b) For the price (Home currency is – Yen)

	Step 1	Step 2	Step 3	Step 4		Step5
	F (-) S	Tenor	Identify	Denominator	Percent	Annualize
1	0.11	1m	DQ- Price	Fwd 106.03	0.1037	1.245%
2	0.84	12m	DQ- Price	Fwd 106.95	0.785	0.7851%

Summary :

1	Foreign Currency		Home Currency	
Rupee/CAD 3 m	+ 2.0868%	-		-2.076%
Rupee/CAD 6 m	-	- 2.0289%	+ 2.049%	
Yen/USD 1 m	-	-1.245%	-1.245%	
Yen/USD 12 m	+ 0.791%	-	-	-0.785%

Illustration 3: A customer M/s. Preity wants to sell a bill worth $1,000,000 to a bank. The bill might mature any time during the second month. If the bank charges a margin of 0.5% and exchange rates are as given below, determine the rate which the bank is likely to quote.

Rs /$ Spot	45.30/45.35
One-month forward	15/10
Two-month forward	20/15

Solution : To enter in to the forward contract, need happens to determine the outright forward rates. In this problem, the swap points are in descending order, indicates that local currency i.e., Indian Rs. at premium. Hence, to work out the forward rate subtracts the swap points from the spot rates.

One-month forward	45.15/45.35
Two-month forward	45.10/45.30

Since, the delivery can take place any time during the second-month, the bank will base its quote on the more adverse of the one-month and two-month forward rates, as the bank has to buy $, and the currency is at discount.

When the customer sells $ to obtain Rupees, the most adverse rate the bank will quote for him is Rs.45.10/$. As bank has to buy the $ and against that bank has to pay the Indian Rs. so bank will Subtract a margin of 0.5%. Hence, the rate quoted by the bank will be (45.10) (1 – 0.005) = Rs.44.8745/$.

10.4 DETERMINATION OF EXCHANGE RATE IN SPOT MARKET :

The Process of Determination: It is the interplay of the forces of demand and supply that determines the exchange rate between two currencies in a floating rate regime. The exchange rate between, say, the rupee and US dollar depends upon the demand for US dollars and the supply of US dollars in the Indian foreign exchange market. The demand for foreign currency comes from individuals and firms who must make payments to foreigners in foreign currency mostly on account of the import of goods and services and purchase of securities. The supply of foreign exchange results from the receipt of foreign currency normally on account of export or sale of financial securities to foreigners.

In Figure 3.3, the exchange rate designated by the price of the US dollar (foreign currency) in terms of rupee, is shown on the vertical axis and the supply of, and demand for, the US dollar is shown on the horizontal axis. The demand curve slopes downward to right because the higher the value of the US dollar, the costlier are the imports and the importers curtail the demand for imports. In the sequel, the demand for foreign currency falls. Similarly, a higher value of US dollar makes exports cheaper and thereby stimulates the demand for exports. The supply of the US dollar increases in the form of export earnings. Therefore, the supply curve of the US dollar moves upward to the right with a rise in its value. The equilibrium exchange rate arrives where supply curve intersects the demand curve at Q_1. This rate as shown in the above figure is Rs 40/US $.

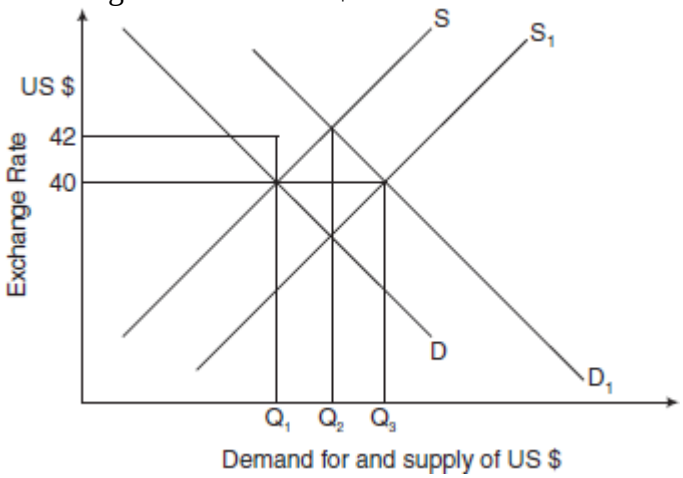

FIG. 10.1 Exchange rate determination

If demand for imports rises owing to certain domestic factors, the demand for the US dollar will rise to D_1 and intersect the supply curve at Q_2. The exchange rate will be Rs 42/US $. But if exports rise as a sequel to a decline in the value of rupee and the supply of dollar increases to S_1, the exchange rate will again be Rs 40/US $. Quite evidently, the frequent shifts in demand and supply conditions cause the exchange rate to adjust frequently to a new equilibrium.

Factors Influencing Exchange Rate: i. Impact of Inflation: It is normally the inflation rate differential between two countries that influences the exchange rate between their currencies. The influence of the inflation rate is explained by the Purchasing Power Parity (PPP) theory (Cassel, 1921; Officer, 1976). The theory suggests that at any point of time, the rate of exchange between two currencies is determined by their purchasing power. If *e* is the exchange rate and P_A and P_B are the purchasing powers of the currencies in the two countries, A and B, the equation can be written as follows:

$$e = P_A / P_B$$

In fact, this theory is based on the *theory of one price* in which the domestic price of any good equals its foreign price quoted in the same currency. To explain this, if the exchange rate is Rs 2/US $, and the price of a particular commodity is Rs 100 in India, then as per the theory it must be US $ 50 in the USA. In other words:

(US $ price of a commodity × price of US $) = Rupee price of the commodity

If inflation in one country causes a temporary deviation from the equilibrium, arbitrageurs will begin operating, because of which equilibrium will be restored through changes in the exchange rate. Suppose the price of the commodity soars up in India to Rs 125, the arbitrageurs will buy that commodity in the USA and sell it in India earning a profit of Rs 25. This will go on till the exchange rate moves to Rs 2.5/US $ and the profit potential of arbitrage is eliminated.

The exchange rate adjustment as a sequel to inflation may be further explained as follows. If the Indian commodity becomes costlier, its export will decline. At the same time, its import from the USA will expand as imports will become cheaper. Higher imports will raise the demand for the US dollar raising in turn its value vis-à-vis the Indian rupee.

However, this version of the theory, which is known as the absolute version, holds good if the same commodities are included in the same proportion in the domestic market basket and the world market basket. Since this does not normally occur in real life, this is a serious limitation of the theory. Moreover, it does not cover non-traded goods and services where transaction cost is significant.

In view of the above limitation, another version of this theory has evolved which is known as the relative version of the PPP theory. The relative version states that a change in the exchange rate that would retain the original level of relative price of tradeable to non-tradeable goods in the economy, would establish an equilibrium exchange rate. It further states that the exchange rate between the currency of any two countries should be a constant multiple of the general price indices prevailing in the two countries. In other words, percentage change in exchange rate should equal the percentage change in the ratio of price indices in the two countries. To put this in the form of an equation, where I_A and I_B are the rates of inflation in Country A and Country B, e_o is the A's currency value for one unit of B's currency in the beginning of the period and e_t is the spot exchange rate in period *t*:

EXAMPLE

If India has inflation rate of 5% and the USA has a 3% rate of inflation and if the initial exchange rate is Rs 40/US $, the value of the rupee in a 2-year period will be:

$$\frac{e_t}{e_o} = \frac{(1+I_A)^t}{(1+I_B)^t}$$

$e_2 = 40\ (1.05/1.03)^2$ = Rs 41.57/US $

Such an inflation-adjusted rate is known as the real exchange rate. When the government sticks to a particular exchange rate without caring for prevailing inflation, a gap emerges between the real and the nominal exchange rates which entails upon export competitiveness. It is for this reason that this theory suggests that a country with high rate of inflation should devalue its currency relative to the currency of countries with lower rates of inflation.

Several studies have empirically tested the two versions of the PPP theory. The absolute version has been tested by Isard (1977) and McKinnon (1979). Both had found violation of the theory in the short-run, but in the long-run, they found the theory holding good to a certain extent. As regards the relative version, the studies made till the early 1980s normally found the relationship existing between the rate of inflation and the exchange rate, especially in the long run (Aliber and Sickney, 1975; Dornbusch, 1976; Mussa, 1982). But subsequent studies have found clear-cut violations of the theory even in the long run (Adler and Lehmann, 1983; Edison, 1985). Taylor (1988) finds very little evidence of the PPP theory to holding good. In a review of 14 cases, MacDonald (1988) found that in 10 cases, the theory was not applicable even in the long-run, however, in four cases it held good in the long-run.

There are primarily three factors that cause the PPP theory to not hold good in real life. First, the assumptions of this theory do not necessarily hold good in real life. Second, there are other factors, such as interest rates, governmental interference, etc., that influence the exchange rate. In the early 1990s, some of the European countries experienced higher inflation rates than the USA, their currency did not however depreciate against the dollar in view of the high interest rates that attracted capital from the USA. Third, when no domestic

substitutes for imports are available, goods are imported even after their prices rise higher in the exporting countries.

Interest Rate : The experts differ on how changes in the interest rate influence the exchange rate. The flexible price version of the monetary theory explains that any rise in domestic interest rate lowers the demand for money. Lower demand for the domestic currency in relation to supply of the foreign currency causes depreciation in the value of domestic currency. On the contrary, the sticky price version of the monetary theory has a different explanation. It is that a rise in interest rate increases the supply of loanable funds which means a greater supply of money and a depreciation in domestic currency. But at the same time, it shares the view of the balance of payments approach where a higher interest rate at home as compared to a foreign country attracts capital from abroad lured by higher returns. The inflow of foreign currency increases the supply of foreign currency and raises the value of domestic currency.

However, suggests Fisher, this proposition cannot be thought of in isolation of inflation, since inflation negates the return on capital to be received. If the interest rate is 10% and the rate of inflation is 10%, the real return on capital would be zero. This is because the gain in the form of interest compensates for the loss on account of inflation. In fact, it was Irving Fisher who decomposed nominal interest into two parts — the real interest rate and the expected rate of inflation. And so, the relationship between nominal interest rate and the expected rate of inflation is known as the Fisher Effect.

The Fisher Effect states that whenever an investor thinks of an investment, he is interested in a particular nominal interest rate which covers both the expected inflation and the required real interest rate. In form of an equation, it can be shown as follows:

$$(1 + r) = (1 + a)\,(1 + I)$$

Where:

r = the nominal interest rate
a = the real interest rate
I = the expected rate of inflation

EXAMPLE

The required real interest rate is 4% and the expected rate of inflation is 10%, the required nominal interest rate will be:
$(1.04 \times 1.10) - 1 = 14.4\%$.

Suppose the interest rate in the USA is 4% and the inflation rate in India is 10% higher than in the USA. A US investor will be tempted to invest in India only when the nominal interest in India is more than 14.4%.

The concept of real interest rate applies to all investment in domestic and foreign. An investor invests in a foreign country if the real interest rate differential will be in his favour. But when such a differential exists, arbitrage begins in form of international capital flow that ultimately equals the real interest rate across countries. Suppose the real interest rate is 5% in India and 4% in the USA, capital will begin flowing from the USA to India. In the USA, a declining volume of capital will raise the real interest rate, while an increasing volume of capital in India will push down the interest rate. The capital flow will continue till the real interest rate in both countries becomes equal. This means that the process of arbitrage helps equate the real interest rate across countries. Moreover, since the real interest rate is equal in different countries, a country with a higher nominal interest rate must face a higher rate of inflation.

An investor likes to hold assets denominated in currencies expected to depreciate only when the interest rate on those assets is high enough to compensate for the loss on account of the depreciating exchange rate.

However, for this type of arbitrage, it is necessary that the capital market be homogeneous throughout the globe so that the investors do not differentiate between the domestic capital market and foreign capital markets. In real life, a homogeneous capital market is not found in view of government restrictions and varying economic policies in different countries. As a result, the interest rate varies among countries. Mishkin (1984) finds that investors have a strong liking for the domestic capital market to insulate themselves from foreign exchange risk. Arbitrage will not occur even if the real interest rate on foreign securities is higher. The Fisher Effect is helpless on this count. Again, the Fisher Effect normally holds good in case of short-maturity government securities and very little in other cases (Abdullah, 1986).

The Empirical tests present different results. Gibson (1970, 1972) and Fama and Schwert (1977) are in favour of the Fisher Effect, while the studies of Mishkin (1984) and Cumby and Obstfeld (1984) do not support the Fisher effect.

Combined Effect of Interest Rate And Inflation : There is also Fisher's open proposition that is known as the International Fisher Effect or the generalised version of the Fisher Effect. It is a combination of the conditions of the PPP theory and Fisher's closed proposition. It may be recalled that the PPP theory suggests that the exchange rate is determined by inflation rate differentials, while the latter states that the nominal interest rate is higher in a country with a higher inflation rate. Combining these two propositions, the International Fisher Effect states that the interest rate differential shall equal the inflation rate differential. In form of an equation, it can be written as follows:

$$\frac{1+r_A}{1+r_B}=\frac{1+I_A}{1+I_B}$$

The rationale behind this proposition is that an investor likes to hold assets denominated in currencies expected to depreciate only when the interest rate on those assets is high enough to compensate for the loss on account of the depreciating exchange rate. As a corollary, an investor holds assets denominated in currencies expected to appreciate even at a lower rate of interest because the expected capital gain on account of exchange rate appreciation will make up for the loss in yield on account of low interest rate.

The equality between interest rate differential and inflation rate differentials can be explain with the help of the following examples. Suppose India is expecting 8% inflation rate during the next one year as compared to 3% inflation rate in the USA. If the exchange rate in the beginning of the year is ₹40/U.S. dollar, the value of the rupee will face vis-à-vis the US dollars at the end of the period to:

Rs. 40(1.08/1,03) = Rs. 41.94/US $

Suppose further that at the beginning of the period, Interest rate in India is 7% as against 4% in the USA. At the end of the period, interest rate in India will rise to an extent that will equate approximately the inflation rate differential. To find out the change in interest rate the following equation may be applied:

$e_t/e_0 = 1 + rIND/1 + r_{USA}$

Basing on the above equation, we have

$41.94/40 = (1 + r_{IND}) / 1.04$

$(1 + r_{IND}) = 1.09$

$r_{IND} = 0.09$ or 9%

If the rate of interest in India rises to 9%, the interest rate differential between the two countries will be: 1.09/1,04 or 4.81% which will be approximately equal to the inflation rate differential which is 1.08/1.03 or 4.85%.

Example:

If the rate of inflation in India and the USA is 7% and 4% respectively and if interest rates in the USA is 6%, find the interest rate in India.

Solution:

1.07/ 1.04 = 1 + x/ 1.06

1 + x = 1.07/ 1.04 x 1.06

x= 0.0906 or 9.06%

10.5 EXCHANGE RATE DETERMINATION IN FORWARD MARKET :

The forward exchange rate is normally not equal to the spot rate. The size of forward premium or discount mainly depends on the current expectation of future events. Such expectations determine the trend of the future spot rate towards appreciation or depreciation and thereby determine the forward rate that is equal to, or close to, the future spot rate. Suppose the US dollar is expected to depreciate, the holders of US dollars will start selling it forward. These actions will help depress the forward rate of the US dollar. On the contrary, when the US dollar is expected to appreciate, holders will buy it forward and the forward rate will improve.

The determination of exchange rate in a forward market finds a major place in the theory of Interest Rate Parity (IRP). It is, therefore, relevant to explain this theory and how it helps in exchange rate determination in a forward market and how the arbitrageurs behave when the forward rate differential is not equal to the interest rate differential.

Interest Rate Parity Theory : The determination of the exchange rate in the forward market finds an important place in the Interest Rate Parity (IRP) Theory. The IRP theory states that equilibrium is achieved when the forward rate differential is approximately equal to the interest rate differential. In other words, the forward rate differs from the spot rate by an amount that represents the interest rate differential. In this process, the currency of a country with a lower interest rate should be at a forward premium in relation to the currency of a country with a higher interest rate. Equating the forward rate differential with the interest rate differential, we find:

$$A \times \frac{(n\text{-}day\ F - S)}{S} = \frac{(1 + r_A)}{(1 + r_B)} - 1$$

Based on the IRP theory, the forward exchange rate can easily be determined. One has simply to find out the value of forward rate (F) in the above equation. The equation shall be re-written as

$$F = S/A\ \{(1 + r_A/1 + r_B) - 1\} + S$$

EXAMPLE :

Suppose the interest rate in India and the USA is respectively 10% and 7%. The spot rate is Rs 40/US $. The 90-day forward rate can be calculated as follows:

F = 40/4 {(1.10/1.07) – 1} + 40

Or

F = Rs 40.28/US $.

This means that the higher interest rate in India pushes down the forward value of the Indian rupee from 40 a dollar to 40.28 a dollar.

Covered Interest Arbitrage : If the forward rate differential is not equal to interest rate differential, covered interest arbitrage will begin and it will continue till the two differentials become equal. In other words, a positive interest rate differential in a country is offset by annualised forward discount. Negative interest rate differential is offset by annualised forward premium. Finally, the two differentials will be equal. In fact, this is the point where forward rate is determined. The process of covered interest arbitrage may be explained with the help of an example.

EXAMPLE :
Suppose the spot rate is Rs 40/US $ and the 3-month forward rate is Rs 40.28/US $ involving a forward differential of 2.8 %. The interest rate is 18% in India and 12% in the USA involving an interest rate differential of 5.37%. Since the two differentials are not equal, covered interest arbitrage will begin. The successive steps shall be as follows:

1. Borrowing in the USA, say, US $ 1,000 at 12% interest rate.
2. Converting the US dollar into Indian rupees at the spot rate to get Rs 40,000.
3. Investing Rs 40,000 in India at 18% interest rate.
4. Selling the Indian rupees 90-day forward at Rs 40.28/US $.
5. After 3 months, liquidating the Rs 40,000 investment which would fetch Rs 41,800.
6. Selling Rs 41,800 for US dollars at the rate of Rs 40.28/US $ to get US $ 1,038.
7. Repaying loan in the USA which amounts to US $ 1030.
8. Reaping profit: US $ (1038 − 1030) = US $ 8.

Therefore, if inequality continues between the forward rate differential and the interest rate differential, the arbitrageurs will reap profits and the process of arbitrage will continue. But with this process, the differential will be wiped out because:

1. Borrowing in the USA will raise the interest rate there.
2. Investing in India shall increase the invested funds there and thereby lower the interest rate there.
3. Buying the Indian rupee at the spot rate will increase the spot rate of the Indian rupee.
4. Selling the Indian rupee forward will depress the forward rate of the rupee.

The first two actions narrow the interest rate differential, while 3 and 4 widening the forward rate differential. However, the real-life experiences shows that the two differentials-interest rate and forward rateare equal only approximately and not precisely. It is because the interest rate parity theorem assumes no transaction costs, no tax rate differences and political stability. But the assumptiondoes not hold in real life.

First, there is always transaction costs involved in selling a currency spot and buying it forward. The transaction costs, which is manifest in the bid-askspread, forces forward rate differential to deviate from the expected one. The transaction costs, which is involved also in borrowing and investing, influences the effective interest rate and thereby the interest rate differential.

Secondly, there is disparity in the tax rate on interest income in different countries. Such a disparity allows the interest rate differential to deviate from the expected one.
Finally, if there is political unrest in the country where the funds are invested, the cost of investment will be greater, and this will influence the interest rate differential.

Uncovered Interest Arbitrage : When one talks about interest arbitrage, it would be worthwhile to note that interest arbitrage may not be only covered, it may also be uncovered. However, in an uncovered interest arbitrage, the arbitrageur does not take advantage of the forward market and does not go for any forward contract for reaping-profit. Rather the decision behind profit making depends upon the expectation about the future spot rate, in as much as the interest rate differential between two countries leads to changes in future spot rate.

If interest rate differential is equal to change in the future spot rate, uncovered interest parity will exist. this can be represented in the form of an equation:

$(1 + R_A) / (1 + R_B) = (S_{e+1} - S)/S$

Where $S_{e+1}$is the expected future spot rate, and R_A and $R_B$are the interest rates in country A and country B.

So long as equality is not reached, the arbitrageurs will go for uncovered interest arbitrage and reap profits. Suppose the interest rate on the Indian treasury bill is 7.0% and that on the UK treasury bill is 4.0% and so the interest rate differential is 2.88%. If the investor expects a depreciation of 4.0% in the future spot rate of Indian rupee, he/ she will invest in the UK treasury bill because a fixed amount of British pound will fetch greater amount of Indian rupee at the future date. this will go on till the two differentials are equal. This is a covered interest arbitrage

Example : Interest rate in India and the USA is respectively 6% and 5%. spot exchange rate at present is ₹42.32/U.S. dollar. Because of higher interest rate, arbitrageurs are tempted to make investment in rupee market. but by the time their investment matures, rupee is expected to depreciate to Rs. 45.20/U.S. dollar. Find whether there would be uncovered interest arbitrage.If there will be arbitrage, what will be the process?

Solution: Interest rate differential = 1.06/1.05 – 1= 0.95%
Future spot rate differential = (45.20-42.32)/42.32 = 6.81%
Since these two differentials are not equal, uncovered parity does not exist. As a result, there will be uncovered interest arbitrage.

Again, under this type of situation, arbitrageurs will take back their investment out of rupee market for a fear of lower return in terms of U.S. dollar. As a result of lower supply of money there, Indian interest rates will ascend to achieve uncovered parity.

10.6 SUMMARY :

In a forward market, the rate of exchange is determined by the interest rate differentials that finds a place in the interest rate parity theory. This theory tells us that the interest rate differentialequals the forward rate differential. If these two differentials are not equal, covered interest arbitrage begins and equalises the two. In case of a covered interest arbitrage, the arbitrageurconsiders, the expected future spot rate and not the forward rate.

10.7 TECHNICAL TERMS :

- **Spot market:**The spot market or cash market is a public financial market in which financial instruments or commodities are traded for immediate delivery.
- **Forward market:** A forward market is an over-the-counter market place that sets the price of a financial instruments or asset for future delivery.
- **Interest rate parity theory:** The theory explaining parity between interest- rate differentials and forward rate differentials.

10.8 SELF ASSESSMENT QUESTIONS :

1. How do you compute the forward rate differential?
2. Explain the Interest Rate Paritytheory. Is it sufficient to explain the forward exchange rate?
3. "The spot exchange rate in a floating-rate regimes is determined by the supply and demand forces". Explain.
4. Explain covered interest arbitrage with suitable example. Is it different from uncovered interest arbitrage?
5. Discuss the Interest Rate Parity theory and its role in determining the forward exchange rate.
6. The exchange rate between the Indian rupee and the U.S. dollar moves from INR 45 at the beginning of the year to INR 43 by the end of the year. At the same time, the U.S. price index rises from 120 to 130, and the Indian price index moves from 130 to 145. What are your comments on the appreciation of the Indian rupee?
7. The inflation rate in the United Kingdom is expected to be 4 per cent per annum, and the inflation rate in India is expected to be 7 per cent per annum. If the current spot rate is GBP/INR 82, what is the expected spot rate in two years?
8. The interest rates in the United States and the United Kingdom are 6 per cent and 8 per cent per annum, respectively. If the current spot rate for the British pound is USD 1.92, what is the spot rate implied by these interest rates three years from now?
9. What is interest rate parity? How are interest rates and forward rates related?

10.9 SUGGESTED READINGS :

1. Fama, E. (1988), Forward and Spot Exchange Rates, Journal of Monetary Economics, XIV, 319-338.
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LESSON - 11

THEORIES OF EXCHANGE RATE BEHAVIOUR

LEARNING OBJECTIVES :

After studying this chapter, you should be able to :

- Examine the different theories of the exchange rate behaviour.
- Understand the application of Purchasing Power Parity and the Fisher Effect.

STRUCTURE :

11.1 INTRODUCTION :

The present lesson describes a few major postulates that explain exchange rate behavior and the ways in which some important macroeconomic variables influence the exchange rate movement. These different theories are compartmentalized into the balance of payments approach and the asset-market model. The latter is again compartmentalized into two approaches based on substitutability between domestic financial assets and foreign financial assets. Perfect substitutability between the two led to the monetary approach, while the lack of perfect substitution has led to the portfolio balance approach. the monetary approach, which is an outgrowth of PPP theory and the quantity theory of money, has two versions: one being the flexible-price version and the other being the sticky-price version.

11.2 BALANCE OF PAYMENTS APPROACH :

Balance of payments approach(Allen and Kennen,1978) suggests that an increase in domestic price level over the foreign price level makes foreign goods cheaper. It lowers export earnings and boosts the imports bill. lower export reduces the supply of foreign exchange, and at the same time, greater import increases the demand for foreign exchange and domestic currency depreciates as a result. Similarly, growth in real national income causes larger imports if marginal propensity to import is positive. Larger import will cause greater demand for foreign currency and thereby depreciation in the value of domestic currency.

Increase in domestic interest rate, on the contrary, causes greater capital inflow that increases the supply of foreign exchange and thereby causes appreciation in the value of domestic currency. The first two factors influence the current account while the third factor influences the capital account.

However, the empirical study of Pearce (1983) shows that none of the above-mentioned variables was very sick significant in the case of exchange rate between the Canadian dollar and U.S. dollar. On this ground, he has suggested for an alternative theory.

11.3 MONETARY APPROACH :

The flexible-price version of the monetary approach emphasizes the role of demand and supply of money in determining the exchange rate(Frankel,1976). The exchange rate between two currencies, according to this approach, is the ratio of their values determine based on the money supply and the money demand positions of the two countries. The demand for money- either in domestic economy or in a foreign economy- is positively related with the prices and real output and negatively related with the rate of interest. any increase in money supply raises the domestic price level(based on the quantity theory of money) and the resultant increase in price levels lowers the value of the domestic currency. but if the increase in money supply is lower than the increase in real domestic output, the excess of real domestic output over the money supply causes excess demand for money balances and leads to a lowering of domestic prices which causes and improvement in the value of domestic currency. This explanation runs contrary to the balance of payments approach where increase in real output causes depreciation in the value of domestic currency through greater imports. Again, the monetary approach is different from the balance of payments approach in the sense that the former explains that rise in domestic interest rate lowers the demand for money in the domestic economy relative to its supply and thereby causes depreciation in the value of domestic currency. However, the critics of this theory argue that since the purchasing power parity theory is not applicable in the short run, this theory does not hold good in such cases.

Dornbusch (1976), The proponent of the sticky price version, feels that the simple assumption of the flexible price version that the PPP holds continuously and the real exchange rate never changes is unrealistic. In the real life, real exchange rate has changed at least in the short run, although the variability of nominal exchange rate has been greater. He assumes further that the pace of adjustment of asset prices is faster than the pace of adjustment of goods prices. Thus, when the goods prices are sticky, it is necessary for the asset prices to move more than in the flexible price case for attaining a temporary equilibrium.

The sticky price version has proved that gradual adjustment of goods prices following a monetary shock imparts a “dynamic adjustment path” to the exchange rate. The real exchange rate alters in the short run but returns to the original level in the long run-on account of PPP deviations.

The sticky price version makes a more detailed study of interest rate differential. The interest rate differential has Three components. one denotes that when interest rate rises, the money balances held by the public come to the money market lured by the high interest. the increase in money supply leads to currency depreciation. the other denotes that if interest rate rises, financial institutions release more funds into the money market as a result, the value of domestic currency depreciates. The Third is that erase in interest rate stimulates the capital flow into the country that, similarly as in the balance of payments approach, causes appreciation in the value of domestic currency.

The sticky price version is based on at least three assumptions. the first is the perfect capital mobility which means that the interest rate parity conditions prevail. The second is the slow price adjustment. The third is the element of certainty which means that the traders are aware of the fact when shocks will be hitting the market and how to respond to them.

11.4 PORTFOLIO BALANCE APPROACH :

The portfolio balance approach(McKinnon, 1969) suggests that not only the monetary factors but also the holding of financial assets, such as domestic and foreign bonds influence the exchange rate. If foreign bonds and domestic bonds turnout to be perfect substitutes and if the conditions of interest arbitrage hold good, the portfolio balance approach will not be different from the monetary approach. but since these conditions do not hold good in real life, the portfolio balance approach maintains at distinction from the monetary approach.

The portfolio balance approach is based on two financial assets : money and bonds of both the domestic country and the foreign country. There is no restriction on the allocation of wealth among domestic money, domestic bonds, and foreign bonds. Thus, for accounting purposes,

Wealth= domestic money + domestic bonds + foreign bonds

The exchange rate establishes and equilibrium or a balance in investor's portfolio which includes all these Three forms of wealth. If there is any change in the Three forms of portfolio on account of change in real income, interest-rate, risk and price level, the investor re-establishes a desired balance in its portfolio. This re-establishment needs some adjustments which, in turn, influence the demand for foreign assets. Any such change influences the exchange rate. For example, a rise in real domestic income on a rise in interest rate abroad leads to a greater demand for foreign bonds. any rise of demand for foreign currency will result in depreciation of both domestic currencies. Again, the legal, political, and economic conditions in a foreign country may be different from those at home. If foreign bonds turnout to be riskier on these grounds, the demand for foreign currency will decrease, intern appreciating the value of the domestic currency. Similarly, a rising inflation in the foreign country would make foreign bonds risky and the demand for foreign currency will drop and so domestic currency will appreciate. when the exchange rate changes, the above-mentioned variables also change leading to a shift in the desired balance in the investment portfolio. does the two-way interaction continues until equilibrium is reached. The equilibrium is, however, short-lived.

Again, when a country's wealth increases, holding of foreign assets also increases, and demand for foreign currency goes up which course is depreciation in the value of domestic currency. In this context, the possibility of substitution effect cannot be completely negated, because it outweighs the impact of wealth effect. The portfolio balance approach is more comprehensive but as Bisignano and Hoover (1982) find, data do not support the hypothesis of this approach.

11.5 PURCHASING POWER PARITY (PPP) :

The purchasing power parity (PPP) theory, developed by Gustav Cassell—a Swedish economist—in the early 1900s, describes the relationship between the average price levels in a country and its exchange rates. Having its roots in the law of one price, the PPP theory states that the home currency price of a commodity in different countries, when converted into a common currency at the spot exchange rate, is the same in all countries across the

world. In other words, a unit of home currency should have the same purchasing power (command over goods and services) in all countries.

Having its roots in the law of one price, the purchasing power parity (PPP) theory states that the home currency price of a commodity in different countries, when converted into a common currency at the spot exchange rate, is the same in all the countries across the world.

To understand the PPP theory, let us first look at the law of one price, which is the idea behind the PPP theory.

11.5.1 The Law of One Price : According to the law of one price, if a commodity or product can be sold in two different markets, its price should be the same in both markets. However, equalization of prices is possible only under the following conditions:

The law of one price states that, if a commodity or product can be sold in two different markets, its price should be the same in both markets, given that there are no transportation costs, transaction costs, tariffs, or restrictions on the movement of goods, and that there is no product differentiation or obstructions in the free flow of information.

- There are no transportation costs.
- There are no transaction costs.
- There are no tariffs.
- There are no restrictions on the movement of products.
- There is free flow of information.
- There is no product differentiation.

The law of one price holds only when the conditions listed here exist. It is obvious that the price of a commodity will vary if there is product differentiation, that is, if the products produced in different countries vary in terms of parameters such as quality, quantity, and appearance. Restrictions on the movement of products, in the form of bans and quotas on the amount of goods exported from or imported to the country, obstruct free movement of goods (to the extent desired to equalize prices) from one market to another. As a result, the prices in different markets cannot become equalized. The absence of free flow of information also makes the price of a product differ from market to market.

Further, the law of one price holds only in the absence of transportation costs, transaction costs, and tariffs (such as export tax and import duty) that are imposed on the movement of products from one market to another. If such costs exist, the price of the product may differ from market to market to the extent of such costs/tariffs. And if the price difference between the markets is more than the difference between the costs/tariffs involved in the movement of goods, it gives rise to an arbitrage opportunity for traders to buy the product in one market and sell in another to make a profit. Such traders, who buy a product in one market and sell in another market for a profit, are known as product or commodity arbitrageurs.

Every rational trader seeks to buy a commodity at a low price and to sell the same at a high price. A trader would never miss an opportunity to make a profit without risk or investment. If, for instance, a silver bar weighing 1 kg is priced at INR 26,025 in Market A, and the same is traded at INR 25,500 in Market B, the trader would buy the silver in Market B and sell it in Market A. This would yield a profit of INR 525 per kg of silver that is traded, and other traders will also be motivated to buy silver in Market B and sell it in Market A. This will cause an increase in the demand for silver in Market B—the market where the price is lower—and an increase in the supply of silver in Market A, where the price is higher. The increasing demand will raise the price in Market B, while the increasing supply will lower the price in Market A. This process will continue till the price for silver equalizes in both the markets. Thus, the traders' arbitrage activities will continue till the opportunity for profit is eliminated.

11.5.2 Forms of PPP :

There are two versions of purchasing power parity—the absolute version and the relative version. In this section, we shall look at both these versions of PPP.

The absolute form :

The law of one price states that if a commodity or product can be sold in two different markets, its price in terms of a common currency should be the same in both the markets. If, instead of a product or an asset, a standard basket of goods and services is involved, its price in different countries should also be the same when measured in a common currency. If the prices measured in a common currency are not the same, traders will engage in arbitraging to earn a profit until the price in different countries measured in a common currency equalizes. Note that when prices are different in different countries, it is not only arbitrageurs who can exploit the situation, but also regular traders (genuine buyers) who would buy the basket in the cheaper market and avoid the market where the price is higher. This means that regular traders also have a role in equalizing the prices between markets.

Let us assume that the price of a standard basket of goods and services in India as represented by its price index is PINR. The price of the same basket of goods and services in the United States as represented by its price index is, say, PUS. In such a case, the spot exchange rate (S0) between INR and USD (expressed as the number of units of INR per unit of USD) is expressed as:

$$S_0 = \frac{P_{\text{INR}}}{P_{\text{US}}}$$

The spot exchange rate between INR and USD can also be expressed as S0(USD/INR). Therefore,

$$P_{\text{INR}} = P_{\text{US}} S_0(\text{USD/INR}), \text{ and}$$

$$P_{\text{US}} = \frac{P_{\text{INR}}}{S_0(\text{USD/INR})}$$

Thus, the INR price of a commodity or a basket of goods and services in India is the U.S. dollar price of the commodity or basket of goods and services in the United States, multiplied by the exchange rate of Indian currency per U.S. dollar. This implies that the INR price of a basket of goods and services in India must be the same as the U.S. dollar price of the basket in the United States. To generalize, the price of a standard basket of goods and services should be the same in all countries when measured in a common currency. This rule is known as the absolute version of purchasing power parity. Thus, the PPP, in its absolute version, states that the exchange rate at any time exactly reflects the ratio of price indices in two countries, or the purchasing powers of two currencies.

Absolute PPP is also known as the static form of PPP. As mentioned earlier, the law of one price states that the prices in different countries tend to be equal if the markets are perfect (i.e., there are no transportation costs, transaction costs, etc). The absolute version of PPP, which is based on the law of one price, holds only when there are no frictions such as transportation costs, transaction costs, quotas, and tariff barriers. However, such frictions are bound to exist. In view of such market imperfections, the prices of standard baskets of goods and services in different countries may not be the same when measured in a common

currency. Deviations from absolute PPP may also occur in the absence of the same goods and services and in the same proportion in each country's basket of goods and services.

The relative form :

In view of the serious limitations of the absolute version of PPP, an alternative form, known as the relative version or dynamic form of PPP, is used. The relative form of PPP, stated in terms of rates of inflation, is a better determinant of exchange rates. It states that the percentage change in the exchange rate between the domestic currency and the foreign currency should equal the percentage change in the ratio of price indices in the two countries. That is, the exchange rate would change to offset the difference in the inflation rates between the two countries. The foreign currency depreciates when the inflation rate in the foreign country is more than the domestic inflation rate, and the foreign currency appreciates when the domestic inflation rate is more than the foreign country's inflation rate. This means that the currency of a country with a high rate of inflation should depreciate relative to the currency of a country with a lower rate of inflation.

The relative version of PPP, or the dynamic form, states that the percentage change in the exchange rate between the domestic currency and the foreign currency should equal the percentage change in the ratio of price indices in the two countries.

A relative change in price indices between two countries over a particular period should result in a change in the exchange rate between their currencies over that period. If this happens, the relative purchasing power is the same between the countries. The consuming public will, therefore, have the same purchasing power for foreign goods as well as for domestic goods. Also note that the relative PPP holds even in the presence of market imperfections such as transaction costs, transportation costs, and tariff barriers.

Thus, in the absolute form of PPP, the price levels as represented by price indices are considered in their absolute values, while in the relative form, the rates of change in price levels (or change in inflation rates) are considered. Let S0(B/A) be the spot exchange rate between the currency of Country X (denoted by “A”) and the currency of Country Y (denoted by “B”). Further, let Px and Py be the price levels in Country X and Country Y, respectively. According to absolute PPP, the relationship between the exchange rate and price levels at time “0” is:

$$S_0(\mathrm{B/A}) = \frac{P_x(0)}{P_y(0)}$$

At time “1”, the relationship will be:

$$S_1(\mathrm{B/A}) = \frac{P_x(1)}{P_y(1)}$$

To generalize, at time t,

$$S_t(\mathrm{B/A}) = \frac{P_x(t)}{P_y(t)}$$

The relative form of PPP is defined as:

$$\frac{S_t(\text{B/A})}{S_0(\text{B/A})} = \frac{P_x(t)/P_x(0)}{P_y(t)/P_y(0)}$$

The right-hand side of equation is the ratio of the changes in the price levels in Country X and Country Y. To express the equation in terms of inflation, let ix and iy be the rates of inflation in Country X and Country Y, respectively. Now,

$$\frac{P_x(t)}{P_x(0)} = 1 + i_x$$

And

$$\frac{P_y(t)}{P_y(0)} = 1 + i_y$$

By substituting these values in the relative form of PPP, it can be expressed as:

$$\frac{S_t(\text{B/A})}{S_0(\text{B/A})} = \frac{1+i_x}{1+i_y}$$

It can be stated in terms of percentage change in the exchange rates:

$$\frac{S_t(\text{B/A}) - S_0(\text{B/A})}{S_0(\text{B/A})} = \frac{i_x - i_y}{1+i_y}$$

As mentioned earlier, the currency of a country with a higher rate of inflation should depreciate relative to the currency of another country which has a lower rate of inflation. For example, suppose that the inflation rate is 6 per cent in India and 4 per cent in the United States. Applying the PPP theory, we would conclude that the INR value of the U.S. dollar must rise by about (1.06/1.04−1) per cent, or 1.92 per cent, to equalize the INR price of goods in the two countries. In view of the relatively high inflation in India, the domestic products command higher prices than the imported products (U.S. goods). So, consumers in India will demand more imported goods. At the same time, consumers in the United States will demand lesser quantities of Indian goods because they are highly priced relative to their domestic goods. This puts upward pressure on the value of the U.S. dollar.

The increasing demand for U.S. goods in India will continue till the U.S. dollar has appreciated by about 2 per cent. At that stage, the prices paid for U.S. products by Indian consumers will be equal to the prices of comparable products made in India. That is, the relative purchasing power between Indian currency and the U.S. currency will become equal. In fact, the increased price of U.S. goods in India is about 6 per cent, covering the inflation rate in the United States at 4 per cent and appreciation of the U.S. dollar relative to the Indian rupee by 2 per cent. The increased price is equal to the 6 per cent inflation rate in India. Now, suppose that the U.S. dollar has appreciated by, say, 1 per cent instead of 2 per cent. In this scenario, the increased price of U.S. products will be less than the 6 per cent inflation rate in India. That is, U.S. products will continue to be cheaper than comparable Indian products. In other words, any level of appreciation of the U.S. dollar relative to the Indian rupee below 2 per cent will make U.S. products cheaper and more attractive than comparable Indian products. On the other hand, U.S. consumers will reduce imports from India till the U.S. dollar appreciates to the extent that Indian products are no more expensive than U.S. goods. The PPP theory contends that consumers will switch over to domestic goods or

services whenever imports are costlier and will switch over to foreign goods whenever imports are cheaper. This process will influence the exchange rate. Of course, the main limitation in this process is the availability of substitute goods or services. If substitute goods or services are not available, consumers cannot make a shift.

Example :

The consumer price index in India rose from 200 to 216 over the period 1 January–31 December and the U.S. consumer price index increased from 100 to 105 over the same period. The exchange rate between USD/INR on 1 January was INR 44. What should be the exchange rate between the Indian rupee and the U.S. dollar on 31 December?

Solution :

The rate of inflation in India can be calculated as:

$$\frac{216}{200} - 1 = 1.08 - 1 = 0.08 \text{ or } 8\%$$

The rate of inflation in the United States will be:

$$\frac{105}{100} - 1 = 0.05 \text{ or } 5\%$$

The equilibrium exchange rate between USD/INR on 31 December should be:

$$S_t(\text{USD/INR}) = S_0(\text{USD/INR}) \times \frac{(1+i_h)}{(1+i_f)}$$

$$= 44 \times \frac{(1+0.08)}{(1+0.04)}$$

$$= 45.2571$$

The percentage change in the exchange rate is:

$$\frac{45.271 - 44}{44} = 0.0286 \text{ or } 2.86\%$$

Note that the same solution can be obtained from the following:

$$(1+0.08)/\ (1+0.05) - 1 = 0.02857 \text{ or } 2.86\%$$

This implies that the USD should appreciate by 2.86 per cent for the exchange to be in equilibrium as per PPP.

The relationship between the inflation differential and the changes in exchange rates is graphically represented in Figure 3.4. The vertical axis represents the percentage change in the exchange rate. The horizontal axis represents the inflation differential (difference in the inflation rates between the home country and the foreign country). The purchasing power parity line represents the equilibrium between the price-level changes and the exchange rates. For example, the 2 per cent inflation differential should be offset by the 2 per cent depreciation of the home currency relative to the foreign currency. Where the inflation

differential is greater or lower than the appreciation or depreciation of home currency, a situation of disequilibrium exists. However, the arbitrage process will ultimately bring the exchange rates in line with the inflation differential.

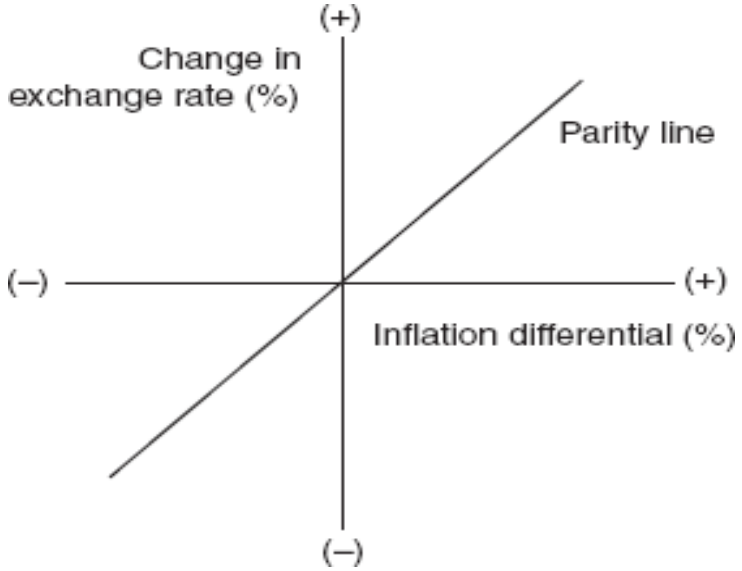


Figure 11.1: Purchasing power parity

Purchasing power parity can also be represented by the following approximation when inflation is low:

$$\frac{S_t - S_0}{S_0} = i_h - i_f$$

This, however, is a poor approximation when the inflation rate is high; it is useful only when the inflation differential is small.

If the home currency depreciates by more than is warranted by the PPP, the competitiveness of the home country increases in the world market. Conversely, if the home currency depreciates by less than the inflation rate differential, the competitiveness of the home country weakens. For example, because of the increase in the inflation rate in India relative to European countries, the Indian rupee depreciated against the euro. But the rate of depreciation of the Indian rupee is much higher than is warranted by PPP. As a result, companies in euro zone countries that export to India will be adversely affected because the euro becomes more expensive relative to the Indian rupee, reducing the demand for products produced in euro zone countries. At the same time, companies in India that export to euro zone countries will benefit because their products become cheaper to consumers in euro zone countries.

The expectation form :

The expectation form of PPP involves the exchange rate and the inflation rates being expressed in expected terms, and it states that the expected percentage change in the exchange rate equals the expected inflation differential in the two countries, provided the market participants are risk-neutral and the markets are perfect. The expectation form of PPP is also known as the efficient market form of PPP.

The expectation form of PPP implies that the expected percentage change in the exchange rate is equal to the expected inflation differential in the two countries.

The expectation form of PPP can be represented as:

$\hat{i}x = \hat{i}y + \hat{S}(A/B)$or,

$\hat{S}(A/B) = \hat{i}x - \hat{i}y$

where

A = Currency of Country X
B = Currency of Country Y
Ŝ(A/B) = Expected spot exchange rate
îx = Expected inflation rate in Country X
îy = Expected inflation rate in Country Y

Suppose a firm buys a standard basket of goods in Country X and holds it for a year. The firm can expect to get a return equal to the expected inflation rate (îx). Alternatively, if it buys the same standard basket of goods in Country Y, holds it for one year, and then converts its return in Currency B into Currency A at the expected exchange rate, Ŝ(A/B), its expected return, will be equal to the sum of the expected inflation rate in Country Y and the expected change in the spot exchange rate. Thus, the expected return in terms of Currency A from holding the basket of goods in Country Y depends on the expected changes in inflation rates in Country Y and the expected change in the Currency B value of Currency A.

If the market participants are rational in their expectations, then the expected values of the exchange rate and the inflation rates will equal the actual rates of change in these variables on average over an extended period. In other words, if the expectation form of PPP holds, the relative version of PPP also holds on average over an extended period.

11.6 THE FISHER EFFECT :

Interest rates can be classified as nominal interest rates and real interest rates. The nominal interest rate is the rate of exchange between current money and future money. For example, a deposit of INR 100 today will be worth INR 110 after one year. The deposit carries a 10 per cent nominal interest rate per annum. But in the days of rising prices, the nominal rate of interest is different from the real rate of interest. The real rate of interest is measured in terms of the purchasing power of money. If the value of money is measured in terms of its purchasing power over goods and services, the value of money changes when prices change. During a period of inflation, money loses value because fewer goods and services can be purchased with the same amount of money. Thus, what is important is not the quantity of money that one has but rather what and how many goods and services the money will buy. In other words, it is the real interest rate and not the nominal interest rate which is important and relevant to the investor.

The Fisher effect, or the Fisher equation, represents the relationship between the nominal interest rate, the real interest rate, and the expected rate of inflation in a country. It is in this context that the Fisher equation, or the Fisher effect, assumes importance. According to Irving Fisher, the nominal rate of interest consists of two components: the real rate of return and the expected rate of inflation. This relationship can be represented as:

1 + Nominal rate of interest =(1 + Real rate of return) (1 + Expected rate of inflation)

Let K be the nominal rate of interest, r be the real rate of interest, and i be the expected rate of inflation. Now,

$$(1+K)=(1+r)(1+i)$$

$$(1+r)^t=\frac{(1+K)^t}{(1+i)^t}$$

By solving the above equation for K, we have:

K = r + i + ri

In other words,

Nominal rate of return = Real rate of return + Expected rate of inflation + (Real rate of return × Expected rate of inflation)

Assume that an investor expects a 5 per cent real return on his investment when the economy is experiencing a 10 per cent inflation rate. The Fisher equation indicates that the investor should get a nominal interest rate of 15.5 per cent.

If r and i are small, then ri also becomes small, the nominal interest rate can be approximated as

$$K = r + I$$

Thus, in this situation,

Nominal rate of return = Real rate of return + Expected rate of inflation

As evident from our discussion, the Fisher effect or Fisher equation is the relationship between the nominal interest rate, the real interest rate, and the expected rate of inflation in a country. This relation is also called the Fisher relation. It is also implied that the expected rate of inflation is the difference between the nominal rate of interest and the real rate of interest.

When more than one currency is involved, it takes a different form. This relationship is explained here:

According to Interest rate parity,

$$\frac{F_t}{S_0} = \frac{(1+K_h)^t}{(1+K_f)^t}$$

Here,

Kh = Nominal rate of interest in the home country

Kf = Nominal rate of interest in the foreign country

Substituting the Fisher equation in both sides of the equation,

$$\frac{(1+K_h)^t}{(1+K_f)^t} = \frac{(1+r_h)(1+i_h)}{(1+r_f)(1+i_f)}$$

If the law of one price holds for real rates of return in different countries, then rh=rf If the real rates of interest are different in different countries, arbitrage activities would cause capital to flow from the country with the lower real return to the country with the higher real return. For example, if the real interest rate is 4 per cent in the United States and 5 per cent in India, capital would flow from the United States to India. But arbitrage would bring the expected real returns in different countries to be equal instantaneously. When rh equals rf, rh and rf cancel from the right-hand side of the equation.

Thus,

$$\frac{(1+K_h)}{(1+K_f)} = \frac{(1+i_h)}{(1+i_f)}$$

Here,

Kh = Nominal home currency interest rate

Kf = Nominal foreign currency interest rate

ih = Expected inflation rate in home country

if = Expected inflation rate in foreign country

When Kf. and ifare relatively small, it can be approximated as:

$$kh - Kf = ih - if$$

This means that the interest rate differential equals the inflation differential. Thus, the investments denominated in the currency of the country having a higher expected rate of inflation should bear higher rates of return than the investments denominated in the currency of the country with a lower expected rate of inflation. In other words, a rise (fall) in the inflation rate in a country will result in a proportionate increase (decrease) in the interest rate in that country. This is also graphically represented in Figure 3.5, where the horizontal axis measures the difference in the expected rates of inflation between the home country and the

foreign country. The vertical axis measures the interest rate differential between the countries for the same time period.

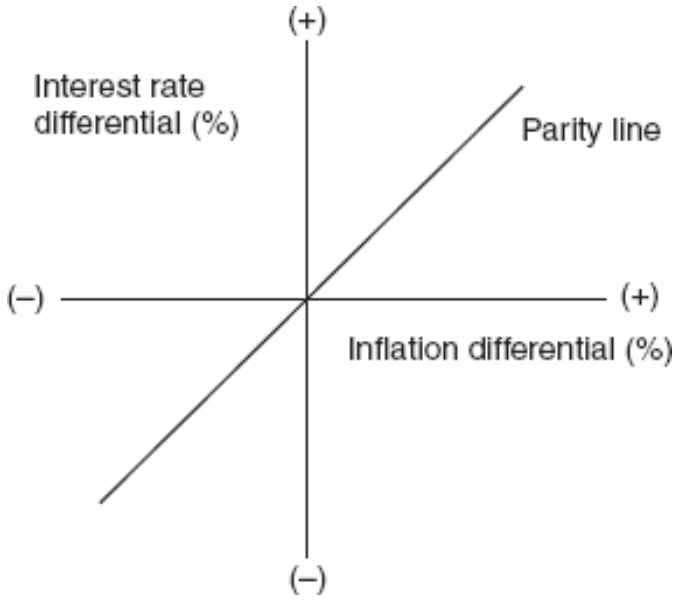


Figure 11.2 Parity between interest rate and inflation rate

The parity line joins all points for which

Kh−Kf=ih−if

or, Kh−ih=Kf−if

11.6.1 The International Fisher Relation :

The purchasing power parity theory implies that the real interest rate is the same across the world, and it is only the nominal interest rate which varies from country to country, depending on the expected inflation rate. So, any difference in the actual interest rates between two countries is because of a difference in the inflation rates of the two countries. Furthermore, the exchange rate between two currencies changes depending on the inflation rate differential between the two countries. The combination of these two effects of inflation is the international Fisher relation or effect. The international Fisher effect or relation is also known as the Fisher open condition. “Open” here refers to an open economy.

The international Fisher effect suggests that the nominal interest rate differential reflects the expected change in the spot rate. A rise in the inflation rate in a country will be associated with a rise in the interest rate in the country and a fall in the country's currency value. This implies that the expected return on domestic investment should be equal to the expected return on foreign investment.

By assuming that markets are perfect, and investors are risk-neutral, the international Fisher effect can be expressed as:

$$\frac{1+K_h}{1+K_f}=\frac{(1+i_h)}{(1+i_f)}$$

or,

$$\frac{1+K_h}{1+K_f}=\frac{E(S_t)}{S_0}$$

This explains the expected spot rate in terms of relative nominal interest rates.

By subtracting 1 from both sides', we have:

$$\frac{K_h - K_f}{1 + K_f} = \frac{E(S_t) - S_0}{S_0}$$

Let us understand the international Fisher effect with the help of an example. Suppose that the real required rate of return in the United States is 4 per cent and the rate of inflation over the year is expected to be 3 per cent. In this situation, the purchasing power of the U.S. dollar will become USD (1/1.03), or USD 0.9708. At the end of the year, the U.S. dollar can purchase only 97.08 per cent of what it can purchase today. If the investor requires his real purchasing power to be 4 per cent higher at the end of the year than today, then his nominal interest rate should be:

0.9708(1+K) = 1.04
or, K = 0.0713 = 7.13 per cent.

According to the international Fisher relation, the expected change in the value of foreign currency will be positive when the domestic interest rate (nominal) is greater than the foreign interest rate (nominal). In other words, the foreign currency appreciates when the domestic interest rate is greater than the foreign interest rate. Conversely, the expected change in the value of foreign currency will be negative when the domestic interest rate (nominal) is lower than the foreign interest rate (nominal). So, the foreign currency depreciates when the domestic interest rate is lower than the foreign interest rate.

Example :
The annual interest rate is 4 per cent in the United States and 6 per cent in India. The current spot rate is USD/INR 45. If a change in the Indian inflation rate causes the expected future spot rate to rise to USD/INR 47, what should the Indian interest rate be?

Solution :

$$\frac{47}{45} = \frac{1 + K_h}{(1 + 0.06)}$$

or, Kh = 10.7 per cent
So, the interest rate in India should be 10.7 per cent per annum.

Example :
The interest rate in India is 12 per cent and the interest rate in the United States is 6 per cent. What should be the percentage change in the value of the USD according to the international Fisher effect?

Solution :

Percentage change in the value of USD= (1+0.12)/ (1+0.06)−1
= 0.0566 or 5.67 per cent

Thus, the value of the USD should appreciate by 5.67 per cent. This would make the return on investment in India equal to the return on investment in the United States.The international Fisher effect in the expectation form of relative PPP can be represented graphically, as shown in Figure 3.6.

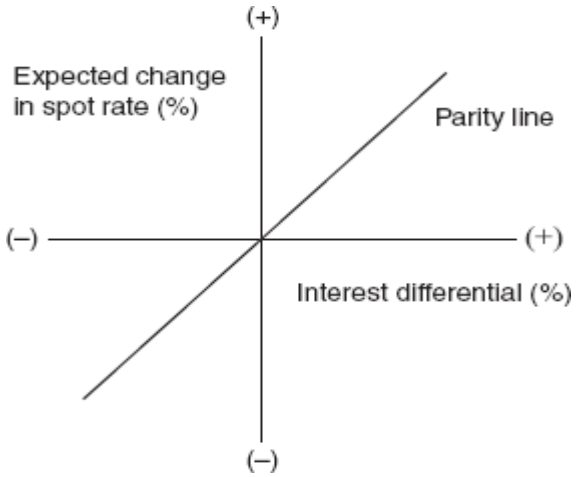


Figure 11.3 The international Fisher effect

The vertical axis in the Figure 3.6shows the expected change in the exchange rate (in per cent) and the horizontal axis measures the interest rate differential (in per cent) between two countries for the same period. The parity line is arrived at by joining the points where:

$$K_h - K_f = \frac{E(S_t) - S_0}{S_0}$$

This is an approximated form of the international Fisher relation. In other words, the interest rate differential between any two nations is an unbiased predictor of the future change in the spot rate of exchange between the two currencies.

The parity line shows that an interest differential of, say, 2 per cent in favor of the home country should be offset by the expected 2 per cent appreciation in the home currency value of the foreign currency. If they are not in equilibrium, funds would flow from one country to another until real returns are equal in both countries. Investors usually invest in countries where the real returns are the highest. This will tend to reduce the returns in these countries because of greater supply of funds. Simultaneously, this will also tend to increase the returns in the countries from which the funds are withdrawn because of reduced supply of funds.

11.7 SUMMARY :

Different theories that essentially concern exchange rate determination reveals the mentioned postulates. The balance of payments approach links exchange rate behavior with the changes in capital and current account of the balance of payments. The monetary theory lays emphasis upon the demand for, and supply of, money as a factor influencing the exchange rate. However, the sticky price version of the monetary approach gives a more detailed explanation of interest rate differential. The portfolio balance approach also includes the holding of financial assets-domestic and foreign bonds-that influences the exchange rate. the PPP theory suggests that the higher the inflation rate, the lower is the value of currency. Again, the real interest rate tends to equalize, but it is differing inflation rate that creates nominal interest rate differential. a higher interest rate encourages inflow of capital, and the value of domestic currency rises. the monetary authorities tried to stabilize the value of currency through the intervention in the foreign exchange market.

11.8 TECHNICAL TERMS :

- **Balance of payments :** A macro-level statement showing inflow and outflow of foreign exchange on different accounts.
- **Sticky price :** The tendency of prices to remain constant or to adjust slowly, despite changes in the cost of producing and selling the goods or services.

- **Law of one price :** It is an economic concept that states that the price of an identical Centaur commodity will have the same price globally, regardless of location, when certain factors are considered.

11.9 SELF ASSESSMENT QUESTIONS :

1. What is the law of one price?
2. Explain the absolute and relative versions of purchasing power parity.
3. Discuss the implications of deviations from purchasing power parity.
4. If the expected inflation rate is 10 per cent and the real required return is 6 per cent, what is the nominal interest rate according to the fisher effect?
5. Discuss the Fisher Effect and explain its relevance to exchange rate determination.
6. Examine different theories of exchange rate determination.
7. What do you mean by Fisher effect? Is it true that interest rate differential equals inflation rate differential?
8. Explain on the basis of the following data: weather
   (i) absolute version of PPP theory holds good or
   (ii) law of one price holds good.

USA			India		
Unit	Goods	US $ Price/Unit	Unit	Goods	Rs. Price/Unit
4	Rice	1	20	Rice	40
20	Wheat	2	10	Wheat	80

Exchange rate Rs. 40/US $

11.10 SUGGESTED READINGS :

1. Fama, E. (1988), Forward and Spot Exchange Rates, Journal of Monetary Economics, XIV, 319-338.
2. Isard, P.(1980), Factors Determining Exchange Rates: The roles of relative price levels, balance of payments, interest rates and risk, Washington, D.C: Federal Reserve Board, International Finance Discussion Paper No.171.
3. Krueger, A.O.(1983). Exchange Rate Determination. Cambridge: Cambridge University Press.

Dr. G. Malathi

LESSON - 12

FORECASTING OF EXCHANGE RATES

LEARNING OBJECTIVES :

After studying this chapter, you should be able to:

- Explain the different techniques of forecast.
- Discuss the forecast in a controlled exchange rate regime.

STRUCTURE :

12.1 INTRODUCTION :

An expected exchange rate increase means that if investors had expected the pound to appreciate, they now expect it to appreciate even more. Likewise, if investors had expected the dollar to depreciate, they now expect it to depreciate more. For today i.e. June 11th, Sun 2023, 1 US Dollar is equal to 82.47 Indian Rupees. Today's expected low - high USD to INR forecast rates is INR 82.58 - 82.7089. respectively. Change in USD to INR rate from previous day is -0.13%.

A reliable forecast of future spot rates provides essentially an informational input for the management of foreign exchange exposure. The lesson opens with different techniques forecasting. The entire discussion of forecasting relates to a floating exchange rate regime through many currencies represent a controlled exchange rate regime. In this case, the currency is pegged either to another currency, a basket of currencies or to SDRs.The exchange rate through administered, is adjustable. This chapter concludes with a brief discussion of the forecasting procedure in such a regime.

12.2 WAYS TO PREDICT EXCHANGE RATES :

Fundamental Analysis : This forecast method includes all the factors mentioned above, such as monetary policy, domestic and foreign government policy, and global economic and political conditions. Knowing the factors that may affect a currency and constantly following economic releases and news, a trader has the potential to forecast its value. Fundamental analysis is a method of determining a stock's real or "fair market" value. Fundamental analysts search for stocks currently trading at prices higher or lower than their real value. If the fair market value is higher than the market price, the stock is deemed undervalued, and a

buy recommendation is given. Fundamental analysis (FA) measures a security's intrinsic value by examining related economic and financial factors. Intrinsic value is the value of an investment based on the issuing company's financial situation and current market and economic conditions. Fundamental analysts study anything that can affect the security's value, from macroeconomic factors such as the state of the economy and industry conditions to microeconomic factors like the effectiveness of the company's management. The end goal is to determine a number that an investor can compare with a security's current price to see whether the security is undervalued or overvalued by other investors.

Technical Analysis : This approach doesn't consider the influence of external forces. Rather, it uses patterns discovered from historical price data and statistics to forecast future movement. Indicators, trendlines, and candlestick and chart patterns are essential instruments of technical analysis. You could use the TickTrader platform to discover technical analysis tools. These were common methods for currency exchange predictions. Below you will find five macroeconomic approaches you may implement when analysing currencies.Technical analysis is a trading discipline employed to evaluate investments and identify trading opportunities in price trends and patterns seen on charts. Technical analysts believe past trading activity and price changes of a security can be valuable indicators of the security's future price movements. Technical analysis seeks to predict price movements by examining historical data, mainly price and volume. It helps traders and investors navigate the gap between intrinsic value and market price by leveraging techniques like statistical analysis and behavioral economics. Technical analysis is a trading technique that investors use to discover new investment opportunities. For example, to predict future price movements of stocks or other assets, past price and volume data is analyzed and presented on graphic charts, where one can identify trends, patterns, and technical indicators.

Relative Economic Strength : The relative economic strength approach compares levels of economic growth across countries to forecast exchange rates. It's already been established that numerous economic factors make up FX rate forecasts. However, many traders are unaware that these factors also interact with each other. For example, a country's inflation or unemployment rate can give traders an idea of what its monetary policy will be like. So, traders can observe these economic factors. By doing this, they get an idea of what's going to happen to the domestic economy and exchange rates. Of course, this currency projection method isn't the most accurate out there. It won't provide any numbers regarding the new currency value; however, it will be possible to tell if the currency increases or decreases in the short term.

Econometric Models: It is a method that is used to forecast exchange rates by gathering all relevant factors that may affect a certain currency. It connects all these factors to forecast the exchange rate. The factors are normally from economic theory, but any variable can be added to it if required. 4. Econometric Model. This FX rate forecast method is personal, as it differs between traders. Here, Forex traders select whatever metrics they believe influence the currency market the most. Comparing economic conditions in two countries, traders could forecast an exchange rate. For example, considering the EUR/USD pair, a trader could compare interest rates in the EU and the US, GDPs, and the unemployment rate. By determining differences, they may predict the direction of a pair's rate.

Purchasing Power Parity (PPP) : The other approach uses the purchasing power parity (PPP) exchange rate—the rate at which the currency of one country would have to be converted into that of another country to buy the same amount of goods and services in each country. While the relative economic strength approach gives a direction for currency movement, purchasing power parity says what the rate is supposed to be. This method asserts

that the price of goods and services should be equal, regardless of the country. If there are any differences in price, a trader can calculate the suitable exchange rate that will make goods or services cost the same. For example, a table in France costs €50, while that same table is priced at $80 in the USA. Considering the difference in price, a trader can determine the EUR/USD pair's value. To buy the same table in France and the USA, the EUR/USD rate must be $1.6. Knowing the required exchange rate, traders might determine whether a currency is overvalued or undervalued. With this, they can make a guess at future currency values.

Interest Rate Parity (IRP) : Interest rate parity (IRP) is a theory according to which the interest rate differential between two countries is equal to the differential between the forward exchange rate and the spot exchange rate. Interest rate parity (IRP) plays an essential role in foreign exchange markets by connecting interest rates, spot exchange rates, and foreign exchange rates. IRP is the fundamental equation that governs the relationship between interest rates and currency exchange rates. The basic premise of IRP is that hedged returns from investing in different currencies should be the same, regardless of their interest rates. IRP is the concept of no-arbitrage in the foreign exchange markets (the simultaneous purchase and sale of an asset to profit from a difference in the price). Investors cannot lock in the current exchange rate in one currency for a lower price and then purchase another currency from a country offering a higher interest rate. The interest rate parity is quite similar to purchasing power parity. But PPP focuses on the prices of goods, while IRP focuses on currency and interest rates. The general concept of this model is that the differential between interest rates should equal the differential between spot and forward exchange rates. So, if an investor exchanges a domestic currency for a foreign one and invests it in a foreign economy or uses a domestic currency to invest in the home country and converts the proceeds from the investment into a foreign currency, their earnings will be the same in both cases.

Balance Payment Theory : The balance of payments theory of exchange rate holds that the price of foreign money in terms of domestic money is determined by the free forces of demand and supply in the foreign exchange market. It follows that the external value of a country's currency will depend upon the demand for and supply of the currency. Johnson, Harry Gordon, 1923-1977. Money, balance-of-payments theory, and the international monetary problem. (Essays in international finance; Components of the balance of payment-Current account. ...Financial account. ...Capital account. ...Decision-making. ...Developing trade policies. ...Establishing fiscal objectives. ...Implementing growth strategies. ... Analyzing deficits. This foreign exchange model determines future currency values by considering a country's rate of imports and exports. The theory behind this method is that the domestic currency appreciates when it exports more than it imports and depreciates when the opposite occurs.

12.3 TECHNIQUES OF FORECASTING :

The forecasting techniques can be categorised as technical, fundamental, market- based and mixed forecasting. A discussion of these techniques follows.

12.3.1 Technical Forecasting :

In this technique, historical rates are used for estimating future rates because in many of the cases, past movements give an indication about movements in future. The technical analysis includes: 1. Classical charting techniques embracing line chart, bar chart, candlestick chart and point-and-figure chart. 2. Statistical techniques embracing, among other things, moving average systems-simple and weighted moving averages. 3. Mathematical techniques seeking

trends through linear regression and cycles through spectral and Fourier analysis and Box-Jenkins auto regressive integrated moving average model forecasts.

The technical forecasting techniques are used for short-term forecasts and their coverage is normally not very wide. If the value of a particular currency has moved up, the forecaster assumes that the demand for the currency has moved up; he makes a prediction about future value and without going deeper into details. Technical forecasts are used invariably by speculators, although the technical forecasting models helping a particular speculator in reaping profits at a particular time may not be helpful at another. The speculators depending upon technical forecasts often incur losses. They have also to incur large transaction costs owing to frequent trading. The companies do not benefit much from technical forecasts as these forecasts focus on the near future and not on that distant future. Moreover, companies do not relay on this technique since the technical forecasts fail to estimate future exchange rates in precise terms.

Problem: The value of rupee vis-à-vis US dollar for the first 9 days of January 2005 is respectively as follows: Rs. 45.11, 45.10, 45.15, 45.15, 45.10, 45.30, 45.39, 45.50 and 45.41. Find a forecast of the exchange rate for the 10th day.

Solution: The average for the first 4 days is Rs.45.13 and the average for the last 4 days is Rs.45.40. On this basis, the actual value from the middle of 2nd and 3rd January to the middle of 7th and 8th January is Rs.45.40- Rs.45.13= Rs. 0.27. It means a daily increment in the value of dollar being Rs.0.27/5. If the average trend value for the middle of 7th and 8th is Rs.45.40, the exchange rate on the 10th January will be:
Rs. 45.40 + 5/2 x 0.27/5= 45.40 + 0.1350 = Rs. 45.5350

12.3.2 Fundamental Forecasting :

In this technique, various sets of macroeconomic variables and not historical rates are the guide for future rates. Future rates are estimated based on changes in the economic variables. If inflation differential is the cause for exchange rate changes and if the rate of inflation in country A is higher than in country B by 5.0%, the value of country A's currency vis-à-vis country B's currency will decline by this percentage. Suppose the inflation rate in India is 8.0% and 5.0% in the USA. The value of the rupee, which is presently Rs. 40 a dollar, will fall within a two-year period to Rs. 40.00 x $(1.08/1.05)^2$ = Rs. 42.32\

In this example, we have taken into consideration only one variable, namely the inflation rate. But in practice, many variables are considered, and forecast is made with the help of regression analysis. it may be that while one variable is forcing down the value of a currency, another one is forcing it to move up. Suppose for estimating the Re/US $ rate, the forecaster takes into consideration the income growth rate and the rate of inflation in India as compared to that prevalent in the USA. He fits the quarterly percentage change *and* in these two differentials, Inflation (I) and income (Y) into a regression quation. The value of rupee will be defined as: $Re= b_0 + b_1 I + b_2 Y + \mu$

Where b_0 is constant, b_1 and b_2 represent the sensitivity of the rupee to changes in *I* and *Y* respectively and μrepresent an error term.
After the value of the b is generated, the movement in the value of the rupee will be indicated. Suppose the value of b_0,$b_1$and $b_2$is respectively 0.002, 0.6 and 0.8 and inflation differential and income differential during the preceding quarter are respectively 4.0% and 2.0%, (India with lower inflation rate and lower income growth rate) the value of the rupee will tend to appreciate in the following quarter by:

0.002+ 0.6(4%) + 0.8(2%) = 0.2% + 2.4%+ 1.6% = 4.2%

Some of the variables have immediate impact while in other cases, there may be a lag. To meet this problem, the forecast uses sensitivity analysis. The more rigorous the technique, the greater is the accuracy. In this age of computers, a host of factors can be considered. However, the scope of subjectivity cannot be completely ruled out. Though this technique is simple and more reliable, it possesses a few limitations. Firstly, the precise timing of impact of a particular variable is not known. There are factors that have a delayed impact, and, in those cases, forecast will be erroneous. Secondly, there are some factors whose impact is instantaneous, though those factors may not always be obvious and if they are not included, the forecast may not be correct. Thirdly, the coefficient derived from the regression model may be changing over the period. If the US government in our example imposes fresh trade barriers, the impact on the value of the rupee will be different. So, there is always a margin of error which the forecaster should take into consideration.

Problem: If the average exchange rate in the first quarter of 2005 is 45.10/US $ with India having a positive interest rate differential of 2.30% and a positive inflation rate differential of 3.10% over that in the USA, and if sensitivity of rupees to interest rate and inflation rate differential hello is 50%, find a forecast of the exchange rate during the second quarter assuming a constant term as 0.02.

Solution: Fitting these figures into a regression equation,
0.02 + 0.5 x 0.023 + 0.5 x 0.031 = 0.0470 = 4.70%
Rupee will depreciate by 4.70%.

The exchange rate forecast in the second quarter will be Rs.47.22/US $.

12.3.3 Market-Based Forecasting :

In this technique, the estimation of future rate depends on the spot and forward rates prevailing in the market and on the expectations about the future. suppose one US dollars is presently sold for Rs. 40, but due to some pressure- economic or non-economic the dollar is expected to appreciate to Rs.40.50 soon. If the speculator has this kind of expectations, they will begin buying the dollar at the present point of time, so that soon, when the dollar become costlier, they can sell and thereby make profits equal to Rs.40.50 - Rs.40.00 or Rs.0.50 per dollar. The movement the buying pressure start, the value of the dollar will raise because of greater demand and there is every possibility for reaping of profits of this kind.

This is not the case only with the spot rate. If the value of a currency is expected to be higher than its forward rate of a given maturity, Speculators begin buying that currency at the forward rate, so that they will get the currency at maturity at a lower rate and immediately thereafter, sell it at a higher rate and thereby reap a profit. Pressure of buying forward will raise the forward prices of the dollar. Thus, in both these cases, Expectation about the future influences the future rate, and for this reason, when future value of a currency is estimated, expectations and the present rate forms the basis of the forecast.

When the forecast concerns a long-run period Where the forward rate for such a long period is not available, the interest rate is considered. consideration of the interest rate is based on the interest rate parity theory where a country with a higher rate of interest faces a reduction in the value of its currency. Suppose interest rate in India is 12.0%, while that in the USA is10.0%. after a three-year period, the present value of the US dollar (Rs. 40/US$) will appreciate by:

$$\text{Premium (Discount)} = \{(1 + I_{Ind})^3 / (1 + I_{US})^{3}\} - 1$$
$$= (1.404928/1.331) - 1 = 0.0555 = 5.55\%$$

Problem : The average spot rate during the first quarter of 2005 is Rs.45.10/US $. But if there is pressure on dollars and its demand is expected to move up by 10%, find out the forecast for the second quarter.

Solution: Assuming the supply of dollar being constant, the exchange rate in the second quarter should be: Rs.45.10 x 1.10= Rs.49.61/US$

12.2.4 Mixed Forecasting :

The techniques of forecasting explained above suffer from the limitation or the other because they are based on different types of information and relying on a particular technique may produce biased results. To avoid this problem, the forecaster uses a blend of different techniques. this is known as mixed forecasting. each of the technique is assigned a particular weight, The total weight being 1. The result of each technique is multiplied by the weight, and they are then summed up to reach the final forecast. Thus, the actual forecast of the currency would be weighted average of various forecasts developed. Supposefor instance that the value of the rupee after a three-month period is forecast by different techniques as Rs. 20%, 40% and 40%, the weighted average will be:

Rs. 40.0 x 0.2 + 40.6 x 0.4 + 40.2 x 0.4 = Rs. 40.32.

Problem:\ The technical forecast, fundamental forecast and the market-basket forecast of Rs. vis-à-vis US dollars for the second quarter of 2005 are respectively as follows. Rs.45.54, Rs.47.22 and Rs.49.61. If the forecaster assigns 30% 30% and 40% weight respectively to above forecast, what would be the weighted average of the forecasts, often known as mixed forecast?
Solution: Mixed forecast will be:0.3 x 45.54 + 0.3 x 47.22 + 0.4 x 49.61 = Rs. 47.67/US $.

12.3 FORECAST ERROR :

In the context of forecasting of exchange rate, the making of forecast is important, but monitoring of the forecast is also very important. For this purpose, the forecaster compares the forecast with the actual value or the realised value and comes to know the extent of difference between the two. The more accurate the forecast, the smaller will be the difference. The difference between the actual value and the forecast value is known as the forecast error. In percentage terms the forecast error is equal to: (Value forecasted-realised value)/realised value. If forecast value is Rs.40.32/US$ and the realised value is Rs.40.60, the forecast error will be: (40.32-40.60)/ 40.60 = - 0.69%

Error is normally computed in terms of its absolute value to avoid a possible offsetting effect at the time of the determination of mean forecast error. However, when the forecast error of different currencies is compared, it is important that their relative sizes is taken into consideration and the relative error factor is considered. for example, if, the value of one US dollar is forecast as rupees 40.32 and taka 60.0 after a three-month period. When the period matures, it is found that the actual value of the US dollars comes to rupees 40.00 and taka 60.40. In absolute terms, the forecast error is greater in case of the taka, but it may be different if the relative size of the two currencies is considered. The relative forecast error for the two currencies will be as follows:\ For rupee: (40.32-40.00)/40.00= 0.8%\ For taka: (60.00-60.40)/ 60.40= -0.66%

12.4 FORECAST IN A CONTROLLED EXCHANGE RATE REGIME :

By a controlled exchange rate regime, we mean a pegged, yet adjustable, Exchange rate. The exchange rate is fixed and administered, yet the monetary authorities change the

value of the currency when fundamental disequilibrium in the balance of payments occurs or when corrective fiscal or monetary policies prove economically ineffective and politically unacceptable.

The first step to forecast is to review the economic indicators to ascertain whether fundamental disequilibrium has really occurred. In this context, the forecaster reviews the information regarding price level, money supply, foreign trade, international reserves, etc. Higher rate of inflation, Shrinkage of international reserves, decreasing coverage of imports by export earnings, a high foreign debt-service ratio, etc. are the indicators for the emergence of fundamental disequilibrium in the balance of payments. If the balance of payment is under serious strain, the forecaster measures the pressure of the market forces on the prevailing exchange rates as also the ability of the central bank to hold on the prevailing exchange rate. He will assess the extent of the change in the exchange rate necessary to bring the balance of payments back onto the rails. It can be done either in the framework of the PPP theory basing on the inflation differential, or in the framework of the forward market anticipation of the future spot exchange rate but since the forward market is not found in a controlled exchange rate regime, it is done based on the black-market rate. The black-market rate depends on the difference between the official, and the equilibrium exchange rate as well as on the expected penalty for illegal transactions. The forecaster also tries to find out what type of corrected policy the government is going to implement. In the event of structural balance of payment deficit, adeflationary policy or a combination of restrictive monetary and fiscal policies is adopted but when such policies are not politically acceptable, devaluation is resorted to and in this event the forecaster tries to estimate the extent of the devaluation.

12.5 HOW TO CHOOSE THE RIGHT FORECASTING TECHNIQUE :

In virtually every decision they make, executives today consider some kind of forecast. Sound predictions of demands and trends are no longer luxury items but a necessity, if managers are to cope with seasonality, sudden changes in demand levels, price-cutting maneuvers of the competition, strikes, and large swings of the economy. Forecasting can help them deal with these troubles; but it can help them more, the more they know about the general principles of forecasting, what it can and cannot do for them currently, and which techniques are suited to their needs of the moment. Here the authors try to explain the potential of forecasting to managers, focusing special attention on sales forecasting for products of Corning Glass Works as these have matured through the product life cycle. Also included is a rundown of forecasting techniques.

Six Rules for Effective Forecasting : Our purpose here is to present an overview of this field by discussing the way a company ought to approach a forecasting problem, describing the methods available, and explaining how to match method to problem. We shall illustrate the use of the various techniques from our experience with them at Corning, and then close with our own forecast for the future of forecasting. Although we believe forecasting is still an art, we think that some of the principles which we have learned through experience may be helpful to others.

Manager, Forecaster, and Choice of Methods : A manager generally assumes that when asking a forecaster to prepare a specific projection, the request itself provides sufficient information for the forecaster to go to work and do the job. This is almost never true. Successful forecasting begins with a collaboration between the manager and the forecaster, in which they work out answers to the following questions.


Fuse/Getty Image

What is the purpose of the forecast—how is it to be used? :

This determines the accuracy and power required of the techniques, and hence governs selection. Deciding whether to enter a business may require only a rather gross estimate of the size of the market, whereas a forecast made for budgeting purposes should be quite accurate. The appropriate techniques differ accordingly. Again, if the forecast is to set a "standard" against which to evaluate performance, the forecasting method should not take into account special actions, such as promotions and other marketing devices, since these are meant to change historical patterns and relationships and hence form part of the "performance" to be evaluated. Forecasts that simply sketch what the future will be like if a company makes no significant changes in tactics and strategy are usually not good enough for planning purposes. On the other hand, if management wants a forecast of the effect that a certain marketing strategy under debate will have on sales growth, then the technique must be sophisticated enough to take explicit account of the special actions and events the strategy entails. Techniques vary in their costs, as well as in scope and accuracy. The manager must fix the level of inaccuracy he or she can tolerate—in other words, decide how his or her decision will vary, depending on the range of accuracy of the forecast. This allows the forecaster to trade off cost against the value of accuracy in choosing a technique.

What are the dynamics and components of the system for which the forecast will be made? :

This clarifies the relationships of interacting variables. Generally, the manager and the forecaster must review a flowchart that shows the relative positions of the different elements of the distribution system, sales system, production system, or whatever is being studied. All the elements in dark gray directly affect forecasting procedure to some extent, and the color key suggests the nature of CGW's data at each point, again a prime determinant of technique selection since different techniques require different kinds of inputs. Where data are unavailable or costly to obtain, the range of forecasting choices is limited. The flowchart should also show which parts of the system are under the control of the company doing the forecasting.

How important is the past in estimating the future? :

Significant changes in the system new products, new competitive strategies, and so forth diminish the similarity of past and future. Over the short term, recent changes are unlikely to cause overall patterns to alter, but over the long term their effects are likely to increase. The executive and the forecaster must discuss these fully.

Three General Types : Once the manager and the forecaster have formulated their problem, the forecaster will be in a position to choose a method. There are three basic types—*qualitative techniques, time series analysis and projection,* and *causal models.* The first uses qualitative data (expert opinion, for example) and information about special events of the kind already mentioned, and may or may not take the past into consideration. The second, on the other hand, focuses entirely on patterns and pattern changes, and thus relies entirely on historical data. The third uses highly refined and specific information about relationships between system elements, and is powerful enough to take special events formally into account. As with time series analysis and projection techniques, the past is important to causal models.

Qualitative techniques : Primarily, these are used when data is scarce—for example, when a product is first introduced into a market. They use human judgment and rating schemes to turn qualitative information into quantitative estimates. The objective here is to bring together in a logical, unbiased, and systematic way all information and judgments which relate to the factors being estimated. Such techniques are frequently used in new-technology areas, where development of a product idea may require several "inventions," so that R&D demands are difficult to estimate, and where market acceptance and penetration rates are highly uncertain. The collection of charts, "Basic Forecasting Techniques," presents several examples of this type (see the first section), including market research and the now-familiar Delphi technique.[1] In this chart we have tried to provide a body of basic information about the main kinds of forecasting techniques. Some of the techniques listed are not in reality a single method or model, but a whole family. Thus our statements may not accurately describe all the variations of a technique and should rather be interpreted as descriptive of the basic concept of each.

Time series analysis : These are statistical techniques used when several years' data for a product or product line are available and when relationships and trends are both clear and relatively stable. One of the basic principles of statistical forecasting—indeed, of all forecasting when historical data are available—is that the forecaster should use the data on past performance to get a "speedometer reading" of the current rate (of sales, say) and of how fast this rate is increasing or decreasing. The current rate and changes in the rate—"acceleration" and "deceleration"—constitute the basis of forecasting. Once they are known, various mathematical techniques can develop projections from them. The matter is not so simple as it sounds, however. It is usually difficult to make projections from raw data since the rates and trends are not immediately obvious; they are mixed up with seasonal variations, for example, and perhaps distorted by such factors as the effects of a large sales promotion campaign. The raw data must be massaged before it is usable, and this is frequently done by time series analysis. Now, a *time series* is a set of chronologically ordered points of raw data—for example, a division's sales of a given product, by month, for several years. Time series *analysis* helps to identify and explain:

- Any regularity or systematic variation in the series of data which is due to seasonality—the "seasonals"
- Cyclical patterns that repeat any two or three years or more
- Trends in the data

- ❖ Growth rates of these trends

Such points are called *turning points*. They are naturally of the greatest consequence to the manager, and, as we shall see, the forecaster must use different tools from pure statistical techniques to predict when they will occur.

Causal models : When historical data is available and enough analysis has been performed to spell out explicitly the relationships between the factor to be forecast and other factors (such as related businesses, economic forces, and socioeconomic factors), the forecaster often constructs a *causal model*. A causal model is the most sophisticated kind of forecasting tool. It expresses mathematically the relevant causal relationships, and may include pipeline considerations (i.e., inventories) and market survey information. It may also directly incorporate the results of a time series analysis. The causal model takes into account everything known of the dynamics of the flow system and utilizes predictions of related events such as competitive actions, strikes, and promotions. If the data is available, the model generally includes factors for each location in the flowchart (as illustrated in Exhibit II) and connects these by equations to describe overall product flow.

If certain kinds of data are lacking, initially it may be necessary to make assumptions about some of the relationships and then track what is happening to determine if the assumptions are true. Typically, a causal model is continually revised as more knowledge about the system becomes available.

Again, see the chart for a rundown on the most common types of causal techniques. As the chart shows, causal models are by far the best for predicting turning points and preparing long-range forecasts.

As necessary, however, we shall touch on other products and other forecasting methods.

Product Development : In the early stages of product development, the manager wants answers to questions such as these:

For a defined market : While there can be no direct data about a product that is still a gleam in the eye, information about its likely performance can be gathered in a number of ways, provided the market in which it is to be sold is a known entity. The prices of black-and-white TV and other major household appliances in 1949, consumer disposable income in 1949, the prices of color TV and other appliances in 1965, and consumer disposable income for 1965 were all profitably considered in developing our long-range forecast for color-TV penetration on a national basis.

For an undefined market : Frequently, however, the market for a new product is weakly defined or few data are available, the product concept is still fluid, and history seems irrelevant. This is the case for gas turbines, electric and steam automobiles, modular housing, pollution measurement devices, and time-shared computer terminals. Many organizations have applied the Delphi method of soliciting and consolidating experts' opinions under these circumstances. At CGW, in several instances, we have used it to estimate demand for such new products, with success.

Testing and Introduction : Before a product can enter its (hopefully) rapid penetration stage, the market potential must be tested out and the product must be introduced—and then more market testing may be advisable.' Significant profits depend on finding the right answers, and it is therefore economically feasible to expend relatively large amounts of effort and money on obtaining good forecasts, short-, medium-, and long-range. A sales forecast at this stage should provide three points of information: the date when rapid sales will begin, the

rate of market penetration during the rapid-sales stage, and the ultimate level of penetration, or sales rate, during the steady-state stage.

Using early data : The date when a product will enter the rapid-growth stage is hard to predict three or four years in advance (the usual horizon). A company's only recourse is to use statistical tracking methods to check on how successfully the product is being introduced, along with routine market studies to determine when there has been a significant increase in the sales rate.

Furthermore, the greatest care should be taken in analyzing the early sales data that start to accumulate once the product has been introduced into the market. For example, it is important to distinguish between sales to *innovators,* who will try anything new, and sales to *imitators,* who will buy a product only after it has been accepted by innovators, for it is the latter group that provides demand stability. Many new products have initially appeared successful because of purchases by innovators, only to fail later in the stretch.

Tracking the two groups means market research, possibly via opinion panels. A panel ought to contain both innovators and imitators, since innovators can teach one a lot about how to improve a product while imitators provide insight into the desires and expectations of the whole market.

The color TV set, for example, was introduced in 1954, but did not gain acceptance from the majority of consumers until late 1964. To be sure, the color TV set could not leave the introduction stage and enter the rapid-growth stage until the networks had substantially increased their color programming. However, special flag signals like "substantially increased network color programming" are likely to come after the fact, from the planning viewpoint; and in general, we find, scientifically designed consumer surveys conducted on a regular basis provide the earliest means of detecting turning points in the demand for a product.

Similar-product technique : Although statistical tracking is a useful tool during the early introduction stages, there are rarely sufficient data for statistical forecasting. Market research studies can naturally be useful, as we have indicated. But, more commonly, the forecaster tries to identify a similar, older product whose penetration pattern should be similar to that of the new product, since overall markets can and do exhibit consistent patterns.

Predicting rapid growth: To estimate the date by which a product will enter the rapid-growth stage is another matter. As we have seen, this date is a function of many factors: the existence of a distribution system, customer acceptance of or familiarity with the product concept, the need met by the product, significant events (such as color network programming), and so on.

It is occasionally true, of course, that one can be certain a new product will be enthusiastically accepted. Market tests and initial customer reaction made it clear there would be a large market for Corning Ware cookware. Since the distribution system was already in existence, the time required for the line to reach rapid growth depended primarily on our ability to manufacture it. Sometimes forecasting is merely a matter of calculating the company's capacity—but not ordinarily.

Rapid Growth : When a product enters this stage, the most important decisions relate to facilities expansion. These decisions generally involve the largest expenditures in the cycle (excepting major R&D decisions), and commensurate forecasting and tracking efforts are justified. Forecasting and tracking must provide the executive with three kinds of data at this juncture:

Forecasting the growth rate : Medium- and long-range forecasting of the market growth rate and of the attainment of steady-state sales requires the same measures as does the product introduction stage—detailed marketing studies (especially intention-to-buy surveys) and product comparisons. When a product has entered rapid growth, on the other hand, there are generally sufficient data available to construct *statistical* and possibly even *causal* growth models (although the latter will necessarily contain assumptions that must be verified later). We estimated the growth rate and steady-state rate of color TV by a crude econometric-marketing model from data available at the beginning of this stage. We conducted frequent As well as merely buffering information, in the case of a component product, the pipeline exerts certain distorting effects on the manufacturer's demand; these effects, although highly important, are often illogically neglected in production or capacity planning.

Simulating the pipeline : While the ware-in-process demand in the pipeline has an *S*-curve like that of retail sales, it may lag or lead sales by several months, distorting the shape of the demand on the component supplier. To estimate total demand on CGW production, we used a retail demand model and a pipeline simulation. The model incorporated penetration rates, mortality curves, and the like. We combined the data generated by the model with market-share data, data on glass losses, and other information to make up the corpus of inputs for the pipeline simulation. The simulation output allowed us to apply projected curves like the ones shown in Exhibit VI to our own component-manufacturing planning.

Simulation is an excellent tool for these circumstances because it is essentially simpler than the alternative—namely, building a more formal, more "mathematical" model. That is, simulation bypasses the need for analytical solution techniques and for mathematical duplication of a complex environment and allows experimentation. Simulation also informs us how the pipeline elements will behave and interact over time—knowledge that is very useful in forecasting, especially in constructing formal causal models at a later date.

Tracking and warning : This knowledge is not absolutely "hard," of course, and pipeline dynamics must be carefully tracked to determine if the various estimates and assumptions made were indeed correct. Statistical methods provide a good short-term basis for estimating and checking the growth rate and signaling when turning points will occur.

In late 1965 it appeared to us that the ware-in-process demand was increasing, since there was a consistent positive difference between actual TV bulb sales and forecasted bulb sales. Conversations with product managers and other personnel indicated there might have been a significant change in pipeline activity; it appeared that rapid increases in retail demand were boosting glass requirements for ware-in-process, which could create a hump in the *S*-curve like the one illustrated in Exhibit VI. This humping provided additional profit for CGW in 1966 but had an adverse effect in 1967. We were able to predict this hump, but unfortunately we were unable to reduce or avoid it because the pipeline was not sufficiently under our control.

The inventories all along the pipeline also follow an *S*-curve (as shown in Exhibit VI), a fact that creates and compounds two characteristic conditions in the pipeline as a whole: initial overfilling and subsequent shifts between too much and too little inventory at various points—a sequence of feast-and-famine conditions.

For example, the simpler distribution system for Corning Ware had an *S*-curve like the ones we have examined. When the retail sales slowed from rapid to normal growth, however, there were no early indications from shipment data that this crucial turning point had been reached. Data on distributor inventories gave us some warning that the pipeline was overfilling, but the turning point at the retail level was still not identified quickly enough, as

we have mentioned before, because of lack of good data at the level. We now monitor field information regularly to identify significant changes, and adjust our shipment forecasts accordingly.

Main concerns : One main activity during the rapid-growth stage, then, is to check earlier estimates and, if they appear incorrect, to compute as accurately as possible the error in the forecast and obtain a revised estimate. In some instances, models developed earlier will include only "macroterms"; in such cases, market research can provide information needed to break these down into their components. For example, the color-TV forecasting model initially considered only total set penetrations at different income levels, without considering the way in which the sets were being used. Therefore, we conducted market surveys to determine set use more precisely.

Steady State : The decisions the manager makes at this stage are quite different from those made earlier. Most of the facilities planning has been squared away, and trends and growth rates have become reasonably stable. It is possible that swings in demand and profit will occur because of changing economic conditions, new and competitive products, pipeline dynamics, and so on, and the manager will have to maintain the tracking activities and even introduce new ones. However, by and large, the manager will concentrate forecasting attention on these areas:

- Long- and short-term production planning
- Setting standards to check the effectiveness of marketing strategies
- Projections designed to aid profit planning

The manager will also need a good tracking and warning system to identify significantly declining demand for the product (but hopefully that is a long way off).
To be sure, the manager will want margin and profit projection and long-range forecasts to assist planning at the corporate level. However, short- and medium-term sales forecasts are basic to these more elaborate undertakings, and we shall concentrate on sales forecasts.

Adequate tools at hand : In planning production and establishing marketing strategy for the short and medium term, the manager's first considerations are usually an accurate estimate of the present sales level and an accurate estimate of the rate at which this level is changing.
The forecaster thus is called on for two related contributions at this stage:

- To provide estimates of *trends* and *seasonals*, which obviously affect the sales level. Seasonals are particularly important for both overall production planning and inventory control. To do this, the forecaster needs to apply time series analysis and projection techniques—that is, *statistical* techniques.
- To relate the future sales level to factors that are more easily predictable, or have a "lead" relationship with sales, or both. To do this the forecaster needs to build *causal models*.

The type of product under scrutiny is very important in selecting the techniques to be used.
For CorningWare, where the levels of the distribution system are organized in a relatively straightforward way, we use statistical methods to forecast shipments and field information to forecast changes in shipment rates. We are now in the process of incorporating special information—marketing strategies, economic forecasts, and so on—directly into the shipment forecasts. This is leading us in the direction of a causal forecasting model.

On the other hand, a component supplier may be able to forecast total sales with sufficient accuracy for broad-load production planning, but the pipeline environment may be so complex that the best recourse for short-term projections is to rely primarily on

salespersons' estimates. We find this true, for example, in estimating the demand for TV glass by size and customer. In such cases, the best role for statistical methods is providing guides and checks for salespersons' forecasts.

In general, however, at this point in the life cycle, sufficient time series data is available and enough causal relationships are known from direct experience and market studies that the forecaster can indeed apply these two powerful sets of tools. Historical data for at least the last several years should be available. The forecaster will use all of it, one way or another.

We might mention a common criticism at this point. People frequently object to using more than a few of the most recent data points (such as sales figures in the immediate past) for building projections, since, they say, the current situation is always so dynamic and conditions are changing so radically and quickly that historical data from further back in time has little or no value.

For short-term forecasting for one to three months ahead, the effects of such factors as general economic conditions are minimal, and do *not* cause radical shifts in demand patterns. And because trends tend to change gradually rather than suddenly, statistical and other quantitative methods are excellent for short-term forecasting. Using one or only a few of the most recent data points will result in giving insufficient consideration of the nature of trends, cycles, and seasonal fluctuations in sales.

Granting the applicability of the techniques, we must go on to explain how the forecaster identifies precisely what is happening when sales fluctuate from one period to the next and how such fluctuations can be forecast.

Sorting trends and seasonal : A trend and a seasonal are obviously two quite different things, and they must be handled separately in forecasting. Consider what would happen, for example, if a forecaster were merely to take an average of the most recent data points along a curve, combine this with other, similar average points stretching backward into the immediate past, and use these as the basis for a projection. The forecaster might easily overreact to random changes, mistaking them for evidence of a prevailing trend, mistake a change in the growth rate for a seasonal, and so on.

Some Additional Techniques for Finer Tuning :

Not directly related to product life-cycle forecasting, but still important to its success, are certain applications which we ... To avoid precisely this sort of error, the moving average technique, which is similar to the hypothetical one just described, uses data points in such a way that the effects of seasonal (and irregularities) are eliminated. Furthermore, the executive needs accurate estimates of trends *and* accurate estimates of seasonality to plan broad-load production, to determine marketing efforts and allocations, and to maintain proper inventories—that is, inventories that are adequate to customer demand but are not excessively costly.

X-11 technique : The reader will be curious to know how one breaks the seasonal out of raw sales data and exactly how one derives the change-in-growth curve from the trend line. One of the best techniques we know for analyzing historical data in depth to determine seasonal, present sales rate, and growth is the X-11 Census Bureau Technique, which simultaneously removes seasonals from raw information and fits a trend-cycle line to the data. It is very comprehensive: At a cost of about $10, it provides detailed information on seasonals, trends, the accuracy of the seasonals and the trend cycle fit, and a number of other measures. The output includes plots of the trend cycle and the growth rate, which can concurrently be

received on graphic displays on a time-shared terminal. Although the X-11 was not originally developed as a forecasting method, it does establish a base from which good forecasts can be made. One should note, however, that there is some instability in the trend line for the most recent data points, since the X-11, like virtually all statistical techniques, uses some form of moving average. It has therefore proved of value to study the changes in growth pattern as each new growth point is obtained.

In particular, when recent data seems to reflect sharp growth or decline in sales or any other market anomaly, the forecaster should determine whether any special events occurred during the period under consideration—promotion, strikes, changes in the economy, and so on. The X-11 provides the basic instrumentation needed to evaluate the effects of such events. Generally, even when growth patterns can be associated with specific events, the X-11 technique and other statistical methods do not give good results when forecasting beyond six months, because of the uncertainty or unpredictable nature of the events. For short-term forecasts of one to three months, the X-11 technique has proved reasonably accurate.

We have used it to provide sales estimates for each division for three periods into the future, as well as to determine changes in sales rates. We have compared our X-11 forecasts with forecasts developed by each of several divisions, where the divisions have used a variety of methods, some of which take into account salespersons' estimates and other special knowledge. The forecasts using the X-11 technique were based on statistical methods alone, and did not consider any special information.

The division forecasts had slightly *less* error than those provided by the X-11 method; however, the division forecasts have been found to be slightly biased on the optimistic side, whereas those provided by the X-11 method are unbiased. This suggested to us that a better job of forecasting could be done by combining special knowledge, the techniques of the division, and the X-11 method. This is actually being done now by some of the divisions, and their forecasting accuracy has improved in consequence.

The X-11 method has also been used to make sales projections for the immediate future to serve as a standard for evaluating various marketing strategies. This has been found to be especially effective for estimating the effects of price changes and promotions.

As we have indicated earlier, trend analysis is frequently used to project annual data for several years to determine what sales will be if the current trend continues. Regression analysis and statistical forecasts are sometimes used in this way—that is, to estimate what will happen if no significant changes are made. Then, if the result is not acceptable with respect to corporate objectives, the company can change its strategy.

Econometric models : Over a long period of time, changes in general economic conditions will account for a significant part of the change in a product's growth rate. Because economic forecasts are becoming more accurate and also because there are certain general "leading" economic forces that change before there are subsequent changes in specific industries, it is possible to improve the forecasts of businesses by including economic factors in the forecasting model.

However, the development of such a model, usually called an econometric model, requires sufficient data so that the correct relationships can be established.

During the rapid-growth state of color TV, we recognized that economic conditions would probably effect the sales rate significantly. However, the macroanalyses of black-and-white TV data we made in 1965 for the recessions in the late 1940s and early 1950s did not show any substantial economic effects at all; hence we did not have sufficient data to establish

good econometric relationships for a color TV model. (A later investigation did establish definite losses in color TV sales in 1967 due to economic conditions.)
In 1969 Corning decided that a better method than the X-11 was definitely needed to predict turning points in retail sales for color TV six months to two years into the future. Statistical methods and salespersons' estimates cannot spot these turning points far enough in advance to assist decision-making; for example, a production manager should have three to six months' warning of such changes in order to maintain a stable workforce.

Adequate data seemed to be available to build an econometric model, and analyses were therefore begun to develop such a model for both black-and-white and color TV sales. Our knowledge of seasonals, trends, and growth for these products formed a natural base for constructing the equations of the models.

The economic inputs for the model are primarily obtained from information generated by the Wharton Econometric Model, but other sources are also utilized.

Using data extending through 1968, the model did reasonably well in predicting the downturn in the fourth quarter of 1969 and, when 1969 data was also incorporated into the model, accurately estimated the magnitude of the drop in the first two quarters of 1970. Because of lead-lag relationships and the ready availability of economic forecasts for the factors in the model, the effects of the economy on sales can be estimated for as far as two years into the future.

In the steady-state phase, production and inventory control, group-item forecasts, and long-term demand estimates are particularly important.

Finally, through the steady-state phase, it is useful to set up quarterly reviews where statistical tracking and warning charts and new information are brought forward. At these meetings, the decision to revise or update a model or forecast is weighed against various costs and the amount of forecasting error. In a highly volatile area, the review should occur as frequently as every month or period.

Forecasting in the Future : In concluding an article on forecasting, it is appropriate that we make a prediction about the techniques that will be used in the short- and long-term future. As we have already said, it is not too difficult to forecast the immediate future, since long-term trends do not change overnight. Many of the techniques described are only in the early stages of application, but still we expect most of the techniques that will be used in the next five years to be the ones discussed here, perhaps in extended form.

The costs of using these techniques will be reduced significantly; this will enhance their implementation. We expect that computer time-sharing companies will offer access, at nominal cost, to input-output data banks, broken down into more business segments than are available today. The continuing declining trend in computer cost per computation, along with computational simplifications, will make techniques such as the Box-Jenkins method economically feasible, even for some inventory-control applications. Computer software packages for the statistical techniques and some general models will also become available at a nominal cost.

At the present time, most short-term forecasting uses only statistical methods, with little qualitative information. Where qualitative information is used, it is only used in an external way and is not directly incorporated into the computational routine. We predict a change to total forecasting systems, where several techniques are tied together, along with a systematic handling of qualitative information.

Econometric models will be utilized more extensively in the next five years, with most large companies developing and refining econometric models of their major businesses. Marketing simulation models for new products will also be developed for the larger-volume products, with tracking systems for updating the models and their parameters. Heuristic programming will provide a means of refining forecasting models.

While some companies have already developed their own input-output models in tandem with the government input-output data and statistical projections, it will be another five to 10 years before input-output models are effectively used by most major corporations. Within five years, however, we shall see extensive use of person-machine systems, where statistical, causal, and econometric models are programmed on computers, and people interacting frequently. As we gain confidence in such systems, so that there is less exception reporting, human intervention will decrease. Basically, computerized models will do the sophisticated computations, and people will serve more as generators of ideas and developers of systems. For example, we will study market dynamics and establish more complex relationships between the factor being forecast and those of the forecasting system.

Further out, consumer simulation models will become commonplace. The models will predict the behavior of consumers and forecast their reactions to various marketing strategies such as pricing, promotions, new product introductions, and competitive actions. Probabilistic models will be used frequently in the forecasting process.

Finally, most computerized forecasting will relate to the analytical techniques described in this article. Computer applications will be mostly in established and stable product businesses. Although the forecasting techniques have thus far been used primarily for sales forecasting, they will be applied increasingly to forecasting margins, capital expenditures, and other important factors. This will free the forecaster to spend most of the time forecasting sales and profits of new products. Doubtless, new analytical techniques will be developed for new-product forecasting, but there will be a continuing problem, for at least 10 to 20 years and probably much longer, in accurately forecasting various new-product factors, such as sales, profitability, and length of life cycle. With an understanding of the basic features and limitations of the techniques, the decision-maker can help the forecaster formulate the forecasting problem properly and can therefore have more confidence in the forecasts provided and use them more effectively. The forecaster, in turn, must blend the techniques with the knowledge and experience of the managers. The need today, we believe, is not for better forecasting methods, but for better application of the techniques at hand.

12.6 SUMMARY:

Exchange rate forecasting is an important aspect of foreign exchange risk management. There is, of course, the efficient market hypothesis that suggest that there is no need for the forecast in as much as the exchange rate includes all the available information. Nevertheless, forecast is made by the company for taking accurate decisions regarding hedging of receivables and payables, short-term and long-term financing, and short-term and long-term investment. The forecasting techniques in use can be grouped as technical, fundamental, market-based, and mixed. Each of the technique suffers from the limitations of one kind or the other. Therefore, the forecaster makes use of all the technique and arrives at a weighted average of the results based on different techniques. This is no doubt close to the actual value, but even then, the forecast error occurred that is expressed either in absolute terms or in relative percentage terms. The above discussion relates to a floating exchange rate regime. when it is a pegged but adjustable exchange rate regime the forecast of first finds out whether there is a chance for fundamental disequilibrium in the balance of payments based on

available economic variables. If it is so, he finds out the extent of possible adjustment in the exchange rate and takes a final decision based on the governmental corrective policies to be implemented for this purpose.

12.6 TECHNICAL TERMS :

- **Technical forecasting**: It is based on the movement of historical rates.
- **Fundamental forecasting:** It is based on the macroeconomic variables and not on the historical rates.
- **Market-based forecasting:** It is based on the expected trend in the market.
- **Mixed forecasting**: It is a weighted average of technical, fundamental, and market-based forecasts.
- **Forecast error**: It is the difference between forecast value and the realised value divided by the realised value.

12.7 SELF ASSESMENT QUESTIONS :

1. What do you mean by efficient foreign exchange market?
2. What is forecast error?
3. What are the different techniques of forecasting exchange rate?
4. Is forecasting of exchange rate relevant? Discuss.
5. Find out the forecast error if the forecast value is Rs.40.00/$, and the realised value is Rs.41.00/$

12.8 SUGGESTED READING :

1. Goodman, Stephen H. (1979), Foreign Exchange Rate Forecasting Techniques: Implications for business and policy, Journal of Finance, XXXIV, 415-427.

2. What every manager ought to know about the different kinds of forecasting and the times when they should be used. by John C. Chambers, Satinder K. Mullick, and Donald D. Smith From the Magazine (July 1971)
3. *See Harper Q. North and Donald L. Pyke, "'Probes' of the Technological Future," HBR May–June 1969, p. 68.See John C. Chambers, Satind*

Dr. G. Malathi

LESSON - 13

INTERNATIONAL FINANCIAL MARKETS AND INSTRUMENTS

OBJECTIVES :

After studying this lesson you should be able to :

- understand the Global changing scenario;
- examine its growth and objectives with which the establishment of the same had taken place;
- analyze various International Financial Markets

Structure :

13.1 INTRODUCTION :

Global changing scenario: The world has been dealing with uncertainty this year, which calls for cautious manoeuvring by market participants, governments, and central banks. Significant geopolitical fragility, on a scale not seen in Europe in decades, has been brought about by the situation in Ukraine. It increases risks and puts more strain on energy costs, supply chains, and inflation in Europe and elsewhere. While managing the effects of the pandemic on the economy, which showed up as price volatility and significant inflationary pressures on businesses and central banks, the global capital markets had successfully transitioned into the post-LIBOR era. This made multiple interest rate hikes across jurisdictions inevitable. The new regulatory framework aims to stimulate market infrastructure, product, and technological innovation as UK financial services adjust to function post-Brexit. It also aims to assist the government's net-zero transition target and broader societal ESG objectives.

The macroeconomic climate: During the pandemic lockdown times, governments and central banks of major economies responded with hitherto unheard-of rescue packages to assist businesses and consumers, thus preventing a protracted global slump. Asset price increase was made possible by financial resiliency and quicker recovery in many industries, while the real economy's lockup severely disrupted supply chains and energy reserves, particularly gas, when demand returned to normal. Price volatility and higher inflation were once thought to be transient effects of supply shocks. However, it is anticipated that issues

related to the labour and housing markets, deglobalization, and harsh sanctions against Russia would all contribute to longer-term inflationary pressures. The relative contribution from supply and demand issues is still unclear given the skyrocketing inflation levels not seen in decades. The Ukraine crisis has increased uncertainty, which makes it difficult for central banks to strike a balance between the danger of harming fragile economies and monetary policy intervention to reduce inflation.

The time after LIBOR : The crucial LIBOR cessation milestone for the worldwide LIBOR reform was reached at the end of 2021, when panel bank submissions for all currency settings—aside from the final five USD tenors—had stopped.

To ease the transition of any remaining legacy contracts, synthetic LIBOR will be published in 2022 for three tenors of sterling and yen, respectively, based on term SONIA and term TONA rates. The large-scale global USD legacy shift must also be finished by mid-2023, despite the fact that businesses have operationalized it, with US authorities setting milestones for this year. Importantly, there are now no new LIBOR contracts allowed in any currency, with the exception of a handful for risk management. We observe the switch from USD LIBOR to SOFR instruments, with USD 360 billion SOFR, in particular.

The ESG agenda : After reporting requirements guided by the Task Force on Climate-Related Financial Disclosures (TFCD) went into effect this year, ESG has transitioned from commitment and conception to execution. Changes in perspective are still difficult to make in order to comprehend future climatic exposures with long projection horizons and modelling scenarios in line with net zero target dates and the Paris Agreement. There are major data and model requirements for managing the financial, physical, and transition risks associated with climate change. Aside from biodiversity andnatural capital, which are addressed by the Task force on Nature-related Financial. Disclosures (TNFD) and supported by the UK Environment Act 2021, climate change may be the environmental issue with the most advancement. Financial institutions are crucial to achieving the ESG goal since they are working to create indices and For sell-side companies, product development to hedge demand-driven buy-side items is particularly crucial. The demand for green bonds is increasing, but there is now a possibility of green-washing behaviour. Methods for measuring results in relation to more general ESG goals that are in line with the UN Sustainable Development Goals (SDG s) for a more equal world are also changing. Impact is a factor that is challenging traditional risk-return asset pricing paradigms more and more.

Operational and financial toughness : The epidemic has shown that the financial system is resilient across jurisdictions and that prudential changes made after the financial crisis have been successful in withstanding this significant shock. COVID-19 delayed the implementation of the remaining Basel III regulations, although the UK has already implemented important elements that are similar to those that were implemented in the EU last year. After the EU issued its Banking Package in 2021, program mes delivering the final Basel III regulations should resume, albeit they announced a 2025 deadline due to the difficulty of the task. We anticipate progress alongside UK consultations and plans throughout 2022 as US authorities realize overdue regulation proposals and the necessity for international cooperation. Regulators in the UK and the US have worked cooperatively to examine firms' risk management methods, particularly in equities finance and prime brokerage, in reaction to the Arch-egos incident's market disruption. Basel III requires consistency across jurisdictions, and the effects of increasing capital on enterprises' capacity to serve the real economy and ESG objectives should be taken into account. Negative risk weights for carbon credits have already been eliminated by EU authorities, which is essential for encouraging the transition to net-zero emissions.

Examining the operational model again : Numerous financial institutions have been improving the specifications for their own operating models during the course of the past year. In particular, if new COVID-19-variants run the danger of impairing operational resilience and service continuity, agility and resilience continue to be essential for adjusting to the changing business environment and continuing service delivery. With a few notable exceptions, many employees now view mixed working as the norm. Throughout 2022, the hybrid model's successful implementation will be a constant struggle. While technology can enable teams working across several locations, creating standards will put more responsibility on leaders to achieve the ideal balance between workforce flexibility and productivity. Redesigned office space arrangements will be driven by workforce flexibility in the medium future to better meet work and leisure requirements. Financial organisations that are successful will keep experimenting to discover the best working conditions.

Refocusing for development : Many financial organizations are renewing their business strategy for growth despite the advent of new COVID-19 types impeding the shift to more regular times. The majority of the simpler cost savings have been made here, in part, but changed company strategies are also focusing resources and energies on new markets, products, and prospects. The reorientation toward development is aided, in part, by the release of prudent provisions made earlier in the epidemic to lessen anticipated loan defaults, which are now not anticipated to crystallize with the severity that was initially anticipated. More money is now available to finance new businesses and fuel a global economic recovery as a result. Greater emphasis on preparing for and addressing customer demand for ESG investments and financial products is another factor driving the refocusing for growth. Financial institutions will need to create, develop, and trade financial instruments that support a low carbon economy and more sustainable real economy production capability and supply networks in order to implement important pledges, such as those made at COP 26.

Reforming Wholesale Markets : The FCA will continue to consult on the government's proposed wholesale markets reform in order to develop new regulations that will improve the efficiency of the existing regulatory system. This is consistent with the Chancellor's vision for financial services, which calls for the delivery of an environment that is fair, outcomes-based, and supports openness and competition while lowering costs and burdens for businesses while upholding the highest standards of regulation and market efficiency. To ensure that the market can operate with trust and to remove restrictions that prevent firms from accessing the most liquid pools of capital that produce the best results for investors, the regulatory perimeter will be redrawn. Changes to the UK commodities regime and the market data regime are intended to avoid needless restrictions on market activity and to enable participants to identify the best available prices. The transparency regime for fixed income and derivatives markets will be recalculated to make it proportionate to characteristics of these markets. These modifications will go along with last year's organizational and conduct policy adjustments for the UK under MiFID . The sector is crucial for the shift to a low carbon economy and for wholesale markets to be ethical and sustainable in the future, therefore provisions explicitly address support in achieving the net-zero emission objective by 2050. Additional measures are intended to promote innovation and technological advancement in order to boost productivity and lower costs for businesses.

Development : The quickly changing scene is setting out huge open doors for advancement driven by three essential powers: innovation, the ESG plan, and expected administrative streamlining. Each of these is setting out open doors for banks to foster new items and administrations and create new income streams. Cloud empowered enormous information takes into account more modern models and fitting of items and is of worth to the perplexing environment models. It has additionally been fascinating perceiving how the models from

Banks of Corona virus have been utilized to challenge those with beginnings in the clinical local area. Dispersed Record innovation is transitioning with a significant number of the significant market framework suppliers presently effectively partaking in tests and many banks are creating pilot arrangements with both ordinary and new resource classes while national banks keep on seeing National Bank Computerized Monetary standards (CBDC s)The EU Commission's Computerized Money System brings amazing open doors for market foundation advancement in view of appropriated record innovation (DLT), while their EU' s more safe position on crypto assets could make upper hand for the UK.

Reception of advanced : Corona virus has constrained a quick reassessment of approaches to working and made difficulties for keeps money with the need to screen the conveyed labor force. Combined with to a greater extent a cloud first mentality, this is driving a fast rearchitecting of the center work area domain. Those organizations with broad virtual foundation had the option to quickly adjust. Cloud advancements are presently considerably more promptly acknowledged, yet with worries around merchant secure and purview, yet it's difficult to see anybody embracing on premise first except if there are worries around idleness. The need to address specialized obligation and tackle heritage stays key to permitting innovation capabilities to make the ability to improve. An inability to do this undeniably abandons a gamble of being left. This is combined with a need to have an exceptionally clear view on where tailor made form can add esteem versus seller bundles or part arrangements.

Cyber security : Consciousness of digital occasions is more basic than any other time, however their material gamble to an association might be less characteristically perceived because of current advanced intricacies. Successful administration of admittance to frameworks, administrations, and information will keep on being an essential worry as digital crooks hope to exploit these dubious times, intensified by the need to quickly extend computerized contributions to stay serious. Adjusting the digital dangers to weak heritage IT frameworks that generally have stayed deterred in confidential corporate organizations versus the craving to embrace a more lithe cloud approach will require proceeded with interest in network safety the board. Searching externally from center business capabilities, digital dangers influence supply chains, with expanding dangers and dangers to their security and honesty. Uplifted gambles with feature the requirement for universally shared, customizable, and adaptable answers for deal with the worldwide digital dangers through helpful endeavors of state run administrations, industry, and the more extensive innovation local area.

13.2 INTERNATIONAL FINANCE :

International finance focuses on areas such as foreign direct investment and currency exchange rates. Increased globalization has magnified the importance of international finance. An initiative known as the Bretton Woods system emerged from a 1944 conference attended by 40 nations and aims to standardize international monetary exchanges and policies in a broader effort to nurture post World War II economic stability.

Understanding International Finance : International finance deals with the economic interactions between multiple countries, rather than narrowly focusing on individual markets. International finance research is conducted by large institutions such as the International Finance Corp. (IFC), and the National Bureau of Economic Research (NBER). Furthermore, the U.S. Federal Reserve has a division dedicated to analyzing policies germane to U.S. capital flow, external trade, and the development of global markets.

International finance analyzes the following specific areas of study :

i. **The Mundell-Fleming Model**, which studies the interaction between the goods market and the money market, is based on the assumption that price levels of said goods are fixed.

ii. **International Fisher Effect** is an international finance theory that assumes nominal interest rates mirror fluctuations in the spot exchange rate between nations.

iii. **The optimum currency area theory** states that certain geographical regions would maximize economic efficiency if the entire area adopted a single currency.

iv. **Purchasing power parity** is the measurement of prices in different areas using a specific good or a specific set of goods to compare the absolute purchasing power between different currencies.

v. **Interest rate parity** describes an equilibrium state in which investors are indifferent to interest rates attached to bank deposits in two separate countries.

Example of International Institutions of International Finance :

The Bretton Woods System: The Bretton Woods system was created at the Bretton Woods conference in 1944, where the 40 participating countries agreed to establish a fixed exchange rate system. The collective goal of this initiative was to standardize international monetary exchanges and policies in a broader effort to create post World War II stability. The Bretton Woods conference catalyzed the development of international institutions that play a foundational role in the global economy. These include the International Monetary Fund (IMF), a consortium of 189 countries dedicated to creating global monetary cooperation, and the International Bank for Reconstruction and Development, which later became known as the World Bank.

Special Considerations : International trade is arguably the most important influence of global prosperity and growth. But there are worries related to the fact the United States has shifted from being the largest international creditor, to becoming the world's largest international debtor, absorbing excess amounts of funding from organizations and countries on a global basis. This may affect international finance in unforeseen ways.

13.3 INTERNATIONAL CAPITAL MARKETS :

International Capital markets are a group of markets in London, Tokyo, New york, Singopore, and other financial cities that trade different types of financial and physical capital (assets), including :

i. Stocks
ii. bonds (government and corporate)
iii. bank deposits denominated in different currencies
iv. commodities (like petroleum, wheat, bauxite, gold)
v. Forward contracts, swaps, options, contracts
vi. Real estate and land
vii. Factories and equipment

13.4 INTERNATIONAL DEVELOPMENT BANKING :

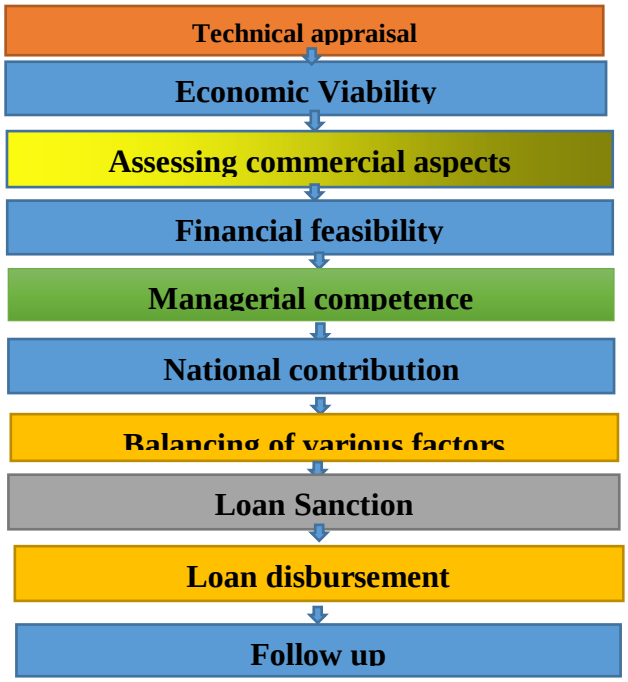
Development banks are special industrial financial institutions. These banks are mostly setup after world war two in both developed and underdeveloped countries. The role of development banks is more pronounced in developing countries where government have taken upon themselves the task of accelerating the pace of economic development. These

banks gained popularity in developing countries and were set up in quick succession in almost all countries of Asia, Africa and Latin America.

Development Banks are the institutions engaged in the promotion and development of industry, Development banks do not mobilize savings like other baks but invest the resources in productive manner

Development Banking - "A Development bank may be defined as financial institution concerned with providing all types of financial assistance (medium as well as long term) to business units form of loans, underwriting, investment and guarantee operations and promotional activities, economic development in general and industrial development in particular"

Lending procedure of development banks :-



In conclusion, we can say that development bank plays a very important role in economic development of counties. Development banks follow a procedure for evaluating a proposal for a project .The basic objective is to see whether applicant fulfills various conditions prescribed by the lending institution and the project is viable.

13.5 INTERNATIONAL FINANCIAL MARKETS :

The International Financial Market are financial markets where individuals buy and sell foreign assets such as stock, Bonds, currencies. Its also a place where institutions lay down rules. Brigham and Eugene defined the financial market as a place where people and organizations wanting to borrow money are brought together with those having surplus funds. Financial market does not refer to a physical location. Market participants are linked by formal trading rules and communication networks for originating and trading financial securities link market participants. Transferring of funds from the surplus sector to the deficit sector is the main function of the financial market. The credit requirements of the corporate sector are greater than their savings. The savings of the household sector are channelized into the corporate and public sectors for productive purposes. The market participants in financial markets are investors or buyers of securities, borrowers or sellers of securities, intermediaries

and regulatory bodies. Securities are financial instruments that represent the holder's claim on a stream of income or a fixed amount from a corporate or government.

The institutions or agencies of International Financial Markets : The institutions or agencies of International Financial Markets that serve as the sources of international funds are:

i. Multilateral development banks or agencies,
ii. Government / governmental agencies,
iii. International banks ,
iv. Securities market.

International finance helps maintain economic relations among different countries by helping determine exchange rates which are based on the relative value of currencies, along with following the IFRS (International Financial Reporting Standards) system, which helps report financial issues across the world. International financial management, also known as international finance, is the management of finance in an international business environment; that is, trading and making money through the exchange of foreign currency. The main goal is to ease the flow of capital between countries. And to promote economic growth and development.

13.6 INSTRUMENTS OF INTERNATIONAL FINANCIAL MARKETS :

It is the market for instruments denominated in foreign currencies with a maturity of different periods from one day to one year. This includes borrowing and lending of funds, of short-term nature. It includes internationally traded instruments like treasury bills, bank certificates of deposits, commercial paper, bankers' acceptances and repurchase agreements and other short-term asset-backed claims. This market is needed for MNC's operations as it provides liquidity to them. 1.Foreign Exchange Market 2.Derivative Products 3.International Currency Market 4.Eurocurrency Market 5.European Monetary System – EMS 6.Money Market Instruments 7.Equity Financing in the International Markets 8.Balance of Payments

Foreign Exchange Market : The foreign exchange market is the market in which currencies of various countries are bought and sold against each other. The foreign exchange market is an over-the-counter market. It is one of the largest markets in the world. Geographically, the foreign exchange markets span all time zones from New Zealand to the West Coast of United States of America. The retail market for foreign exchange deals with transactions involving travelers and tourists exchanging one currency for another in the form of currency notes or travellers' cheques. The wholesale market often referred to as the inter-bank market is entirely different and the participants in this market are commercial banks, corporations and central banks. The foreign exchange market is unique because of the following characteristics: Its huge trading volume, representing the largest asset class in the world leading to high liquidity; its geographical dispersion; • its continuous operation: 24 hours a day except for weekends, i.e., trading from 22:00 GMT on Sunday (Sydney) until 22:00 GMT Friday (New York); • the variety of factors that affect exchange rates; • the low margins of relative profit compared with other markets of fixed income; and the use of leverage to enhance profit and loss margins and with respect to account size.

Around-the-clock market : Important foreign exchange trading centres are located in Hong Kong, Singapore, Paris and Frankfurt, amongst others, while the biggest three are New York, Tokyo and London, of which London is the largest. The foreign exchange market is open 24 hours per day throughout the week (Monday to Friday at each centre).

Market Size : According to the Bank for International Settlements, the preliminary global results from the 2019 Triennial Central Bank Survey of Foreign Exchange and OTC Derivatives Markets Activity show that trading in foreign exchange markets averaged $6.6 trillion per day in April 2019.,This is up from $5.1 trillion in April 2016. Measured by value, foreign exchange swaps were traded more than any other instrument in April 2019, at $3.2 trillion per day, followed by spot trading at $2 trillion. The foreign exchange market is the largest in the world, Global Foreign Exchange Market to Reach US$ 10.2 Trillion by 2026, Bolstered by Growing International Trading Activities.

Derivative Products: A derivative is a financial instrument whose value depends on other, more basic, underlying variables. The variables underlying could be prices of traded securities and stock, prices of gold or copper, prices of oranges to even the amount of rainfall in a particular area. Derivatives have become increasingly important in the field of finance. Options and futures are traded actively on many exchanges. Forward contracts, swaps and different types of options are regularly traded outside exchanges by financial institutions, banks and their corporate clients in what are termed as over-the-counter markets – in other words, there is no single marketplace or an organized exchange.

International Currency Market : An important aspect of the internationalization of financial services has been the emergence of international banking consortia. Since the 1960s various banks started forming international syndicates. Multinational banks are responsible for huge international transfers of capital not only for investment purposes but also for hedging and speculating against exchange rate changes. The main players who are involved in international finance are commercial banks, pension funds, hedge funds and private equity funds.

Eurocurrency Market : This represents the money market in which Eurocurrency, that is currency held in banks outside of the country where it is legal tender, is borrowed and lent by banks in Europe. The Eurocurrency market allows for more convenient borrowing, which improves the international flow of capital for trade and investment between countries and companies. For example, an Indian company borrowing U.S. dollars from a bank in Germany is using the Eurocurrency market. London Inter-bank Bid Rate – LIBID: This is the rate bid by banks on eurocurrecy deposits. •London Inter-bank Offer Rate – LIBOR: This is the rate of interest at which banks borrow funds, in marketable size, from other banks in the London inter-bank market. This is the most widely used benchmark or reference rate for short-term interest rates.

European Monetary System – EMS: A 1979 arrangement between several European countries to link their currencies in an attempt to stabilize the exchange rate. This system was succeeded by the European Monetary Union (EMU), an institution of the European Union (EU), which established a common currency called the euro.

Financial Instrument : Financial instruments are assets that can be traded, or they can also be seen as packages of capital that may be traded. Most types of financial instruments provide efficient flow and transfer of capital all throughout the world's investors. These assets can be in the form of cash, a contractual right to deliver or receive cash or another type of financial instrument, or evidence of one's ownership in some entity. Examples of financial instruments include stocks, exchange-traded funds (ETFs), bonds, certificates of deposit (CDs), mutual funds, loans, and derivatives contracts, among others.

Understanding Financial Instruments : Financial instruments can be real or virtual documents representing a legal agreement involving any kind of monetary value. Equity-based financial instruments represent ownership of an asset. Debt-based financial instruments represent a loan made by an investor to the owner of the asset. Foreign exchange instruments

comprise a third, unique type of financial instrument. Different subcategories of each instrument type exist, such as preferred share equity and common share equity. International Accounting Standards (IAS) define financial instruments as "any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity."

Financial instruments:

Common examples of financial instruments include stocks, exchange-traded funds (ETFs), mutual funds, real estate investment trusts (REITs), bonds, derivatives contracts (such as options, futures, and swaps), checks, certificates of deposit (CDs), bank deposits, and loans. What are the 6 financial instruments? deposit, commercial paper, debentures, asset-backed securities, money market instruments and similar y instruments normally traded in the financial markets.

Types of Financial Instruments : Financial instruments may be divided into two types: cash instruments and derivative instruments.

Cash Instruments : The values of cash instruments are directly influenced and determined by the markets. These can be securities that are easily transferable. Stocks and bonds are common examples of such instruments. Cash instruments may also be deposits and loans agreed upon by borrowers and lenders. Checks are an example of a cash instrument because they transmit payment from one bank account to another.

Derivative Instruments : The value and characteristics of derivative instruments are based on the vehicle's underlying components, such as assets, interest rates, or indices.
An equity options contract—such as a call option on a particular stock, for example—is a derivative because it derives its value from the underlying shares. The call option gives the right, but not the obligation, to buy shares of the stock at a specified price and by a certain date. As the price of the underlying stock rises and falls, so does the value of the option, although not necessarily by the same percentage. There can be over-the-counter (OTC) derivatives or exchange-traded derivatives. OTC is a market or process whereby securities—which are not listed on formal exchanges—are priced and traded.

Types of Asset Classes of Financial Instruments : Financial instruments may also be divided according to an asset class, which depends on whether they are debt-based or equity-based.

Debt-Based Financial Instruments : Short-term debt-based financial instruments last for one year or less. Securities of this kind come in the form of Treasury bills (T-bills) and commercial paper. Bank deposits and certificates of deposit (CDs) are also technically debt-

based instruments that credit depositors with interest payments. Exchange-traded derivatives exist for short-term, debt-based financial instruments, such as short-dated interest rate futures. OTC derivatives also exist, such as forward rate agreements (FRAs). Long-term debt-based financial instruments last for more than a year. Long-term debt securities are typically issued as bonds or mortgage-backed securities (MBS). Exchange-traded derivatives on these instruments are traded in the form of fixed-income futures and options. OTC derivatives on long-term debts include interest rate swaps, interest rate caps and floors, and long-dated interest rate options.

Equity-Based Financial Instruments : Securities that trade under the banner of equity-based financial instruments are most often stocks, which can be either common stock or preferred shares. ETFs and mutual funds may also be equity-based instruments. Exchange-traded derivatives in this category include stock options and equity futures.

Foreign Exchange Instruments : Foreign exchange (forex, or FX) instruments include derivatives such as forwards, futures, and options on currency pairs, as well as contracts for difference (CFDs). Currency swaps are another common form of forex instrument. In addition, forex traders may engage in spot transactions for the immediate conversion of one currency into another.

What are some examples of financial instruments? : Financial instruments come in many forms and types. What makes them financial instruments is that they confer a financial obligation or right to the holder. Common examples of financial instruments include stocks, exchange-traded funds (ETFs), mutual funds, real estate investment trusts (REITs), bonds, derivatives contracts (such as options, futures, and swaps), checks, certificates of deposit (CDs), bank deposits, and loans.

Are commodities financial instruments? : While commodities themselves, such as precious metals, energy products, raw materials, or agricultural products, are traded on global markets, they do not typically meet the definition of a financial instrument. That's because they do not confer a claim or obligation over something else. However, commodities derivatives, such as futures, forwards, and options contracts that use a commodity as the underlying asset, would be a financial instrument.

Are insurance policies financial instruments? : An insurance policy is a legally binding contract established with the insurance company and policy owner that provides monetary benefits if certain conditions are met (e.g., death in the case of life insurance). If the insurer is a mutual company, the policy may also confer ownership and a claim to dividends. Insurance policies also have a specified value in terms of both the death benefit and living benefits (e.g., cash value) for permanent policies. While insurance policies are not considered securities, one could possibly view them an alternative type of financial instrument because they confer a claim and certain rights to the policyholder and obligations to the insurer.

13.7 MONEY MARKET INSTRUMENTS :

The money market is the securities market dealing in short-term debt and monetary instruments. Money market instruments are forms of debt that mature in less than one year and are very liquid and relatively risk free. Treasury bills make up the bulk of the money market instruments.

- **Commercial Paper :** This is an unsecured, short-term instrument issued by a corporation, typically for financing accounts receivables and inventories. It is usually issued at a discount reflecting prevailing market interest rates. Maturities on commercial paper are usually up to a maximum maturity 270 days.

- **Euro-commercial Paper :** This is an unsecured, short-term paper issued by a bank or corporation in the international money market, denominated in a currency that differs from the corporation's domestic currency.
- **Certificate of Deposit**: This is a savings certificate entitling the bearer to receive interest. A Certificate of Deposit bears a maturity date, a specified interest rate and can be issued in any denomination. CDs are generally issued by commercial banks.
- **Banker's Acceptance**: This is a short-term credit investment created by a non-financial firm and guaranteed by a bank. Such acceptances are traded at a discount from face value on the
- **Bond and Note Issues:** A note is a debt security, usually maturing in one to 10 years. In comparison, bills mature in less than one year and bonds typically mature in more than 10 years. Often the terms 'notes' and 'bonds' are used interchangeably.

Supranational agencies like the World Bank and Asian Development Bank raise bonds in the international market. National Governments issue government bonds. Municipal or other local authorities issue municipal bonds, while companies issue corporate bonds. There are different types of bonds including fixed-rate bonds, floating-rate notes and convertible bonds.

i. Fixed rate bonds have a coupon that remains constant throughout the life of the bond.
ii. Floating rate notes (FRNs) have a coupon that is linked to a money market index, such as
iii. LIBOR. The coupon is then reset periodically, normally every three months

Convertible bonds can be converted, on the maturity date, into another kind of security, usually common stock in the company that issued the bonds. A convertible bond is a hybrid security, that is a security that combines elements of debt and of equity Foreign Currency.

Convertible Bond (FCCB) is a type of convertible bond issued in a currency different than the issuer's domestic currency Zero coupon bonds do not pay any interest. They trade at a substantial discount from par. The bond holder receives the full principal amount on the maturity date.

A Medium Term Note (MTN) is a debt note that usually matures in 5-10 years, but the term may be as short as one year. They are normally issued on a floating basis. A corporate note can be continuously offered by a company to investors through a dealer. Investors can choose from differing maturities, ranging from nine months to 30 years. This type of debt programme is used by a company so it can have constant cash flows coming in from its debt issuance. The structure allows a company to tailor its debt issuance to meet its financing needs as per requirements.

Eurobond : This is a bond issued in a currency other than the currency of the country or market in which it is issued. Foreign Bond: This is a bond that is issued in a domestic market by a foreign entity, in the domestic market's currency. Foreign bonds are regulated by the domestic market authorities and are usually given nicknames that refer to the domestic market in which they are being offered. Types of foreign bonds include bulldog bonds, matilda bonds, and samurai bonds.

Junk Bond : This is a bond rated BB or lower because of its high default risk. It is also known as a high-yield bond, or speculative bond.

Note Issuance Facility (NIF) : This consists of a syndicate of commercial banks that have agreed to purchase any short to medium-term notes that a borrower is unable to sell in the eurocurrency market. The NIF acts as an underwriter. If the borrower is unable to sell all

notes, the syndicate is obliged to purchase all the remaining notes from the borrower, thus providing credit.

Revolving Underwriting Facility (RUF) : This is a form of revolving credit in which a group of underwriters agrees to provide loans in the event that a borrower is unable to sell its securities in the Eurocurrency market. These loans are generally provided through the purchase of short-term Euronotes.

A revolving underwriting facility differs from a note issuance facility (NIF) in that the underwriters provide loans instead of purchasing the outstanding notes that failed to sell. In either case, both RUF and NIF provide shortto medium-term credit in the Eurocurrency market.

13.8 EQUITY FINANCING IN THE INTERNATIONAL MARKETS :

Cross border equity investment has been increasing. There is also a global trend of institutional investors from developed countries increasing their exposure to equity from emerging markets. Shares of these overseas firms are often traded in stock exchanges like New York and London. Shares of such overseas firms are traded indirectly in the form of 'depository receipts'. Under this mechanism the shares issued by the firm are held by a depository in the form of 'depository receipts'. In the case of US markets, this type of issue is known as 'American Depository Receipts or ADRs, while 'Global Depository Receipts or GDRs are used to tap multiple markets using a single instrument

Balance of Payments : International trade and other international transactions result in a flow of funds between countries. All transactions relating to the flow of goods, services and funds across national boundaries are recorded in the balance of payments of the countries concerned. Balance of payments (BoPs) is a systematic statement that systematically summarizes, for a specified period of time, the monetary transactions of an economy with the rest of the world.

13.10 SUMMARY :

During the fast five years, the magnitude and institutional pattern of international financial transactions have undergone far-reaching changes. The changes have been so varied and rapid that the monetary analysts find it difficult to keep posted on all their facets and to familiarize himself with their theoretical and policy implications. This observation applies with particular force to one of the most significant developments in the evolving international financial scene - the rapid emergence of broad international money markets, notably the so-called Euro-currency markets, and the growing inter -linkage of major national money markets. The actual and potential flow of funds into and out of international money markets has assumed major importance for domestic and foreign monetary policy formation of several counties. Funds moving across national borders for profitable short-term employment have increased sharply and their deployment and ultimate use has become quite different from the pattern of the past. For all these reasons, anew look at the scope and supply-and-demand structure of international money markets appears timely

13.11 KEY WORDS :

- **Call and Notice Money:** Call and Notice Money exist in the marke
- **Repurchase Agreements (Repo):**Repo's are also known as Reverse Repo or as Repo
- **Bills of exchange or commercial bills:** The bills of exchange can be compared to the promissory note

- **International Financial Markets :**The International Financial Market is the place where financial wealth is traded between individuals (and between countries).
- **innovation space :** Cloud empowered enormous information takes into account more modern models and fitting of items and is of worth to the perplexing environment models
- **Banker's Acceptance (BA) :** A Banker's Acceptance is a document that promises future paymentwhich is guaranteed by a commercial bank.
- **Promissory Note :**A promissory note is one of the earliest type of bills.

13.12 SELF ASSESSMENT QUESTIONS :

1. What do you mean by call money market?
2. What are some examples of money market?
3. Why is the money market important?
4. Is money market safe?
5. Features of developed money market?
6. What is an example of a capital market instrument?
7. Discuss the role of a central bank in a developing economy.
8. Trace out the Historical development of Central Banking.
9. Highlight the significance of Central Bank in the Economic Development of a Country

13.13 FURTHER READINGS :

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LESSION - 14

CREATION OF EURO – CURRENCY MARKETS AN OVER VIEW

OBJECTIVES :

After studying this lesson you should be able to :

- To trace the creation and growth of Euro – currency markets.
- To discuss the composition of instruments death with in Euro markets.
- To discuss the emergence of Global Currency Market
- To analyze the size and structure of European Market
- To explain the determinants of interest rates in Euro Markets.
- To provide an overview of the Major Instruments.

STRUCTURE :

14.1 INTRODUCTION :

A cursory glance of the "World Map" will show that "EURASIA" is one of the big continents. In this continent if we cut across – South to North – at the point of the SUEZ CANAL we get 2 parts. The one on our right is 'ASIA' and the other on the left is "EUROPE".

Our current study is about the Europe, now comprising of 25 countries as on 1.5.2004. This includes the countries already enjoying membership in the "European Union" and some, which propose to join before the end of 2007.

14.2 CREATION OF EURODOLLAR – CURRENCY MARKETS :

To have a clear understanding of the functioning the Euro-Currency, it is imperative to know the meaning and concept of "Euro-Dollar", because all transactions up to 1960 were in Euro-Dollar only. A strict line of demarcation will only be artificial.

An American Dollar, outside America is called as Euro-Dollar. But presently the nondollar denominated deposits have a widespread existence in the Euro-Currency markets. Also much of the market is new located outside Europe.

The term Euro-Dollar refers to all such financial assets and liabilities denominated in U.S. Dollars, but which are transacted outside the territory of the U.S.A. It was precisely to overcome the difficulties arising out of the monetary regulations which did not become applicable on such markets outside the geographical transitory of U.S.A. that these markets have come into existence and are making tremendous growth since then 1960.

There were many restrictions imposed by the Federal Reserve Board of U.S.A. on the U.S. commercial Banks on payment of interest takes on deposits received from individuals. Such instructions could, no longer, be imposed on the Euro-Dollar deposits.

Another regulation which got amended in 1969 was responsible for a rapid growth of Euro-Dollar market. The regulation (Similar to the concept of cash Reserve Ratio in the Indian contest) required that only U.S. banks situated in its territory required to maintain a "Reserve against deposits" whereas their foreign branches as well as foreign banks deposits in U.S. banks need not keep any such reserve. The policy to tighten the domestic availability of credit with the Banks, made the position of U.S.'S domestic bank to find themselves in a difficult situation. Added to this, a nearly double the interest – rate prevailing abroad in the foreign branches of U.S. Banks encouraged the depositors to move away from the banks – domestic to foreign branches. Due to the non-availability of adequate credit domestically, the banks in U.S.A. were forced to borrow from the other European Banks, to meet their domestic demand from their customers, such increased demand pushed up the interest – rates in Euro Banks.

The other restrictions aimed at (a) controlling the capital outflows from U.S. and (b) improving the BOP situation were equally responsible for the rapid growth of Euro – Dollar market. The Financial institutions operating the Euro-Currency markets may be identified as under :

i. **The U.S. Banks :** After the second world – war (1939 – 45) the American Banks wanted to participate directly to help their multi-national corporations abroad. This job was assigned earliest to the foreign banks.
ii. **The Consortia Movement :** This involves in some kind of a Joint venture with other Banks with the objective of Euro-Financing business. These ventures were known as "Consortium Banks". These are intended to provide medium term loans to the international borrowers.
iii. **European Banking Response :** Most of the major European Banks did not consider the establishment of American Banks' foreign branches simply as an operationally convenient move but a kind of strategy since they witnessed a break – down of the earlier "Correspondent branching system". The Euro – Currency market acts as an "inter-bank money bank" at international level. It provides an adequate credit to private and public companies.

Euro – Currency Instruments :

A. **Euro – Dollar Deposits :** The deposits in Euro-Dollar markets have 2 types of options (1) Regular time deposits involving very limited period (i.e. overnight, call money or other accounts) and (2) Certificates of Deposits (CDs) involving large amounts (Usually above $1,00,000) and with longer maturities (Between 3 to 6 months).

A cable or telex message transfers the amounts from the Bank's account in U.S. to the borrowers account anywhere. Confirmation of transaction is only paper work. The flow time is very short so as to prevent the owner from losing large sums of interest.

B. Euro – Dollar Loans : The normal range in which these loans vary, is found to be between $ 5,00,000 upto $ 100 millions or even more. The maturity period ranges between 30 days upto 5 to 7 years. However the loan amount as well as the re – payment period depends on the relationship and goodwill between the borrower and lender.

The Interest rates on the Euro – Dollar loans are floating – rates rather than fixed rates, particularly for medium and longer maturities of about 3 years and beyond, generally the Interest Rate will be the LIBOR rates plus 1.5% The payment of interest is fixed at 6 monthly intervals, until maturity. The Euro – Dollar loans protect the Euro – Bank's project also (LIBO Rates means London inter Bank Offer Rates)

Composition of the Euro – Currency Markets :

The Bank for International Settlements (BIS) gives the details of the Euro – currencies transacted between the countries of the Euro – Currency area.
There are 2 categories of countries involved with the Euro – Currency area

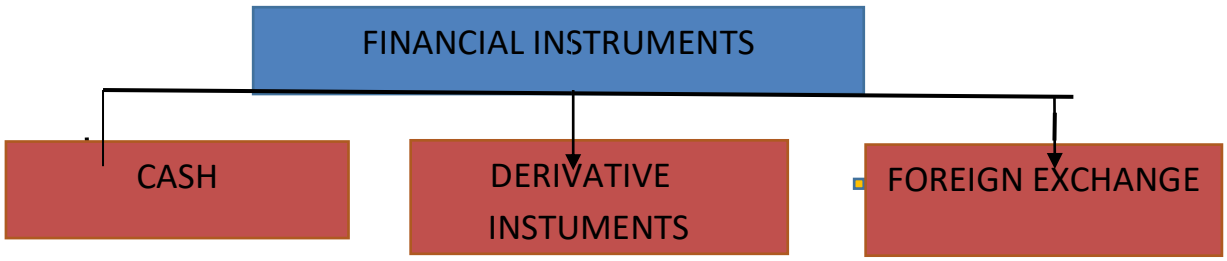
i. Countries of "Inside area" and those of "Outside area" This classification is done on the basis of reporting of figures done by only 8 countries especially in the "inside area". They are – Belgium, Finance, Germany, Italy, Netherlands, Sweden, Switzerland & U.K.

ii. The "outside area" Countries are – west – European countries, East European countries, Canada, Japan, Latin America, Middle – East, U.S.A. and others.

Relationship Between Domestic and Euro Currency Markets :

The interest rates in the national and Euro – currency markets cannot be independently determined. The extent to which there are additional costs, taxes, or risks involved in moving dollars between the New York and London markets will have a proportionate effect on the interest differential. Suppose such is not the case, then, naturally, the arbitrageurs would obtain funds in the low cost markets and lend the same in the higher – return – market. There is a very minimal cost of shifting funds from the U.S. domestic market to the Euro markets. The difference is due to the currency controls or the risk involved in such movement.

14.3 TYPES OF FINANCIAL INSTRUMENTS :



14.4 THE SIZE STRUCTURE OF EUROPEAN MARKETS :

Why do the Euro Markets Thrive? : Euro market interest rates are outside the control of any central bank. Remember, that Eurodollars etc. are traded outside the country of their origin. Therefore the rules applied by the respective central bank in the country of the concerned currency do not apply. Also the monetary authority of the place where the deposit is being made (in the Euro market), is not concerned with non-residents depositing or

borrowing foreign-currency - which does not affect the domestic money supply (its prime concern).

In the absence of central bank regulatory requirements on currencies being traded in the Euro markets, there are no statutory reserve requirement maintained Consequently, Euro banks can offer higher yields to depositors and finer rates to borrowers, this makes the Euro markets an attractive market for depositing money as well as a source for borrowings.

Example : if the Federal Reserve Bank in the US imposed a reserve requirement of 3% on deposits of banks (domestic), then for every $ 100 deposited, only $97 could be lent out. If interest rates were lo%, a bank in the US would have to charge 10.3 1 % (10/97 x 100) to cover the cost of 'reserves. Therefore a bank taking a US dollar deposit in London (Euro market) coi~ld undercut its domestic US competitor doing business is New York.

Euro Market Interest Calculations :

The Euro markets use two bases for calculating interest :

a) The 365-day year is used for the British pound sterling, the Irish pound, the Kuwaiti dinar and the Belgian franc
b) The 360-day year for all other currencies

14.5 INTERNATIONAL BOND MARKET :

- This is defined as a market for bonds which are sold anywhere in the world but not in the geographical territory of the country of currency in which it is denominated.
- A bond issued is said to be a "Euro – Bond issue if such bonds are mainly sold in other countries than the country of origin. A foreign bond is one which is placed by a domestic syndicate, on the market of a single country and is denominated in that countries currency
- Mostly the funds raised by the borrowers in such market consist of foreign currencies i.e., other than the borrowers own currency for example, a U.S. company borrowing Euro Dollars, outside U.S

Segments of International financial Markets :

- International Bond Market
- International Equity Market
- International Money Market
- International Credit Market
- Foreign Exchange Market

Types of International Bonds :

- Foreign bonds and Euro bonds
- Global bonds
- Straight bonds
- Floating rate Notes
- Convertible bonds
- Cocktail bonds
- Callable and putt able bonds
- Sinking fund bonds
- Foreign bonds and Euro bonds

Foreign bonds and Euro bonds : Foreign bonds are underwritten by the underwriters of the country where they are issued Maturity based on need of investors of a particular country. Foreign bonds are subjected to government regulations in the country where they are issued.

Differences :

Foreign bonds	Euro bonds
1. If an Indian company issue bond In the Newyork and and bond is dominated in US dollar, such bonds are called foreign bonds Foreign bonds under written by the Under writers of the country where they issued 3.Foreign bonds subjected to governmental rules and regulations 4..Foreign bond is determined keeping in mind the investors of a particular company	But in case of Euro bonds they dominated in currency other than the currency of the country Euro bonds under written by the under writers of multi nationality 3. Euro bonds are free from rules and regulations 4.Euro bonds are tailored to the needs of the multinational investors.

Global bonds : First it issued in 1989 by world bank and it also issued by the companies. It dominated in 7 country's currency those are - Australian dollar, Canadian dollar, Japanese Yen, Swedish crone and Euro.

Features :

Euro bonds Underwritten by internationally Offered simultaneously to investors in a number of countries Issued outside the jurisdiction of any single country They are not registered through a regulatory agency. Make coupon payments annually. Large in size offered for simultaneous placement in different countries.

Features : Global bonds :

Bonds that can be offered within the Euro market and several other markets simultaneously Online Euro bonds global bonds can issued in the same currency as the country of issuance. For example, a global could be both issued in the United states and dominated in U S. dollars. Straight bonds: Interest rate is fixed known as coupon rate and it is a traditional type of bond.

It's varieties :

- Bullet - redemption bond
- Rising -coupon bond
- Zero - coupon bond
- Currency options
- Bull and bear bonds
- Debt warrant bonds

Floating rate Notes : It does not carry fixed rate of interest and Interest quoted as a premium or discount to a reference rate (LIBOR) Interest revised periodically Perpetual FRNs and Minimize FRN(Floating Rate Note)

- Drop lock FRN and Flip flop FRN
- Mismatch FRN and Hybrid fixed rate reverse FRN

Convertible bonds : - Convertible into equity shares Some convertible bonds have detachable warrants involving acquisition rights Automatic convertibility into a specified number of shares

Cocktail bonds : - Denominated in mixture of currencies and Represent a weighted average of 5 currencies Investors get currency diversification risk. Depreciation offset by appreciation of other.

- Though the prefix "Euro" gives an impression that such bonds are confined to the European countries, the "Euro Bond" Market is truly international as those bonds are sold to investors around the world and such issues need not comply with the national regulations and controls.
- Straight Euro Bonds represent a substantial part of the Euro Bond market in which the Bonds are issued with a single currency. However, later, the bonds involving more than one currency have started occupying on important position in the Euro – Bond Market.
- Sometimes, the creditor loses, if and only if all the currencies included in the multiple currency contract depreciate simultaneously against others which are not included. As an example, consider a Japanese leader - bank buying such multiple currency bond and opting payment in the form of U.S. Dollars, or British pounds or Italian lira. If all these three currencies depreciate against, say, the Yen, than it loses and Vice versa. Anyhow the gains are maximized and losses minimized in the event of any exchange rate variations.
- European Monetary Union (EMU) bonds, also referred to as the "European Currency Union Bonds" are also multiple Currency Bonds". The difference being there are 6 major reference currencies. For the borrower the basic advantage is that these EMU bonds bear a lower interest rate than the previous type of bonds.
- The main disadvantage is an obligation to compensate the creditor for the difference in exchange rate appreciation of these 6 currencies.
- For the lender, there is enough protection since in the event of devaluation, he is entitled to obtain repayment in the least devalued currency and similarly he demands in case of appreciation repayment in the form of the most un valued currency.

Euro Convertible Bonds :

A large proportion of new issues of Euro bonds are called bonds but behave like equity - because they incorporate equity options. In other words, the investor obtains some sort of equity participation along with the bond itself. This feature is much more prevalent in the international market than in the domestic bond markets. The feature offers one way in which investors can reap the benefits of an equity play.

By definition, an Euro Convertible Bond is a quasi equity issue, outside the domestic market, which provides the holder with an option to convert from a debt instrument (investment) into an equity investment i.e., to a certain number of equity shares at a predetermined price.

A special feature nowadays is to allow Euro Convertible bond to convert to GDRs. Till the conversion takes place, interest is paid in US dollars and bond redemption is done in US dollars.

14.6 EQUITY MARKET :

Introduction : International fund raising used to be the domain of multinational companies. MNCs not only source raw material across the world or sell products at many geographical regions, they also scout for capital all over the world and raise capital wherever it is cheaper. However with globalization and increased cross-border capital flows, smaller companies are also raising capital in the international market. Greater interaction among financial markets has enabled companies to access global capital market. Big and small

companies are raising both debt and equity capital from the global market. Cross listing of shares through issuance of depository receipts have become common occurrence. Investors' appetite for foreign company shares have also increased manifold and internationalization of equity markets across globe is happening at a faster speed. Though internationalization of equity markets has a broader connotation covering entire gamut of FDI, portfolio investment by big ticket players like pension funds, hedge funds and private equity funds and their ilk, this module focuses on equity capital to have been raised by Indian companies from the international market. Even relatively smaller companies are sourcing capital from foreign countries and do not want to remain restricted to commercial banks and other lenders of home countries as well as do not want to depend on the domestic equity market.
Different instruments used by Indian companies to raise fund from foreign market are:

International Fund Raising Options :

Dept Capital	Equity Capital
Yankee Bonds Eurobonds Floating Rate Notes External Commercial Borrowings Indian Millennium Deposits Indian Resurgent Bond Indian Development Bonds	Global Depository Receipts (GDR) American Depository Receipts (ADR) Indian Depository Receipts (IDR)

Development Of International Equity Market :

International equity market has developed through cross listing of shares in different stock exchanges. Cross listing indicates that a company lists its shares in foreign stock exchanges besides listing its shares in domestic exchanges. For example, investors from US can invest in Infosys equity shares as Infosys shares are listed in NASDAQ.

Cross listing of shares normally happens through depository receipts (DRs) or registered shares. Depository receipts can be ADRs (American Depository Receipts) or GDRs (Global Depository Receipts) or for that matter any country specific depository receipts can be issued. GDRs are primarily issued and traded in London or Luxembourg stock exchanges.

ADRs by default issued in USD. All most all GDRs are also denominated in USD. But GDRs can be issued in EURO. Similarly like ADRs/GDRs, If a foreign company lists its shares in Chinese Stock exchange, then these will be known CDRs (Chinese Depository Receipts). A foreign company can list its IDRs (Indian Depository Receipts) in any Indian stock exchanges.

List of famous common depository receipts issued all over the world.
Source:(http://www.adr.com/brokerInvestor/drsearch.aspx)

Company Name	Country	Sector Name	Type	Underlying Exchange	Underlying Currency

AGENIX LTD AGFA	Australia	Photography/ Biotechnology	ADR	ASX EN	AUD
GEVAERT NVAGILE	Belgium	Imaging	ADR	BRUSSELS	EUR
PROPERTY HOLDINGS LTD	HONK ONG	Real estate	ADR	HONGKONG	HKD
AGL ENERGY LTD	Australia	Power producers	ADR	ASX	AUD
AGORA SA	Poland	Broadcasting (TV,Radio,Cable)	ADR	WARSAW	PLN
AGRICULTURA L BANK OF GREECE	Greece Greece	Banks (Major Banks (Major Regional)	ADR	ATHENS	EUR
AIDA ENGINEERING LTD	Japan	Machinery	ADR	TPKYP	JPY
AIFULCORP	Japan	Consumer Finance	ADR	TOKYO	JPY
AIOI INSURANCE CO LTD	Japan	Insurance(Life/ Health)	ADR	TYOKYO	JPY
AIR CHINA LTD	China	Airlines	ADR	HONGKONG	CNY
AIR FRANCE KLM	France	Airlines	ADR	PARIS	EUR
AIR LIQUIDE	France	Chemicals	ADR	PARIS	EUR
AIR NEW ZEALAND LTD	New Zealand	Airlines	ADR	NZX	NZD

The institutions or agencies of International Financial Markets The institutions or agencies of International Financial Markets that serve as the sources of international funds are:

- Payment banks or agencies
- Government / governmental agencies
- International banks
- Securities market

Segments of International Financial Market

The following are the segments of International Financial Markets:

- Foreign Exchange Market: The Foreign Exchange Market is the world's largest financial market. Foreign exchange market is the market for the purchase and sale of foreign currencies. Borrowing or investing internationally requires the use of foreign exchange market for conversion of currencies. The foreign exchange market facilitates international trade and international transactions.
- International Bond Market: Foreign bonds and Euro bonds are the two types of international bonds. International bond market also includes

    a) Sinking fund bonds
    b) Convertible bonds
    c) Floating rate notes
    d) Global bonds.

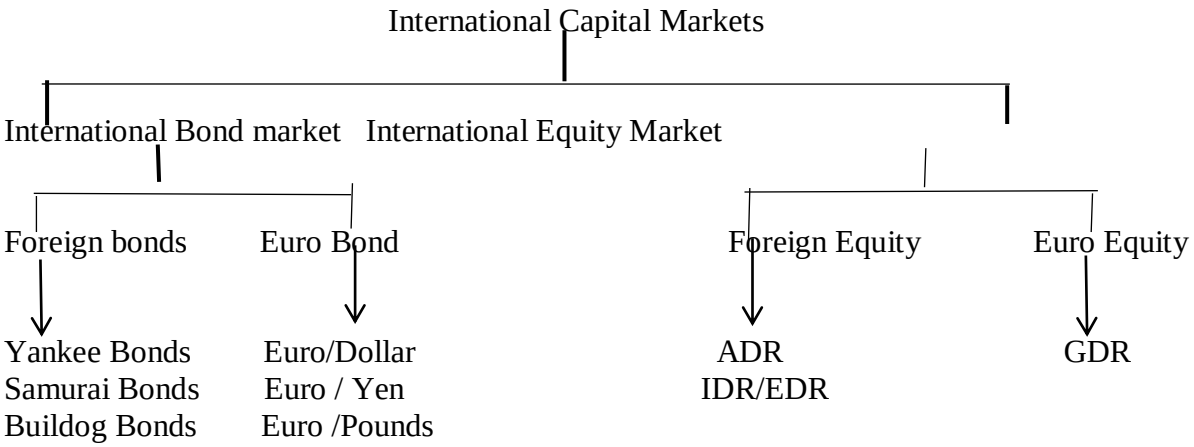
- **International Equity Market :** Equity capital for a company is raised through the issue of shares. A multinational company would often like to raise equity capital from different countries by issuing shares in those countries. These shares are then traded in the stock exchange of the country.
- **International Money Market :** International Money market is the market for transfer of short term funds. In international money market, transactions take please in a variety o f different currencies. International banks and financial institutions across the world are the major suppliers of funds in these markets, while MNCs and governments of different countries are the major users of these funds. The European money market is an important part of the international money market.
- **International Credit Market :** International Credit market refers to the market through which companies and governments issue debt to investors, such as investment-grade bonds, junk bonds, and short-term commercial paper. Sometimes called the debt market, the credit market also includes debt offerings, such as notes and securitized obligations, including collateralized debt obligations (CDOs), mortgage-backed securities, and credit default swaps (CDS)

14.7 GDR, ADR, EDR AND IDR :

As in any domestic capital structuring we can segregate international financing into two broad categories. These are:

i. Equity financing and
ii. Debt financing.

The various instruments used to raise funds abroad include; Equity, straight debt or hybrid instruments. The following figure shows the classification of international capital markets based on instruments used and market(s)



Global Depository Receipt (GDR)

- A Global Depository Receipt (GDR) is a dollar denominated instrument traded on a stock exchange in Europe or the US or both. It represents a certain number of underlying equity shares.
- The shares are issued by the company to an intermediary called depository in whose name the shares are registered. It is the depository which subsequently issues the GDRs. The physical possession of the equity shares is with another intermediary called the custodian 190 who is an agent of the depository. Thus while a GDR represents the issuing company's shares, it has a distinct identity and in fact does not figure in the books of issuer.
- The concept of GDRs has been in use since 1927 in Western capital markets. Originally they were designed as an instrument to enable US investors to trade in securities that were not listed in US exchanged in the form of American depository receipts (ADRs). Issue traded outside the US were called International Depository Receipt (IDR) issues.
- Until 1983, the market for depository receipts was largely investor driven and depository banks often issued them without the consent of the company concerned. In 1983, the securities and exchanged commission (SEC) of the US made it mandatory for certain amount of information to be provide by the companies.
- Till 1990, the companies had to issue separate receipts in the United states (ADRs) and in Europe (IDRs). Its inherent weakness was that there was no cross border trading possible as ADRs had to be traded, settled and charged through DTC (an international settlement systems in the US) while the IDRs could only be traded and settled via Euro clear in Europe.
- In 1990, changes in Rule 144A and regulation 5 of the SEC allowed companies to raise capital without having to register the securities within the SEC or changing financial statements to reflects US accounting principles. The GDR evolved out of these changes.

American Depository Receipts (ADR) :

An ADR is a receipt that has a number of foreign shares remaining on deposit with the U.S. depository's custodian in the issuer's home market. The bank is a transfer agent for the ADRs that are traded in the United States exchanges or in the OTC market. ADRs offer various investment advantages. These advantages include ADRs are denominated in dollars, trade on a US stock exchange, and can be purchased through the investor's regular broker. This is easier than purchasing and trading in US stocks by entering the US exchanges.

- Dividends received on the shares are issued in dollars by the custodian and paid to the ADR investor, and a currency conversion is not required.
- ADR trades clear in three business days as do U.S. equities, whereas settlement of underlying stocks vary in other countries.
- ADR price quotes are in U.S. dollars.
- ADRs are registered securities and they offer protection of ownership rights. Most other underlying stocks are bearer securities.
- ADRs frequently represent a set of underlying shares. This allows the ADR to trade in a price range meant for US investors.
- ADR owners can provide instructions to the depository bank to vote the rights.

There are two types of ADRs :

- Sponsored and unsponsored. Sponsored ADRs are created by a bank after a request of the foreign company.
- The sponsoring bank offers lots of services, including investment information and the annual report translation. Sponsored ADRs are listed on the US stock markets. New ADR issues must be sponsored.
- Unsponsored ADRs are generally created on request of US investment banking firms without any direct participation of the foreign issuing firm.

European Depositary Receipt- (EDR):

- A European depositary receipt (EDR) is a negotiable security issued by a European bank that represents the public security of a non-European company and trades on local exchanges.
- The shares issued by the bank are priced in local currencies (mainly Euro) and also pay dividends, if applicable, in local currencies. Non-European companies may list EDRs to attract a wider base of investors.
- EDRs are the functional equivalent of American depositary receipts (ADR), which allow foreign companies to list shares on U.S. exchanges.
- A European depositary receipt (EDR) is a tradable security issued by a European bank that represents shares in a non-European company.
- EDRs trade on European stock exchanges and allow European investors to more easily invest in foreign companies.
- EDRs and their dividends are priced in euros.

Indian Depository Receipts- IDR :

According to the Companies (Issue of Indian Depository Receipts) Rules, 2004, an IDR is, "a Depository Receipt issued by an Indian depository in India against the underlying equity shares of the issuing firm." This trading starts with international companies offering shares to an Indian Depository, such as NSDL. After this the international company issues depository receipts to Indian investors under an IDR. This shared will be originally held by the issuer company and authorization is given to the Indian Depository to issue receipts.

As a result of the 'Joshi Committee's' recommendations, the Companies Act of 1956 was modified, and Section 605 A2 was introduced, empowering the Central Government to adopt rules relevant to the issue of IDRs:

"Notwithstanding anything contained in any other law for the time being in force, the Central Government may make rules applicable for

The offer of Indian Depository Receipts;

- The requirement of disclosures in prospectus or letter of offer issued in connection with Indian Depository Receipts;
- The manner in which the Indian Depository Receipts shall be dealt in a depository mode and by custodian and underwriters;
- The manner of sale, transfer or transmission of Indian Depository Receipts, by a company incorporated, or to be incorporated outside India, whether the company has or has not been established or, will or will not establish any place of business in India."

IDR Regulatory Bodies:

- The Reserve Bank of India (RBI)
- The Ministry of Corporate Affairs
- The Securities and Exchange Board of India (SEBI)
- EDRs, ADRs, and GDRs

EDRs and ADRs are quite similar. The primary difference is that ADRs allow non-U.S. companies to list shares on American exchanges while EDRs allow non-European companies to list shares on European exchanges. While ADRs are priced in U.S. dollars, EDRs are priced in euros.

ADRs and EDRs both provide listings to foreign shares in one market : the U.S or Europe, respectively. Global Depositary Receipts (GDRs) instead give access to two or more markets, most frequently the U.S. market and the Euromarkets, with one fungible security. GDRs are most commonly used when the issuer is raising capital in the local market as well as in the international and US markets, either through private placement or public offerings. Thus, a company based in Japan may seek to list GDRs than have both an American and European counterpart.

Euro Issues In India : Indian companies have been raising funds from international financial markets by issuing Euro bonds, Euro convertible bonds and Euro equities. The first GDR were issued by Reliance industries in May 92 with an issue size of US$ 150 million. The market at that time for Indian issues was so under developed that Reliance had to give discount up to 17% to GDRs to get the issue fully subscribed. Till March 1997198 Indian companies could raise US$ 5,180 million.

Amounts raised by Indian corporate through GDRs and ADRs declined from US$ 645 million in 1997-98 to US$270 million in 1998-99. Depressed capital market, industrial slackness at home and adverse emerging market sentiments affected GDR prospects unfavorably last year. However, there has been a turnaround in the first half of the current financial year with large issues raised in .the ADWGDR market. The successful ADR issues include MIS Infosys Technologies ($ 75 million), MIS Satyam Info way Ltd. ($ 86 million) and M/s ICICI ($ 3 15 million). To facilitate conversion of its GDRs into American Depository Shares (ADS), ICICI listed the ADS on the New York Stock Exchange with effect from 17 November, 1999 after complying with stringent listing requirements of the Securities and Exchange Commission (SEC) of the USA, including adherence of GAAP standards.

14.8 KEY WORDS :

- **Cross-listing of shares :** Equity market, International equity market, depository receipts
- **Eurodollar :** Dollar deposited in a bank outside its country of origin.

- **Euro market :** Transactions in Eurodollar, Euro yen etc.
- **Euro banks :** Which accepts deposits and make loan in foreign currencies.
- **London-Inter bank Offered Pate (LIBOR) :** The rate at which funds are offered to a London or by a London bank to another London Bank.
- **Euro-Commercial Papers :** Commercial paper is a short-term promissory note issued on an unsecured basis by commercial and financial institutes.
- **Floating Rate Note :** An instrument whose interest rate floats with prevailing market rates.
- **Euro bonds :** A bond placed in the countries other than are in whose currency it is denominated.
- **Euro-convertible Bond :** It is a quasi-equity issue, outside the domestic market, provides an option to convert from debt.
- **LIMEAN :** The average of LIBID and LIBOR.
- **Medium-term Note :** Fixed rate corporate bonds for a shorter maturity than Euro-bonds or domestic bonds.
- **Foreign Bond :** The bond sold outside the borrower's country denominated in the currency of the country of issue.

14.9 SUMMARY :

International financial markets and operations comprise buying and selling currencies, deposit taking and lending and issuance of securities. Market segments are classified according to the nature of financial operations. Money markets deal with exchange or exchange related transaction, credit markets deals with deposit taking and lending. Capital markets and equity markets are concerned with issuance of securities and issuance of international equities respectively.

Euro market transactions are the financial transactions denominated with currency outside the country of its origin. Euro banks are other banks which take deposits and make loans in a currency or currencies other than that of the country in which they are located. Euro markets consists of Euro banks that offer wholesale deposits and loans in favorable jurisdiction in and in a variety of currencies other than that of the country in which the banks are situated. These Euro banks are entirely free of market regulatory controls. Euro market operations basically have been medium to long-term lending with floating interest rates. Euro currency is the currency of Euro land and transaction in the Euro currency are known as Euro currency market :

14.10 SELF ASSESSMENT QUESTIONS :

What is GDR? Explain the steps in issuing GDRs.
1.What is Euro dollar market?
.....2.What is Euro Currency?
.....
3.Explain the following :
.....i.What is LIBOR?
.....
ii) LIBID .....

Check Your Progress B
1 List the international financial instruments for raising finance.
.....

.2. Differential between Euro bonds and foreign bonds.

.....

3 Explain briefly :

i) GDRs

.....

ii) ADRs

.....

iii) LIMEAN

.....C .1.What is Euro market? Explain the reasons of its existence.

2.What are Euro Bonds? What are its characteristics?

3. a) How are GDRs priced?

b) What are the characteristics of GDRs?

4.Evaluate the performance of1lndian Euro Issues.

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Mrs. K. S. RATNAMMA

LESSION – 15

INTEGRATION OF FINANCIAL MARKETS AND APPROACH

OBJECTIVES :

- Types of Financial Integration
- Measuring of financial integration
- Challenges to Financial Market Integration

STRUCTURE :

15.1 INTRODUCTION TO FINANCIAL INTEGRATION :

Past decades have been characterized by financial globalization. International financial integration2 has been increasing. This development is revealed by measures of both de facto and de jure financial openness. De facto financial openness is commonly measured by stocks or flows of international capital relative to GDP. De jure financial openness measures the extent to which a country imposes legal restrictions on its cross-border capital transactions. It is a phenomenon in which financial markets in neighboring, regional and/or global economies are closely linked together. Various forms of actual financial integration include: Information sharing among financial institutions; sharing of best practices among financial institutions; sharing of cutting edge technologies (through licensing) among financial institutions; firms borrow and raise funds directly in the international capital markets; investors directly invest in the international capital markets; newly engineered financial products are domestically innovated and originated then sold and bought in the international capital markets; rapid adaption/copycat of newly engineered financial products among financial institutions in different economies; cross-border capital flows; and foreign participation in the domestic financial markets. Because of financial market imperfections, financial integration in neighboring, regional and/or global economies is therefore imperfect. For example, imperfect financial integration can stem from the inequality of the marginal rate of substitutions of different agents. In addition to financial market imperfections, legal restrictions can also hinder financial integration.

Therefore, financial integration can also be achieved from the elimination of restrictions pertaining to cross-border financial operations to allow – a) financial institutions to operate freely, (b) permit businesses to directly raise funds or borrow and (c) equity and

bond investors to invest across the state line with fewer [or without imposing any] restrictions.

However, it is important to note that many of the legal restrictions exist because of the market imperfections that hinder financial integration. Legal restrictions are sometimes second-best devices for dealing with the market imperfections that limit financial integration. Consequently, removing the legal restrictions can make the world economy become worse off. In addition, financial integration of neighboring, regional and/or global economies can take place through a formal international treaty which the governing bodies of these economies agree to cooperate to address regional and/or global financial disturbances through regulatory and policy responses.The extent to which financial integration is measured includes gross capital flows, stocks of foreign assets and liabilities, degree of co-movement of stock returns, degree of dispersion of worldwide real interest rates, and financial openness. Also there are views that not gross capital flows (capital inflow plus capital outflow), but bilateral capital flows determine financial integration of a country, which disregards capital surplus and capital deficit amounts. For instance, a county with only capital inflow and no capital outflow will be considered not financially integrated.

Source - uploaded by Shang-Jin Wei
Channels Through Which Financial Integration Can Raise Economic Growth

Financial integration :

Financial integration is a phenomenon in which financial markets in neighboring, regional and/or global economies are closely linked together. Various forms of actual financial integration include: Information sharing among financial institutions; sharing of best practices among financial institutions; sharing of cutting edge technologies (through licensing) among financial institutions; firms borrow and raise funds directly in the international capital markets; investors directly invest in the international capital markets; newly engineered financial products are domestically innovated and originated then sold and bought in the international capital markets; rapid adaption/copycat of newly engineered financial products among financial institutions in different economies; cross-border capital flows; and foreign participation in the domestic financial markets.

Because of financial market imperfections, financial integration in neighboring, regional and/or global economies is therefore imperfect. For example, imperfect financial integration can stem from the inequality of the marginal rate of substitutions of different agents. In addition to financial market imperfections, legal restrictions can also hinder financial integration. Therefore, financial integration can also be achieved from the

elimination of restrictions pertaining to cross-border financial operations to allow (a) financial institutions to operate freely, (b) permit businesses to directly raise funds or borrow and (c) equity and bond investors to invest across the state line with fewer [or without imposing any] restrictions. However, it is important to note that many of the legal restrictions exist because of the market imperfections that hinder financial integration. Legal restrictions are sometimes second-best devices for dealing with the market imperfections that limit financial integration. Consequently, removing the legal restrictions can make the world economy become worse off. In addition, financial integration of neighboring, regional and/or global economies can take place through a formal international treaty which the governing bodies of these economies agree to cooperate to address regional and/or global financial disturbances through regulatory and policy responses. The extent to which financial integration is measured includes gross capital flows, stocks of foreign assets and liabilities, degree of co-movement of stock returns, degree of dispersion of worldwide real interest rates, and financial openness. Also there are views that not gross capital flows (capital inflow plus capital outflow), but bilateral capital flows determine financial integration of a country, which disregards capital surplus and capital deficit amounts. For instance, a county with only capital inflow and no capital outflow will be considered not financially integrated.

History: Financial integration is believed to date back to the 1690s and was briefly interrupted at the start of the French revolution (Neal, 1990[5]). At the end of the 17th century, the world's dominant commercial empire was the Dutch Republic with the most important financial center located in Amsterdam where Banking, foreign exchange trading, stock trading and bullion trading were situated. And it was Amsterdam where Dutch investors directed funds abroad at the time. The Amsterdam Exchange had positioned itself as a world marketplace where many different types of securities and commodities were exchanged. It was also in this period that London and Amsterdam were closely integrated financially (Eagly and Smith, 1976; Neal, 1990); Amsterdam assumed the role as the senior partner in acting as the stabilizing force for London during times of English financial crisis.

However, it was in the Classical Gold Standard Era (the period from the mid-1870s until the start of World War I) that financial integration began to take shape in Europe. In these periods, for examples, the securities and foreign exchange markets were closely linked; stock and bond markets were internationally linked; international arbitrage activities were no strangers; and commercial and investment banks in major economies established a linkage (Jackson and Lothian, 1993;Lothian, 2000.

Eventually the 1980s and 1990s saw a significant increase in financial integration (Lothian, 2000). For example, facing a sharp increase in real exchange rate volatility and the increased risk in these years, institutions surrounding international finance worked together to address these challenges. Regulatory restrictions on international capital mobility such as capital control, interest rate ceilings, etc. were weakened and removed because such regulatory framework was costly in the new market environment. To contain the adverse effects of exchange-rate volatility, new financial instruments and markets were developed.

Benefits: Benefits of financial integration include efficient capital allocation, better governance, higher investment and growth, and risk-sharing. Levine[8] (2001) shows that financial integration helps strengthen the domestic financial sector allowing for more efficient capital allocation and greater investment and growth opportunities. As a result of financial integration, efficiency gains can also be generated among domestics firms because they have to compete directly with foreign rivals; this competition can lead to better corporate governance (Kose et al., 2006[2]). If having access to a broader base of capital is a major engine for economic growth, then financial integration is one of the solutions because it

facilitates flows of capital from developed economies with rich capital to developing economies with limited capital. These capital inflows can significantly reduce the cost of capital in capital-poor economies leading to higher investment (Kose et al., 2006). Likewise, financial integration can help capital-poor countries diversify away from their production bases that mostly depend on agricultural activities or extractions of natural resources; this diversification should reduce macroeconomic volatility (Kose et al., 2006). Financial integration can also help predict consumption volatility because consumers are risk-averse who have a desire to use financial markets as the insurance for their income risk, so the impact of temporary idiosyncratic shocks to income growth on consumption growth can be softened. Stronger comoverment of consumption growth across the globe can also be a results of financial integration (Kose et al., 2006). Furthermore, financial integration can also provide great benefits for international risk-sharing (Lewis, 1999; Obstfeld, 1994; van Wincoop, 1999).

Adverse effects : Financial integration can also have adverse effects. For example, a higher degree of financial integration can generate a severe financial contagion in neighboring, regional and/or global economies. In addition, Boyd and Smith[12] (1992) argue that capital outflows can journey from capital-poor countries with weak institutions and policies to capital-rich countries with higher institutional quality and sound policies. Consequently, financial integration actually hurts capital-scarce countries with poor institutional quality and lousy policies.

Recent development : During the past two decades, there has been a significant increase in financial integration; this increased financial integration generates a great deal of cross-border capital flows among industrial nations and between industrial and developing countries. In addition, this increase in financial integration pulls global financial markets closer together and escalates the presence of foreign financial institutions across the globe. With rapid capital flows around the world, the currency and financial crises in the late 1980s and 1990s were inevitable. Consequently, developing countries that welcomed excessive capital flows were more vulnerable to these financial disturbances than industrial nations. It is widely believed that these developing economies were much more adversely impacted as well. Because of these recent financial crises, there has been a heated debate among both academics and practitioners concerning the costs and benefits of financial integration. This debate is ongoing.(Kose et al., 2006)

5.2 TYPES OF FINANCIAL MARKETS INTEGRATION :

1. **Horizontal integration:** This occurs when a firm or agency gains control of other firms or agencies performing similar marketing functions at the same level in the marketing sequence. In this type of integration, some marketing agencies combine to form a union with a view to reducing their effective number and the extent of actual competition in the market. It is advantageous for the members who join the group.
2. **Vertical integration:** This occurs when a firm performs more than one activity in the sequence of the marketing process. It is a linking together of two or more functions in the marketing process within a single firm or under a single ownership. This type of integration makes it possible to exercise control over both quality and quantity of the product from the beginning of the production process until the product is ready for the consumer. It reduces the number of middle men in the marketing channel.
    a. **Forward integration:** If a firm assumes another function of marketing which is closer to the consumption function, it is a case of forward integration. Example: wholesaler assuming the function of retailing

b. **Backward integration:** This involves ownership or a combination of sources of suppl. Example: when a processing firm assumes the function of assembling/purchasing the produce from the villages.

3. **Conglomeration:** A combination of agencies or activities not directly related to each other may, when it operates under a unified management, be termed a conglomeration.

15.3 SEGMENT-WISE INTEGRATION :

Integration of the Government Securities Market : The presence of an advanced government protections market is a pre-essential for a market- based money related arrangement and for working with monetary market joining. The public authority protections market is more over expected to foster a homegrown rupee yield bend, which could give a sound benchmark to estimating of protections in different business sectors. The public authority protections market is progressively getting coordinated with other market fragments as is reflected in the nearby co-development of loan fees. As insinuated before, a serious level of relationship between's long haul government security yields and momentary Depository Bills rates as of late shows the importance of the term-design of loan fees in the monetary market. Moreover, the development of 3-month rupee loan cost inferred from the forward premier has too moved generally couple with the 91-day Depository Bills rate, excepting the recovery period of Resurgent India Bond when the forward premia turned negative, inferring a healthy degree of combination of the government protections market with the unfamiliar trade market

Integration of the Credit Market : The combination of the acknowledge market for other currency market fragments has become more articulated as of late. Supported credit interest has prompted more appeal for reserves, applying some strain on liquidity. This was reflected in the downfall in banks' interest in government protections and higher movement in all the currency market portions such as between bank call cash, collateralized getting and loaning commitment (CBLO) and market repo rates. Complete volume in these three business sectors expanded from Rs.16,132 crore in Walk 2005 to Rs.35,024 crore in Walk 2006 and further to Rs.38,484 crore in February2007. Banks additionally turned to expanded issuances in the Discs market to meet their liquidity prerequisites. Remarkable Cds expanded from Rs.12,078 crore in Walk 2005 to Rs.43,568 crore in Walk 2006 and further to Rs.77,971 crore by Walk 2, 2007.

Integration of the Foreign Exchange Market: The level of combination of the unfamiliar trade market with different business sectors is to a not set in stone by the level of transparency. At the foundation of the global money, incorporation through unfamiliar trade market is portrayed with the Buying Influence Equality (PPP) tenet and the three worldwide premium equality conditions, viz., the Covered Revenue Equality (CIP), the Uncovered Revenue Equality (UIP) and the Genuine Premium Equality (Tear). As per the PPP, without limitations on cross boundary developments of labor and products and expecting no exchanges costs, ware costs communicated in any single money ought to be a similar everywhere. As such, the way of the ostensible conversion scale ought to be directed by the advancements in the homegrown costs of labor and products opposite costs of the significant exchanging accomplices. The way of behaving of the Genuine Compelling Swapping scale (REER) could, hence, show whether the ostensible conversion standard moves according to the rule of PPP. The easiest way to deal with test PPP is only a trial of stationarity of the REER, i.e., to see whether deviations from the PPP are impermanent and whether over the long run the REER returns to some mean or harmony, typically the benchmark level at 100, dependent upon a base year.

Stock Market Integration : As insinuated before, the Equity market has moderately low and negative connection with other market fragments. The low connection of the Equity market with risk free instruments is characteristic of more prominent unpredictability of stock returns and the presence of enormous value risk premium. The enormous gamble premium happens when value cost developments can't be justified with standard between worldly streamlining models of macroeconomic essentials like utilization and reserve funds. This could be by virtue of various members in the value and other monetary business sectors. For example, the normal cooperation by banks in the cash, the public authority, the unfamiliar trade and the credit markets guarantees genuinely high connection among these fragments. The openness of banks to the capital market stays restricted by virtue of limitations because of prudential guideline. A significant justification for the flood in value costs could be because of interest supply confuses for value protections.

Integration and Stability of Markets : Financial markets integration process could be smooth or volatile depending on the risks associated with different instruments. When financial integration occurs in a smooth manner, it promotes efficiency in allocation of resources and stability of the financial system. On the contrary, volatility induced integration fuels speculation and undermines competitive price discovery process, with adverse consequences for resource allocation. In the Indian context, empirical evidence shows that growing integration among financial market segments has been accompanied by lower volatility in interest rates

Integration of money markets: According to Cassola et al. (2010) single monetary policy decisions should affect all euro area countries in the same way. Financial and monetary integration have been reinforcing each other, with financial integration fostering the process of monetary union, and monetary union strengthening efforts to increase financial integration (Winkler, 2010). The available evidence (Hartmann et al., 2001; Gaspar et al., 2001 or Perez-Quiros and Mendizabal, 2006) suggests that both the unsecured and secured segments of money markets have reached a high degree of integration. There is not only high level of integration within the euro area money markets recorded, but the speed of convergence is very high as well. A very fast convergence of interest rates was found across the Europe (ECB, 2005a). Likewise, ECB (2010) concludes that the euro area money market has been characterized by a high degree of integration since shortly after the introduction of the euro in 1999.

15.4 INDIA'S INTERNATIONAL FINANCIAL INTEGRATION :

Development of financial markets is required for the purpose of not only realising the hidden saving potential and effective monetary policy, but also for expanding the economy’s role and participation in the process of globalization and regional integration. With growing openness, global factors come to play a greater role in domestic policy formulation, leading to greater financial market integration (Reddy, 2006b). With growing financial globalization, it is important for emerging 4 market economies such as India to develop financial markets to manage the risks ass associated with large capital flows. In a globalized world, the importance of a strong and well-regulated financial sector can hardly be overemphasized to deal with capital flows that can be very large and could reverse very quickly. The Report of the Committee on Fuller Capital Account Convertibility, 2006 (Chairman: Shri S.S. Tara pore) observed that in order to make a move towards the fuller capital account convertibility, it needs to be ensured that different market segments are not only well-developed but also that they are well-integrated.

15.5 MEASURING OF FINANCIAL INTEGRATION :

Various measures exist in the literature for assessing the level of financial integration. The methods which are used most are connected with growing investment opportunities. However, Ho (2009) says that a standard measure of financial integration is difficult to develop. There are many types of financial transactions and some countries impose a complex array of price and quantity controls on a broad assortment of financial transactions. This leads to enormous hurdles in measuring cross-country differences in the nature, intensity and effectiveness of barriers to international capital flows (Eichengreen, 2001).

15.6 INTEGRATION OF FINANCIAL MARKETS IN INDIA :

During the last decade, significant progress was achieved in terms of policy and institutional reforms in the financial sector in India. A question that needs to be addressed is: how far have these initiatives resulted in narrowing the inter market divergences and achieved reasonable degree of the market integration? This paper examines this issue empirically and attempts to provide some evidence on the market integration in India. It found that while the reform process has helped removing institutional bottlenecks to the free flow of capital across various segments of the financial market; this has not yet been translated into complete integration among them.

Since independence the financial sector has been subject to strong government control in India. This period is characterized by government control over all financial institutions and the markets, directed credit programmes, a pre-emption of funds through SLR and CRR, controls over pricing of financial assets, barriers to entry into different sectors, and restrictions on transactions and flows (Bhole, 1999). This resulted in highly segmented and arguably inefficient markets (Chakravarty Committee Report 1985). The secondary market of Government securities was dormant. Both the money and capital markets were underdeveloped. The foreign exchange market was extremely thin, mainly due to stringent restrictions under

Foreign Exchange Regulation Act (FERA). Moreover, the basket-linked exchange rate was administered and the financial markets stood segmented. Although financial sector grew considerably in the regulated environment, it could not achieve the desired level of efficiency.

15.7 CHALLENGES TO FINANCIAL MARKET INTEGRATION :

Most of our respondents were of the view that the legislative and regulatory systems currently governing the financial markets in both the countries are different. There is, therefore, a need for formalizing the memorandum of understanding between the financial regulators concerned on both sides, including the central banks. The cooperation between the corporate sector regulators, e.g. Securities and Exchange Commission of Pakistan also needs to be strengthened.

i. **Lack of Coping Mechanisms for Systemic Risks :** Currently, there is no mechanism in place to handle systemic risks. Legally, Chinese and Pakistani banks should undertake the function of preventing and reconciling systemic risks and maintaining national financial stability at their end. For this, a strengthened cooperation between private and state-owned commercial, investment and intermediary banks is required. Owing to lack of information sharing,

both countries lack systems for measuring, analyzing, warning and controlling systemic risks (in the other countries)

ii. **Banking Supervision ::** Effective banking supervision mechanisms are also needed in Pakistan to prevent any misuse of free flow of money between the two countries. Such measures will also help Pakistan's pursuit to fulfil the requirements desired by Financial Action Task Force (FATF). Pakistan has already put in place legislative mechanisms, e.g. Anti-money Laundering Act 2010.

iii. Joint Financial Guarantee Instruments : There is a vast scope for cooperation in asset and financial insurance sectors in both countries. In particular, the joint projects initiated by both countries should have joint guarantees by both governments and their nominated financial institutions to cover for the investors' interests. Similarly, in the case of hire purchase and leasing, consumer interest guarantees are required so that potential supply chain players in any sector can benefit from deferred payment facilities. This will greatly boost the utilization of China-Pakistan Free Trade Agreement.

iv. **Sharing of Capital Market Risks**: Imperfections in capital markets are also major constraints in the way of financial market integration between China and Pakistan. A respondent said: "strong capital markets require strong contractual compliance, property rights, robust supervision, sound accounting standards and corporate governance, strong financial institutions, a meaningful disclosure regime and independent credit rating agencies".

v. **Portfolio investment in stock markets** : According to respondents, existing stock market flow of capital is at fairly preliminary stages. While Chinese investment has been invited in PSX, however the small size of this exchange can only accommodate limited investment pool, which will remain sensitive to any variations in the regulatory principles.

vi. **Low uptake of currency swap facility :** Both the governments have allowed currency swap facilities. However, the private sector has not made an optimal use of this facility for its large import and export transactions. Greater outreach is required to provide confidence to the large-scale exporters on both sides. For the small and medium enterprises wishing to integrate in China-Pakistan supply chains, there is a need for orientation which can be facilitated through the Chambers of Commerce and Industries on both sides. The Board of Investment in Islamabad may like to establish a web portal to guide traders as to how they can use this facility.

15.8 TYPES OF APPROACHES: 5 DATA INTEGRATION METHODS AND STRATEGIES

Data integration is the process of combining data from different sources to help data managers and executives analyze it and make smarter business decisions. This process involves a person or system locating, retrieving, cleaning, and presenting the data. Data managers and/or analysts can run queries against this merged data to discover business intelligence insights. With so many potential benefits, businesses need to take the time to align their goals with the right **approach.** To get a better understanding of data integration, let's dive into the five types (**sometimes referred to as approaches or techniques**). We'll discuss the pros and cons of each type and when to use each one.

Manual data integration : Manual data integration occurs when a data manager oversees all aspects of the integration usually by writing custom code. That means connecting the

different data sources, collecting the data, and cleaning it, etc., without automation. Some of the benefits are:

Reduced cost : This technique requires little maintenance and typically only integrates a small number of data sources.
Greater freedom : The user has total control over the integration.
Some of the cons are :

- **Less access :** A developer or manager must manually orchestrate each integration.
- **Difficulty scaling :** Scaling for larger projects requires manually changing the code for each integration, and that takes time.
- **Greater room for error :** A manager and/or analyst must handle the data at each stage.

This strategy is best for one-time instances, but it quickly becomes untenable for complex or recurring integrations because it is a very tedious, manual process. Everything from data collection, to cleaning, to presentation is done by hand, and those processes take time and resources.

Middleware data integration: Middleware is software that connects applications and transfers data between them and databases. It's especially handy when a business is integrating stubborn legacy systems with newer ones, as middleware can act as an interpreter between these systems.

a) Some of the benefits are :

i. Better data streaming: The software conducts the integration automatically and in the same way each time.
ii. Easier access between systems: The software is coded to facilitate communication between the systems in a network.

b) Some of the cons are :

i. Less access: The middleware needs to be deployed and maintained by a developer with technical knowledge.
ii. Limited functionality: Middleware can only work with certain systems.

For businesses integrating legacy systems with more modern systems, middleware is ideal, but it's mostly a communications tool and has limited capabilities for data analytics.

Application-based integration : In this approach, software applications do all the work. They locate, retrieve, clean, and integrate data from disparate sources. This compatibility makes it easy for data to move from one source to the other.

a) Some of the benefits include :

i. Simplified processes: One application does all the work automatically.
ii. Easier information exchange: The application allows systems and departments to transfer information seamlessly.
iii. Fewer resources are used: Because much of the process is automated, managers and/or analysts can pursue other projects.

b) Some of the cons include :

i. Limited access: This technique requires special, technical knowledge and a data manager and/or analyst to oversee application deployment and maintenance.

ii. Inconsistent results: The approach is unstandardized and varies from businesses offering this as a service.
iii. Complicated setup: Designing the application(s) to work seamlessly across departments requires developers, managers, and/or analysts with technical knowledge.
iv. Difficult data management: Accessing different systems can lead to compromised data integrity.

Sometimes this approach is called enterprise application integration, because it's common in enterprises working in hybrid cloud environments. These businesses need to work with multiple data sources on-premises and in the cloud. This approach optimizes data and workflows between these environments.

Uniform access integration : This technique accesses data from even more disparate sets and presents it uniformly. It does this while allowing the data to stay in its original location.

a) Some of the advantages are :
i. Lower storage requirements: There is no need to create a separate place to store data.
ii. Easier data access: This approach works well with multiple systems and data sources.
iii. Simplified view of data: This technique creates a uniform appearance of data for the end user.

b) Some of the difficulties are :
i. Data integrity challenges: Accessing so many sources can lead to compromising data integrity.
ii. Strained systems: Data host systems are not usually designed to handle the amount and frequency of data requests in this process.

For businesses needing to access multiple, disparate systems, this is an optimal approach. If the data request isn't too burdensome for the host system, this approach can yield insights without the cost of creating a backup or copy of the data.

Common storage integration : (sometimes referred to as data warehousing): This approach is similar to uniform access, except it involves creating and storing a copy of the data in a data warehouse. This leads to more versatility in the ways businesses can manipulate data, making it one of the most popular forms of data integration.

a) Some of the benefits include :
i. Reduced burden: The host system isn’t constantly handling data queries.
ii. Increased data version management control: Accessing data from one source, versus multiple disparate sources, leads to better data integrity.
iii. Cleaner data appearance: The stored copy of data allows managers and/or analysts to run numerous queries while maintaining uniformity in the data’s appearance.
iv. Enhanced data analytics: Maintaining a stored copy allows manager and/or analysts to run more sophisticated queries without worrying about compromised data integrity.

b) Some of the cons include :
i. Increased storage costs: Creating a copy of the data means finding and paying for a place to store it.
ii. Higher maintenance costs: Orchestrating this approach requires technical experts to set up the integration, oversee, and maintain it.

iii. Common storage is the most sophisticated integration approach. If businesses have the resources, this is almost certainly the best approach, because it allows for the most sophisticated queries. That sophistication can lead to deeper insights.

Which data integration strategy is right for your business?

The race to the cloud has left systems scattered in on-premises, hybrid, and cloud-based environments. Data integration is a smart way to connect these disparate systems so businesses can effectively analyze their data. Deciding which strategy is right for any business means understanding the complexity of the systems that need to integrate. If all you need is to integrate ony a handful of systems, a manual approach may be sufficient. Enterprise businesses, however, will likely need to integrate multiple, disparate systems, which requires a multi-functional integration strategy.

To give you some guidance, we've outlined the best scenario for each approach :

Components of an integrated approach :

i. Understanding the causes and dynamics of conflict and fragility.
ii. Inclusive political settlements and peace processes.
iii. Peaceful dispute resolution and capacities for peace.
iv. Core state functions and public expectations

15.9 FINANCIAL INTEGRATION : ANALYTIC CONSIDERATIONS :

China and India are both being led toward greater KAC as an inevitable by-product of their desire for greater overall integration into the global economy, and as part of their effort to strengthen their domestic systems of financial intermediation and risk mitigation. Yet, unlike the case for trade liberalization, the academic community remains divided in its assessment of the benefits of accelerating KAC. Indeed, in contrast to trade in goods, there even remains confusion as to the definition of KAC. Arguments rage both on the importance (and priority) of KAC for long-term economic growth, as well as the balance between benefits and risks of approaching full KAC. The experience with financial crises in Asia in the late 1990s has clearly checked some of the earlier enthusiasm for a more rapid move toward KAC. In addition, issues of monetary management and autonomy in a world of capital movements have become more pressing. Below we review major arguments in the literature, for and against KAC, before assessing the current status of KAC in India and the relevance of these arguments for India at its present juncture. Several theoretical studies have attempted a rigorous defense of the benefits of financial integration. In a continuous-time stochastic model, Obstfeld (1994) argues that growth depends on the availability of an ever-increasing array of specialized, and hence inherently risky, production inputs and that most countries could reap large steady-state welfare gains through the beneficial effects of consumption from enhanced financial integration and wider risk sharing.

As against this, other analyses, based on a neoclassical growth model with an exogenous capital account regime, find that the potential gains from mitigating inefficiency due to international credit rationing might be quite moderate as compared to the gains from upgrading domestic financial intermediation—for example, by relaxing domestic credit rationing (Gourinchas and Jeanne, 2006). A key argument put forth by the advocates of international financial integration is that there are endogenous productivity gains from capital mobility. It is also argued that the superior efficiency of foreign banks in allocating domestic saving, or the competition they introduce in the domestic financial system, accelerates domestic financial development resulting in efficiency gains in the whole economy (Levine

and Zervos, 1998).Prasad and others (2005) argues that financial globalization with good governance and good macroeconomic policies appears to be conducive for growth. In a more revealing empirical analysis of the relationship between financial openness and industrial growth,Vanassche (2004) finds evidence that financial openness has a positive effect on the growth of industrial sectors, regardless of their characteristics. Moreover, industries that rely relatively more on external finance grow disproportionately faster in countries with more integrated financial systems. The process is enhanced further by improving the functioning of the domestic financial system. In contrast to this benign view of KAC,Rodrik (1998),Panagariya (1998), and Bhagwati (1998) vehemently oppose full capital account convertibility. They argue that financial and goods markets are fundamentally different; also that the irreversibility of KAC enjoins prudence and caution. Panagariya cites research that demonstrates that once a country lives with an open capital account it is impossible to return to effective capital controls because residents and banks are quickly able to devise channels that circumvent the control.Bhagwati (1998) further argues that substantial gains from "full" KAC have been asserted not demonstrated, and that the decision, once taken, is irreversible.

It may be remarked that these arguments are very much in the spirit of the founders of the IMF, notably Keynes, who felt that free capital movements were at best irrelevant and at worst harmful for liberal trade. It might also be noted that many developing countries (particularly India) were initially hostile to all forms of international engagement and that attitudes first to liberal trade and then to liberal direct investment have changed only slowly. The underlying mechanism by which liberalization of trade and foreign direct investments affects productivity is through increased competitive pressure. The issue is whether these gains are further enhanced by increasing the competitive pressure on the financial system, and, if so, at what cost and risk. It is now abundantly clear that there are tight links between the growth of trade and exposure to foreign direct investment (FDI). Countries attracting a larger share of FDI are also likely to have a higher export percentage of GDP (Figure 7.1). Although the direction of causality is not clear, higher exports are typically associated with faster growth of productivity. As the Chinese experience itself suggests, though, it is possible, at least for a while, to attract substantial volumes of FDI without full financial liberalization, although few would hold up China as a model of efficient capital allocation.

15.9 SUMMARY :

Integrated financial markets are a key element in the transmission process and hence for the smooth conduct of monetary policy. Financial integration also leads to a better diversification of risks and makes a positive contribution to financial stability by improving the capacity of economies to absorb shocks. On the other hand, fully integrated financial markets also pave the way for shocks to propagate more quickly among market participants, which could necessitate appropriate safeguards. To mitigate the risks and maximise benefits from financial integration, it is imperative that the financial markets are developed further. Enhanced co-operation among various regulatory authorities is also important for ensuring effective corrective action in an increasingly integrated environment. Further, it is necessary to establish further linkages amongst the various components of financial infrastructure – the trading, payment, clearing, settlement and custodian systems. Finally, it must be recognized that fostering financial integration has important implications for reforming the international financial system. Despite the heavy economics and social costs inflicted by the financial crises of the late 1990s, the world still lacks clear rules for dealing with, and preventing the occurrence of, such crises. In particular, there is neither a proper lender of last resort, nor effective standstills on unserviceable debt. How to create such mechanisms or institutions without exacerbating moral hazard remains a matter of considerable debate.

15.10 KEY WORDS :

Market integration, Financial deepness, Institutional reform, Capital Market

- **Financial integration:** The financial fragmentation experienced at the start of the pandemic was short-lived, mainly due to fiscal and monetary support. After being brought back to pre-pandemic levels, financial integration continued to increase, but still needs monitoring.
- **Non-banks :** The trend towards non-banks continues, with an especially strong growth of investment and equity funds
- **Capital markets :** The pandemic shock renewed the need for better-integrated capital markets to promote cross-border risk sharing.
- **Manual data integration**: Data managers must manually conduct all phases of the integration, from retrieval to presentation.
- **Middleware data integration**: Middleware, a type of software, facilitates communication between legacy systems and updated ones to expedite integration.
- **Application-based integration**: Software applications locate, retrieve, and integrate data by making data from different sources and systems compatible with one another.
- **Uniform access integration:** A technique that retrieves and uniformly displays data, but leaves it in its original source.
- **Common storage integration**: An approach that retrieves and uniformly displays the data, but also makes a copy of the data and stores it.

15.11 SELF ASSESSMENT QUESTIONS :

1. What is market integration with example?
2. What is the relationship between financial markets and financial institutions?
3. Write about types of market integration?
4. What are the types of integration approach?
5. Explain segment wise integration
6. Benefits and Risks of Financial Integration

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LESSON - 16

ROLE OF FINANCIAL INTERMEDIARIES; FINANCIAL SWAPS

OBJECTIVES :

After studying this lesson you should be able to :

- Types of Financial Intermediary
- Role of Financial Intermediary
- Advantages and Disadvantages
- Functions of Financial Intermediary
- Learn about Financial swaps.

STRUCTURE :

16.1 INTRODUCTION :

Financial intermediaries at the center of the financial system perform the function of reallocating the surplus resources of household units to other economic units with funding needs. Savers wants to lend on short term and borrowers want to borrow on long term. Financial intermediaries have emerged from the traditional banking to more sophisticated intermediaries such as investment banks, pension funds, venture capital funds, mutual funds and hedge funds due the market imperfection and information asymmetry. There are various types of financial intermediaries, such as banks, credit unions, insurance companies, mutual fund companies, stock exchanges, building societies, etc. Banks provide well-known financial services to invest and borrow funds seamlessly.

Financial Intermediary Definition : A financial intermediary refers to a third-party, forming environment for conducting financial transactions between different parties. For example, the banks accepting deposits from customers and lending them to the customers who need money exemplifies the basic financial intermediation process.

The financial intermediation process is not restricted to third-party connecting lenders and borrowers. They significantly manage financial assets and liabilities to prevent financial crises. Furthermore, they are liable to strictly adhere to guidelines or regulatory policies set by authorized agencies like the Federal Reserve Board (FRB) and the Securities and Exchange Commission (SEC) if it is in the United States.

Important points Financial intermediary refers to the financial entities acting as intermediaries to conduct their clients' financial transactions. It connects entities with surplus funds and deficit funds. Intermediaries protect customers' deposits, stimulate money flow in the economy and subsequent economic development. They can be banking or non-banking institutes owned by the government or private entities. Furthermore, they are also discerned as primary and secondary intermediaries. Examples include commercial banks, NBFCs or non-banking financial companies, mutual fund companies, insurance companies, factoring companies, financial advisors, credit unions, and stock exchanges.

16.2 TYPES OF FINANCIAL INTERMEDIARY :

Let's briefly describe some financial intermediary examples like banks, insurance companies, stock exchanges, mutual fund companies, and credit unions. Source: Financial Intermediary (wallstreetmojo.com)

i. **Banks:** Banks primarily utilize the deposits made by clients to support other eligible clients in need. The interest earned for providing loans serves as income for the banks. Banks also offer several other services like forex services, insurance for deposits, and credit cards. Currently, there are a total of 34 nationalized banks in India of which 12 are Indian government banks and the rest 22 are private sector banks. Below is a list of all banks in India. HDFC Bank. HDFC Bank is the top bank in India with a market cap of ₹8.78 lakh crore. At present, there are 12 public sector banks in India. While the bank's shareholders hold the majority of stakes in private sector banks, the majority in public sector banks are held by the government. At present, there are 21 private sector banks in India. The Reserve Bank of India was established following the Reserve Bank of India Act of 1934. Though privately owned initially, it was nationalised in 1949 and since then fully owned by the Ministry of Finance, Government of India (GoI).

ii. **Insurance companies**: Insurance companies provide various insurance policies like life insurance, home insurance, and liability insurance designed to give financial protection to the customers. They deal with different entities like brokers and agents for completing the transactions. It pools policy holders' premiums and invests them in various investment vehicles like bonds and other money market instruments. Moreover, this way, they make a huge profit and pay claims and other liabilities without incurring massive losses even if the payouts are large. Theincome from their investments ensures that the insurance company is cushioned against this. The Insurance sector in India consists of total 57 insurance companies. Out of which 24 companies are the life insurance providers and the remaining 33 are non-life insurers. Out which there are seven public sector companies. Different Types of Insurance Policies Available in India- Health Insurance. Motor Insurance. Home Insurance. Fire Insurance. Travel Insurance.

iii. **Stock exchanges**: The stock exchange reflects a marketplace where buyers and sellers engage in trading financial instruments like stocks and derivatives. It connects companies that need funding and investors who have excess funds to invest as an intermediary. Even with a small amount of money, one can have an ownership interest in a blue-chip company which may have otherwise been impossible.

iv. There are 23 stock exchanges in India. Among them, two are national-level stock exchanges namely Bombay Stock exchange (BSE) and National Stock Exchange (NSE). The rest 21 are Regional Stock Exchanges (RSEs). What are the 8 active stock exchange in India? Bombay Stock Exchange Limited (BSE) ... National Stock Exchange of India (NSE) ...India International Exchange (INDIA INX) ...National Stock Exchange IFSC Limited (NSE IFSC) ...Multi Commodity Exchange of India

(MCX) ...National Commodity and Derivates Exchange (NCDEX) ...Indian Commodity Exchange Limited (ICEX).

v. **Mutual fund companies**: Generally, fund managers in mutual fund companies invest the money collected from retail investors in different financial assets and distribute the return to the retail investors proportional to their investment. Based on the client preferences and investment fund managers focusing on growing the investigator wealth, select appropriate securities and compile them to form the portfolio. There are 44 asset management companies (AMCs) or mutual fund houses operating in India. These companies manage the investments of investors to fetch them optimal returns. Mutual fund companies help clients with investment management. Top Fund houses: SBI Mutual Fund.-Axis Mutual Fund. HDFC Mutual Fund. Nippon India Mutual Fund. ICICI Prudential Mutual Fund. All Mutual Fund Companies.

vi. **Credit unions**: Credit unions are usually non-profit entities owned by their members. It functions similar to banks; however, they offer better savings rates and reduced borrowing costs, that is, loans at competitive rates. Requirements for Membership: Originally, membership in a credit union was limited to people who shared a "common bond": working in the same industry or for the same company, or living in the same community. In the recent past, credit unions have loosened the restrictions on membership, allowing the general public to join. To do any business with a credit union, you must join it by opening an account there (often for a nominal amount). As soon as you do, you become a member and partial owner. That means you participate in the union's affairs; you have a vote in determining the board of directors and decisions surrounding the union. A member's voting ability is not based on how much money is in their account; each member gets an equal vote.

vii. **Savings banks.:** savings bank, financial institution that gathers savings, paying interest or dividends to savers. It channels the savings of individuals who wish to consume less than their incomes to borrowers who wish to spend more. A savings bank account earns low interest rate but allows the customer the freedom to withdraw funds at any time subject to a limit on monthly withdrawals. It is possible to pay bills from your savings account. Banks also send transaction alerts to their customers via SMSand email as a part of SMS banking services. The options include traditional savings accounts, high-yield savings accounts, money market accounts, certificates of deposit, cash management accounts and specialty savings accounts.

viii. Overview of the Top Savings Bank Accounts of 2023: 1) State Bank of India (SBI) Savings Account. 2) HDFC Bank Savings Account. 3) Kotak Mahindra Bank Savings Account. 4) DCB Bank Savings Account. 5) RBL Bank Savings Account. 6) IndusInd Bank Savings Account. 7) ICICI Savings Bank Account. 8) Axis Bank Savings Account.

ix. **Building societies**: A building society is a type of financial institution that provides banking and other financial services to its members. Building societies resemble credit unions in the U.S. in that they are owned entirely by their members. When building societies first started back in the 18th century they were created by groups of people who wanted to help each other buy property. Members would pay monthly subscriptions to a central pool of funds and this would then be used to build houses for the members. Building societies offer many of the same products and services as banks, but with a focus on savings, and lending for mortgages and loans. However, building societies aren't just there to turn a profit – they're there to help people achieve their life goals. Building societies offer banking and related financial services, especially savings and mortgage lending. Building societies exist in the United

Kingdom, Australia and New Zealand, and used to exist in Ireland and several Commonwealth countries.

x. **Financial advisers or brokers:** An advisor can be anyone who gives advice. You can consider your close friends advisors if you rely on their advice for big decisions. But the word is most commonly used to refer to formal or professional relationships. Common names for investment advisers include asset managers, investment counselors, investment managers, portfolio managers and wealth managers. Investment adviser representatives are individuals who work for and give advice on behalf of registered investment advisers. As an employee relations advisor, your duties are to assist other human resources professionals and managers to provide all employees at your company with clear explanations of company guidelines, procedures, and policies and run training programs.

The terms “financial advisor” and “broker” are both commonly used in the financial services industry. While some people use the terms interchangeably, they actually describe two very different kinds of financial professionals. Before online trading, accessing a broker was traditionally a luxury reserved for the rich. Individual investors had very little or no direct access to the market and had to place their orders through a licensed broker (usually by phone). In return, brokers charged very high commissions. However, the advent of web-based discount brokerages has changed the job of the broker.

Now, individuals who wish to trade on the stock market no longer require a broker on standby to execute their buy and sell orders and can have direct access online for zero commissions. Although brokers still execute orders, many have expanded their services to personalized investment management to justify charging higher commissions. These days, it’s not uncommon to see brokers dual-registered as investment advisers. Brokers may also be involved heavily as part of a sales team in private placements, initial public offerings (IPOs), or secondary issuances. Working alongside their firm's corporate finance departments, brokers may work to sell their clients on a hot new issuance or private deal to help a company raise capital. In return, the broker may receive a commission, shares, or warrants in the issuing company.

Collective investment schemes: Under the Securities Laws (Amendment) Act 2014, when a corpus amount of Rs 100 crore or more is gathered from investors, it is referred to as a Collective Investment Scheme. The Collective Investment Scheme is an important topic for the UPSC IAS Exam. What is a Collective Investment Scheme? Collective Investment Schemes are more frequently known as 'investment funds', 'mutual funds' or simply 'funds'. They invest in assets, such as bonds, equities or cash. The collective assets owned by the fund are called a portfolio, and they are managed by a professional fund manager. Examples of collective investment include investment trusts, units trusts or OEICs. The official structure of the collective investment depends on which type it is. There are three legal forms of authorised CIS: authorised unit trusts (AUTs) and investment companies with variable capital (ICVCs), which are sometimes referred to as open-ended investment companies (OEICs), and authorised contractual schemes (ACS). Section 11AA (2) of the Securities and Exchange Board of India (SEBI) Act, 1992 states that any scheme or arrangement made or offered by any company under which the contributions or payments made by investors are pooled together with the objective of receiving income, profits, produce or property and is managed on .

16.3 ROLE OF FINANCIAL INTERMEDIARY :

Financial intermediaries function basically by connecting an entity with a surplus fund to a deficit fund. They ease the money flow in the economy and support economic growth. Based

on the type of services and products offered by the intermediaries, the complexity in their roles changes. They take the form of channel providing loans, mortgages, investment vehicles, leasing, and insurances, etc. Some of the significant roles of intermediaries include: Link households to the financial market, They safeguard customers' hard-earned money, Financial advisory services, provide financial information, and engage in credit rating, Reducing the cost of business by offering economies of scale to business ownersIt helps corporations optimize the capital structure by obtaining an appropriate mix of equity and debt, Stimulate economic development

- Financial intermediaries bring two parties together through their activities: usually buyers and sellers. They create a central intermediary platform that enables both parties to conduct their financial transactions there quickly and easily. This creates efficiency and saves costs on both sides.
- Depending on the industry in which financial intermediaries operate, they offer different services to their clients. While a commercial bank manages its clients' money and offers all services around financing and payment services, a private credit company only offers lending but does not manage accounts or cash.
- A company that offers pension funds receives money from contributing customers, some of which is invested and used to cover costs, and some of which is paid out to current pensioners.

How do financial intermediaries finance themselves? :

Like any other business, financial intermediaries need a functioning business model with which they can make profits and grow.

a) **Banks as financial intermediaries:** Banks earn money, for example, by offering their services in exchange for fees, receiving interest payments from loans, or getting a commission for selling a financial product. A commercial bank mainly generates profit by granting loans and the associated interest payments on the part of the borrowers. Investment banks, on the other hand, have a stronger focus on the investment business, where profit maximisation is paramount. This is achieved by investing in stock market products, real estate, commodities and other assets.
b) **Financial intermediaries in capital market:** Financial intermediaries active in the capital market are, for example, brokers. They provide investors with suitable stock market products, e.g. shares of a certain company. A fee is due for this brokerage, which the investor has to pay. In the meantime, however, there are also brokers who rely exclusively on direct trading on electronic exchanges. These brokers are in many cases fintech companies that want to offer their customers low-cost access to stock exchange products. They finance themselves through commissions they receive from the electronic exchanges for brokering securities.

16.4. ADVANTAGES OF FINANCIAL INTERMEDIATION :

The biggest advantage of financial intermediaries is that they create a central market where financial transactions can be conducted. By scaling financial intermediaries appropriately, bureaucracy is kept to a minimum and experts take care of advising clients and processing transactions. This in turn is cost-efficient for the clients. Another advantage is that large financial intermediaries can spread their risks very widely by investing the money or premiums paid in by their clients in a variety of financial products. This also reduces the risk for the clients. In addition, it is easier for clients to make use of special financial services, because with the financial intermediary they have a contact person who can point out solutions. Business intermediation offers myriad benefits to all parties involved. When using a financial intermediary, savers can make larger investments by pooling funds together. At

the same time, businesses gain access to a broader pool of investors. Here are some additional advantages provided by business intermediation:

- **Reduced costs:** By growing economies of scale, costs are kept lower for start-up businesses or borrowers. Operational costs, paperwork, and credit analysis are all handled at scale.
- **Reduced risk**: Funds are spread across a diverse range of investment types. A diversified portfolio spreads out the risk of capital loss.
- **Reduced fraud:** Intermediaries also reduce the risk of fraudulent behaviour as they have additional security measures in place.
- **Convenience:** Rather than spending time on research, investors are connected with borrowers via a third party who does all the work.
- **Greater liquidity**: Financial intermediaries have the assets in place to allow for greater asset liquidity. Borrowers can withdraw funds as needed.

16.5 DISADVANTAGES OF FINANCIAL INTERMEDIATION :

The biggest disadvantage of financial intermediaries is that they pursue their own interests. This means that they mainly recommend products that they either offer themselves or receive a commission from other providers. Clients therefore avoid a bad investment by comparing similar offers from different financial intermediaries. Another disadvantage is that fees are charged for the services of the financial intermediary, since the latter ultimately has to cover its own costs and wants to make a profit. For this reason, some financial transactions in which buyers and sellers come into direct contact with each other are more cost-effective, e.g. direct trading on the stock exchange. However, there are also a few disadvantages to financial intermediaries. Here are some of the potential drawbacks to be aware of:

- **Lower investment returns**: Because the intermediary has its own financial interests, the returns are not as high as they would be without the middleman. Additional commission fees or expenses may be charged.
- **Mismatched goals:** A financial intermediary may not be working as an impartial third party. They may offer investment opportunities that come with hidden risk or that don't align with an investor's best interests.

16.6 FUNCTIONS FINANCIAL INTERMEDIARIES IN THE DEVELOPMENT OF AN ECONOMY :

Financial intermediaries facilitate and foster economic growth and development of a nation. They provide the needed funds to boast productive activities, which increase aggregate output and enhance economic growth. Transferring savings from the surplus economic unit (i.e. those who ultimately use them for investments or consumption) helps to stimulate the economy for wealth creation. Financial intermediaries vigorously seek to attract surplus funds or reservoir of idle funds to channel same to households, business/entrepreneurs and government for investment purposes.

The developmental functions are discussed specifically below :

a) **Maturity Intermediation**: Maturity Intermediation involves satisfying the borrowers need for long term funds as well as the lenders need for liquidity. Financial intermediaries also provide market for the sales of second-hand securities for investors that invested in long-term securities (such as equity shares and bonds) who may want liquidity.
b) **Liquidity Intermediation:** Financial intermediaries despite the short duration of savings and the long-term nature of the loans granted, banks still ensure liquidity to meet customers request on demand.

c) **Size/Denomination Intermediation**: Financial intermediaries accept both small and large deposits from customers and loan it to investors for investment purposes.
d) **Risk Intermediation**: Financial intermediation accept deposits with different risk elements to form a portfolio of loanable funds for investors. By making the loan available to diverse borrowers of various sizes, the lending risks are minimized.

16.7 FINANCIAL SWAPS :

A swap is an agreement between two parties, called counterparties, who exchange sets of cash flows over a period of time in the future. When exchange rates and interest rates fluctuate, risks of forward and money market positions are so great that the forward market and the money market may not function properly. Currency futures and options are inflexible and available only for selected currencies. In such cases, multinational companies (MNCs) and governments may use swap arrangements to protect the value of export sales, import orders, and outstanding loans denominated in foreign currencies.

Financial swaps are now used by MNCs, commercial banks, world organizations, and sovereign governments to minimize currency and interest rate risks. These swaps compete with other exchange risk management tools, such as currency forwards, futures, and options, but they also complement these other instruments. Interest Rate Swap

Interest Rate Swaps In an interest rate swap, the parties exchange cash flows based on a notional principal amount (this amount is not actually exchanged)in order to hedge against interest rate risk or to speculate. For example, imagine ABC Co. has just issued $1 million in five-year bonds with a variable annual interest rate defined as the London Interbank Offered Rate (LIBOR) plus 1.3% (or 130 basis points). Also, assume that LIBOR is at 2.5% and ABC management is anxious about an interest rate rise.

The management team finds another company, XYZ Inc., that is willing to pay ABC an annual rate of LIBOR plus 1.3% on a notional principal of $1 million for five years. In other words, XYZ will fund ABC's interest payments on its latest bond issue. In exchange, ABC pays XYZ a fixed annual rate of 5% on a notional value of $1 million for five years. ABC benefits from the swap if rates rise significantly over the next five years. XYZ benefits if rates fall, stay flat, or rise only gradually.

TYPES OF SWAPS :

Modern financial markets employ a wide selection of such derivatives, suitable for different purposes. The most popular types include:

I. **Interest rate swap**: An Interest Rate Swap (IRS) is a financial contract between two parties exchanging or swapping a stream of interest payments for a `notional principal' amount on multiple occasions during a specified period. Such contracts generally involve exchange of a `fixed to floating' or `floating to floating' rates of interest. Counter parties agree to exchange one stream of future interest payments for another, based on a predetermined notional principal amount. Generally, interest rate swaps involve the exchange of a fixed interest rate for a floating interest rate. An interest rate swap is a contractual arrangement be- tween two parties, often referred to as “counterparties”. As shown in Figure 1, the counterparties (in this example, a financial institution and an issuer) agree to exchange payments based on a defined principal amount, for a fixed period of time. Types of Interest Rate Swaps: There are three different types of interest rate swaps: Fixed-to-floating, floating-to-fixed, and float-to-float.

a) **Fixed-to-Floating :** For example, consider a company named TSI that can issue a bond at a very attractive fixed interest rate to its investors. The company's management feels that it can get a better cash flow from a floating rate. In this case, TSI can enter into a swap with a counterparty bank in which the company receives a fixed rate and pays a floating rate. The swap is structured to match the maturity and cash flow of the fixed-rate bond, and the two fixed-rate payment streams are netted. TSI and the bank choose the preferred floating-rate index, which is usually the London Interbank Offered Rate (LIBOR) for a one-, three-, or six-month maturity. TSI then receives the LIBOR plus or minus a spread that reflects both interest rate conditions in the market and its credit rating. The Intercontinental Exchange, the authority responsible for LIBOR, will stop publishing one-week and two-month USD LIBOR after Dec. 31, 2021. All other LIBOR will be discontinued after June 30, 2023.

b) **Floating-to-Fixed:** A company that does not have access to a fixed-rate loan may borrow at a floating rate and enter into a swap to achieve a fixed rate. The floating-rate tenor, reset, and payment dates on the loan are mirrored on the swap and netted. The fixed-rate leg of the swap becomes the company's borrowing rate.

c) **Float-to-Float:** Companies sometimes enter into a swap to change the type or tenor of the floating rate index that they pay; this is known as a basis swap. A company can swap from three-month LIBOR to six-month LIBOR, for example, because the rate either is more attractive or matches other payment flows. A company can also switch to a different index, such as the federal funds rate, commercial paper, or the Treasury bill rate.

d) **Real-World Example of an Interest Rate Swap:** Suppose that PepsiCo needs to raise $75 million to acquire a competitor. In the United States, they may be able to borrow the money with a 3.5% interest rate, but outside of the U.S., they may be able to borrow at just 3.2%. The catch is that they would need to issue the bond in a foreign currency, which is subject to fluctuation based on the home country's interest rates. PepsiCo could enter into an interest rate swap for the duration of the bond. Under the terms of the agreement, PepsiCo would pay the counterparty a 3.2% interest rate over the life of the bond. The company would then swap $75 million for the agreed-upon exchange rate when the bond matures and avoid any exposure to exchange-rate fluctuations.

II. **Currency swap**: Counter parties exchange the principal amount and interest payments denominated in different currencies. These contracts swaps are often used to hedge another investment position against currency exchange rate fluctuations. In a currency swap, the parties exchange interest and principal payments on debt denominated in different currencies. Unlike an interest rate swap, the principal is not a notional amount, but it is exchanged along with interest obligations. Currency swaps can take place between countries. For example, China has used swaps with Argentina, helping the latter stabilize its foreign reserves.2 The U.S. Federal Reserve engaged in an aggressive swap strategy with European central banks during the 2010 European financial crisis to stabilize the euro, which was falling in value due to the Greek debt crisis. There are three stages which form part of the currency swap. It includes spot exchange of the principal, Continuing exchange of the payment of the interest during the swap terms, and Re-exchange of the principal amount on the date of maturity.

In a currency swap, or FX swap, the counterparties exchange given amounts in the two currencies. For example, one party might receive 100 million British pounds (GBP), while the other receives $125 million. This implies a GBP/USD exchange rate of 1.25.

III. **Commodity swap**: These derivatives are designed to exchange floating cash flows that are based on a commodity's spot price for fixed cash flows determined by a pre-agreed price of a commodity. Despite its name, commodity swaps do not involve the exchange of the actual commodity. Commodity Swaps: Commodity swaps involve the exchange of a floating commodity price, such as the Brent Crude oil spot price, for a set price over an agreed-upon period. As this example suggests, commodity swaps most commonly involve crude oil. There are two types of commodity swaps: fixed-floating and commodity-for-interest. A commodity swap is a type of derivative contract where two parties agree to exchange cash flows dependent on the price of an underlying commodity. A commodity swap is usually used to hedge against price swings in the market for a commodity, such as oil and livestock. A commodity swap is a kind of derivative contract wherein two parties agree to swap cash flows depending on the cost of an underlying commodity. A commodity swap is typically used to protect against price fluctuations in the market concerning a commodity, such as livestock and oil.

Commodity Swap – Worked Example : Let us now work through an example. An airline has entered into a contract to pay a fixed rate of $5.00/gallon for a proportion of its fuel needs. If at the payment period, the price of fuel is $5.20/gallon, how much has the airline saved, given the contract is for 200,000 gallons of fuel? Here we see that the airline company wants to pay a fixed rate of $5.00 per gallon of fuel. At this point in time, the difference would be $5.20/gallon – $5.00/gallon = $0.20/gallon. In total, the other party would pay the airline company 200,000 gallons x $0.20/gallon = $40,000 This $40,000 would offset the increase in the price of fuel paid by the airline. If the airline had to pay $5.20/gallon for 200,000 gallons of fuel, this would cost them $1,040,000. However, due to the swap contract the net amount is: $1,040,000 – $40,000 = $1,000,000. If the price had been $5.00/gallon, the airline company would have paid $5.00/gallon x 200,000 gallons = $1,000,000. We can see that through the swap contract, the airline company is able to ensure a price of $5.00 per gallon for the specified 200,000 gallons of fuel.

IV. **Credit default swap**: A CDS provides insurance from the default of a debt instrument. The buyer of a swap transfers to the seller the premium payments. In case the asset defaults, the seller will reimburse the buyer the face value of the defaulted asset, while the asset will be transferred from the buyer to the seller. Credit default swaps became somewhat notorious due to their impact on the 2008 Global Financial Crisis. Credit default swaps were widely used during the European sovereign debt crisis. For example, investors purchased Greece's sovereign debt through sovereign bonds to help the country raise money. They also purchased CDSs to protect their capital in case the country defaulted.

When Are CDSs Used? As an insurance policy against a credit event on an underlying asset, credit default swaps are used in several ways.

- ***Speculation:*** Because swaps are traded, they naturally have fluctuating market values that a CDS trader can profit from. Investors buy and sell CDSs from each other, attempting to profit from the difference in prices.
- ***Hedging:*** A credit default swap by itself is a form of hedging. A bank might purchase a CDS to hedge against the risk of the borrower defaulting. Insurance companies, pension funds, and other securities holders can purchase CDSs to hedge credit risk.
- ***Arbitrage:*** Arbitrage generally involves purchasing a security in one market and selling it in another. CDSs can be used in arbitrage—an investor can purchase a

bond in one market, then buy a CDS on the same reference entity on the CDS market.

- ❖ **Other Swaps** :The instruments exchanged in a swap do not have to be interest payments. Countless varieties of exotic swap agreements exist, but relatively common arrangements include commodity swaps, currency swaps, debt swaps, and total return swaps.

V. Debt-Equity Swaps: A debt-equity swap involves the exchange of debt for equityin the case of a publicly-traded company, this would mean bonds for stocks. It is a way for companies to refinance their debt or reallocate their capital structure.

Debt/Equity Swap Implications: When more stock is issued, this dilutes current shareholders. This typically has a dampening effect on share price because what the company earns is now spread out among more shareholders. While in theory a company could issue stock to avoid debt payments, if the company is in financial trouble, the move would likely hurt the share price even more. Not only does the swap dilute shareholders, but it shows how cash-strapped the company is. On the flip side, with less debt and now more cash on hand the company may be in a better position. Issuing more debt means larger interest expenses. Since debt can be relatively cheap, this may be a viable option instead of diluting shareholders. A certain amount of debt is good, as it acts as internal leverage for shareholders. Too much debt is a problem though, as escalating interest payments could hurt the company if revenues start to slip. With there being pros and cons to issuing both debt and equity in different situations, swaps are sometimes necessary to keep the company in balance so they can hopefully achieve long-term success.

VI. Total Return Swaps: In a total return swap, the total return from an asset is exchanged for a fixed interest rate. This gives the party paying the fixed-rate exposure to the underlying asset—a stock or an index. For example, an investor could pay a fixed rate to one party in return for the capital appreciation plus dividend payments of a pool of stocks. total return swap is a contract using which two entities agree to exchange the returns on an asset. The contract sets a rate that the receiving entity needs to pay to the asset owner in exchange for the returns from the asset. For example, a hedge fund may enter into a TRS agreement with a bank to hedge its exposure to the credit risk of a bond issued by a company. By entering into a total return swap, the hedge fund can transfer the credit risk to the bank and receive a fixed or floating rate instead.

Differences Between Foreign Exchange Swaps and Total Return Swaps: While both foreign exchange swaps and total return swaps are types of derivatives, there are some key differences between the two.

i. Underlying Asset: Foreign exchange swaps involve the exchange of two different currency denominations, while total return swaps involve the exchange of the total return of an underlying asset.
ii. Hedging vs. Speculation: Foreign exchange swaps are typically used to hedge against currency risk, while total return swaps are typically used to speculate on the performance of an underlying asset.
iii. Fixed Rate of Return: In a total return swap, one party agrees to pay a fixed rate of return to the other party, regardless of the performance of the underlying asset.

These are just a few of the key differences between foreign exchange swaps and total return swaps. As you can see, each type of swap has its own unique purpose and use case. So, before entering into any type of swap agreement, it's important to understand the difference between the two and what you're trying to achieve.

Credit Default Swap (CDS) : A credit default swap (CDS) consists of an agreement by one party to pay the lost principal and interest of a loan to the CDS buyer if a borrower defaults on a loan. Excessive leverage and poor risk management in the CDS market were contributing causes of the 2008 financial crisis. A credit default swap (CDS) is a financial swap arrangement in which the buyer is compensated by the seller in the event of a debt default (by the debtor) or another credit event.

A credit event is a trigger in the CDS market that triggers the protection buyer to terminate and settle the contract. Credit default swap (CDS) is an over-the-counter (OTC) agreement between two parties to transfer the credit exposure of fixed income securities; CDS is the most widely used credit derivative instrument. A single-name CDS references only one security and the credit risk to be transferred in the swap may be very large. In contrast, a synthetic CDO references a portfolio of securities and is sliced into various tranches of risk, with progressively higher levels of risk.

Applications of Swaps: Nowadays, swaps are an essential part of modern finance. They can be used in the following ways:

1. **Risk hedging**: One of the primary functions of swaps is the hedging of risks. For example, interest rate swaps can hedge against interest rate fluctuations, and currency swaps are used to hedge against currency exchange rate fluctuations.
2. **Access to new markets**: Companies can use swaps as a tool for accessing previously unavailable markets. For example, a US company can opt to enter into a currency swap with a British company to access the more attractive dollar-to-pound exchange rate, because the UK-based firm can borrow domestically at a lower rate.

Improving Application Performance through Swap Compression :

There are many applications that use large amounts of memory. These large applications take advantage of the swapping mechanism to run on the system as the available physical memory is not enough for them to run. The same problem appears when we try to run, on a laptop, the same applications we run on a desktop computer. These applications will relay on the swapping mechanism as laptop computers usually have less physical memory than desktop ones.

Finally, multi-user environments tend to be very loaded and their applications have to swap out part of their memory so that all applications can run concurrently. In all these cases, the performance of the applications is much lower than the one they would achieve if no swapping was needed. This happens because the swapping mechanism has to access the disk to keep the pages that do not fit in memory. It is clear that these applications, and the whole system, would benefit from a faster swapping system.

If we examine the same problem from a different point of view, we observe that increasing the number of pages that fit in the swap space without increasing the number of blocks in the swap partition would also be quite beneficial.

We could run the same applications on a laptop than on a desktop system. Remember that laptops also have smaller disks if compared to desktop ones. This increase in swap space would also help multi-user systems to avoid getting out of memory. Finally, out-of-core applications could be programmed more easily as the global-memory restriction would not be so important.

Now a days it is quite normal to continue the office work at home. This usually means the use of large applications on a Linux box. These large applications fit well in the office machines but are too large to run efficiently on a smaller Linux box. In these cases, a fast

swapping mechanism would be very beneficial as those applications would run faster and working at home would be less "painful". Furthermore, increasing the swap space at no cost would allow these kind of users to run applications that would normally not fit in their home machines.

These performance and space problems have motivated this work and its objectives. The first, and most important, objective is to speedup the swap mechanism. This will increase the performance of the applications that, for whatever reason, have to keep part of their memory in the swap space. It is also an objective of this paper to increase the size of the memory offered to the applications without increasing the number of disk blocks in the swap partition. It is important to notice that should these two objectives be in conflict, we will favor performance over capacity. Finally, we want to achieve both improvements with the minimum number of changes in the original Linux kernel.

The main idea used to accomplish both objectives consists of compressing the pages that have to be swapped out. This will increase the number of pages that can be placed in the swap partition. Furthermore, it will also allow us to build a cache of compressed pages that will decrease the number of times the system has to access the swap device. It is important to notice that previous studies show that good compression ratios can be achieved when compressing memory pages.

The idea we present in this paper is similar, in essence, to the one proposed by Douglis, but some improvements and modifications have been done (see Section 5. We believe that now is a good time to reevaluate the results obtained in this previous work as the technology has improved significantly which means that compressing and decompressing pages can be done much more efficiently.

16.8 SUMMARY :

As we have seen, financial intermediaries have a key role to play in the world economy today. They are the “lubricants” that keep the economy going. Due to the increased complexity of financial transactions, it becomes imperative for the financial intermediaries to keep re-inventing themselves and cater to the diverse portfolios and needs of the investors.

The financial intermediaries have a significant responsibility towards the borrowers as well as the lenders. The very term intermediary would suggest that these institutions are pivotal to the working of the economy and they along with the monetary authorities have to ensure that credit reaches to the needy without jeopardizing the interests of the investors. This is one of the main challenges before them.

Financial intermediaries have a central role to play in a market economy where efficient allocation of resources is the responsibility of the market mechanism. In these days of increased complexity of the financial system, banks and other financial intermediaries have to come up with new and innovative products and services to cater to the diverse needs of the borrowers and lenders. It is the right mix of financial products along with the need for reducing systemic risk that determines the efficacy of a financial intermediary.

Swaps Summary : A financial swap is a derivative contract where one party exchanges or "swaps" the cash flows or value of one asset for another. For example, a company paying a variable rate of interest may swap its interest payments with another company that will then pay the first company a fixed rate. Swaps can also be used to exchange other kinds of value or risk like the potential for a credit default in a bond.

16.9 KEY WORDS :

1. Financial intermediaries; Financial market; Banking
2. Liability Swap : A liability swap is a financial derivative in which two parties exchange debt-related interest rates, usually a fixed rate for a floating rate.
3. swap : A swap is an agreement between two parties to exchange sequences of cash flows for a set period of time.

16.10 SELF ASSESSMENT QUESTIONS :

1. What are the examples of financial intermediaries?
2. Is bank a financial intermediary?
3. What are financial intermediaries and their roles?

16.11 FURTHER READINGS :

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LESSON - 17

INTERNATIONAL DEBT

LEARNING OBJECTIVES :

After studying this chapter, you should be able to

- Know the term Debt and Types of Corporate Debt
- Discuss about Debt Stacking and Pros and Cons of Debt Stacking.
- Understand about International debt and List of countries by external debt

STRUCTURE :

17.1 INTRODUCTION :

Debt : Debt is an arrangement where one party (borrower) borrows money from another (lender) in a mutual agreement to return it with interests within the set period and per the contract terms. An individual or company may often request funding to make expenditures, fund commercial activities, or meet an unmet need. In terms of consumer debt, 15 U.S. Code Section 1692a defines it as "any obligation or alleged obligation of a consumer to pay money arising out of a transaction in which the money, property, insurance, or services which are the subject of the transaction are primarily for personal, family, or household purposes, whether or not such obligation has been reduced to judgment." The best way to stay out of debt trouble is to have a plan for paying it off. That starts with not taking on too much debt in the first place.

For example, consumers should pay attention to their credit utilization ratio, also known as a debt-to-limit ratio. That's the amount of debt they currently owe as a percentage of the total amount of credit they have available to them. For example, if someone has two credit cards with a combined credit limit of $10,000, and they currently owe $5,000 on those cards, their credit utilization ratio is 50%. Lenders typically prefer that consumers keep their credit utilization ratios below 30%, and credit scores penalize individuals for exceeding that level.3 The fastest way to pay off debt is to devote a greater portion of your income to monthly debt payments, ideally paying off credit card debts in full each month before any interest charges kick in. If you need to prioritize, experts generally recommend paying off your highest interest debts first and working your way down from there. You can also consolidate several debts into one, which may make sense if the new loan carries a

lower interest rate. Similarly, you may be able to transfer your credit card balances to another card with a lower interest rate or, ideally, a 0% interest rate for a period of time.

Corporate Debt : The issue of corporate debt in the capital markets require a primary market mechanism. The first requirement is a collection of merchant banks or investment banks that possess the necessary expertise. Investment banks provide advisory services on corporate finance as well as underwriting services, which is a guarantee to place an entire bond issue into the market in return for a fee.5 As part of the underwriting process the investment bank will either guarantee a minimum price for the bonds, or aim to place the paper at the best price available. The IMF study (1998) notes that investment banking expertise is something that is acquired over time. This is one reason why the major underwriting institutions in emerging economies are often branch offices of the major integrated global investment banks.

Small size bond issues may be underwritten by a single bank. It is common however for larger issues, or issues that are aimed at a cross-border investor base, to be underwritten by a syndicate of investment banks. This is a group of banks that collectively underwrite a bond issue, with each syndicate member being responsible for placing a proportion of the issue. The bank that originally won the mandate to place the paper invites other banks to join the syndicate. This bank is known as the lead underwriter, lead manager or book-runner. An issue is brought to the market simultaneously by all syndicate members, usually via the fixed price re-offer mechanism. This is designed to guard against some syndicate members in an offering selling stock at a discount in the grey market, to attract investors, which would force the lead manager to buy the bonds back if it wished to support the price. Under the fixed price re-offer method, price undercutting is not possible as all banks are obliged not to sell their bonds below the initial offer price that has been set for the issue. The fixed price usually is in place up to the first settlement date, after which the bond is free to trade in the secondary market.

Formal credit ratings are important in the corporate markets. Investors usually use both a domestic rating agency in conjunction with an established international agency such as Moody's or Standard & Poor's. As formal ratings are viewed as important by investors, it is in the interest of issuing companies to seek a rating from an established agency, especially if it is seeking to issue foreign currency debt and/or place its debt across national boundaries.

Difference Between Debt and a Loan : Debt and loan are often used synonymously, but there are slight differences. Debt is anything owed by one person to another. Debt can involve real property, money, services, or other consideration. In corporate finance, debt is more narrowly defined as money raised through the issuance of bonds. A loan is a form of debt but, more specifically, an agreement in which one party lends money to another. The lender sets repayment terms, including how much is to be repaid and when, as well as the interest rate on the debt.

Difference Between Debt and Credit : Debt is amount of money you owe, while credit is the amount of money you have available to you to borrow. For example, unless you have maxed out your credit cards, your debt is less than your credit.

17.2 TYPES OF CORPORATE DEBT :

Those real estate companies organized as public entities, and some larger private real estate companies, can access the corporate debt market. In this market, a loan is made against the general credit of the company and not against a particular asset. These loans can be secured by a pool of properties, known as a collateral pool, or they can be unsecured, having

only a general claim on the corporate assets. In both cases, the debt is generally guaranteed by the company, meaning it has a residual claim on assets in a liquidation. Corporate debt can be publicly traded or privately placed with financial institutions. Corporate debt can also be structured as revolving credit, in which a company iteratively borrows and repays cash over a period of time – in effect, a corporate credit card. This debt is typically held by groups or syndicates of commercial banks and is short-term in nature (from one to four years). These facilities can be structured as secured or unsecured debt.

Companies that want to borrow money have some options that aren't available to individual consumers. In addition to loans from a bank or other lender, they are often able to issue bonds and commercial paper. i. Bonds are a debt instrument that allows a company to borrow funds from investors by promising to repay the money with interest. Both individuals and investment firms can purchase bonds, which typically carry a fixed interest, or coupon, rate. If a company needs to raise $1 million to fund the purchase of new equipment, for example, it could issue 1,000 bonds with a face value of $1,000 each. Bonds commonly become due at a certain date in the future, called the maturity date, at which time the investor will receive the bond's full face value. In addition, the investor will have received regular interest payments throughout the intervening years. ii. Commercial paper: Commercial paper is short-term corporate debt with a maturity of 270 days or less.

Types of Debt Securities : Debt securities are debt instruments of corporations, governments, governmental agencies, or other organizations. Each one is essentially a sophisticated form of IOU: organizations issue debt securities to raise capital, promising interest income in exchange for the use of this money. Most debt securities pay interest at a fixed rate until the maturity date, when the principal is returned, and for that reason are sometimes called fixed income securities. Common types of debt securities include corporate bonds, municipal bonds, and treasury bonds.

- **Corporate Bonds:** Corporate bonds are debt securities issued by corporations. Interest is generally paid semi-annually. The investor receives the face amount of the bond at the bond’s maturity date. Interest rates depend on the creditworthiness of the issuing company and the duration of the bond. The bond’s duration is the length of time until the maturity date. Longer duration bonds pay higher rates of interest, as the investor is assuming greater risk. Some corporate bonds have a call feature, where the corporation has the right to repurchase the bond at a specific date prior to the bond’s maturity.
- **Municipal Bonds:** Municipal bonds are issued by states or municipalities to fund projects or borrow money to meet general obligations. Municipal bond interest is exempt from federal income taxes. Most municipal bond interest is exempt from state and local taxes for taxpayers of the state in which they are issued. Capital gain from the sale of municipal bonds is taxable income on both the federal and state levels. Interest rates are lower than corporate bonds. Municipal bonds may be revenue bonds, where revenue from a specific project, such as an airport terminal, is dedicated to making interest payments on the bond.
- **Treasury Bills, Notes and Bonds:** The U.S. Treasury issues Treasury bills, Treasury notes, and Treasury bonds. Treasury bills have durations of less than one year; Treasury notes have durations between one and ten years; Treasury bonds have durations over ten years. Treasury debt is considered amongst the safest debt in the world, because it's backed by the U.S. government’s full debt-paying capacity. Correspondingly, interest rates for these federal instruments tend to be lower than interest rates of other debt securities.

- **Savings Bonds:** Series EE savings bonds are another form of debt security. Series EE bonds accrue interest quarterly; interest is paid when the bond is redeemed. Some investors can receive tax benefits when using Series EE bonds for education funding. Series 1 bonds, a second class of savings bonds, are very similar but are adjusted for inflation rather than offering a fixed rate throughout their lifetime.
- **Packaged Debt Securities:** Some debt securities are pools of individual debts. Examples are collateralized mortgage obligations and collateralized debt obligations. These pools of debt securities are packaged together and sold to investors as a single debt security.
- **Commercial Paper:** Large, financially secure corporations finance their short term obligations by selling "commercial paper," a short-term promissory note. It's sold at a discount and then matures to face value, providing the buyer with a return. Commercial paper is sold in units of $100,000 or more, so it's primarily purchased by institutional investors such as mutual funds rather than individual investors.

17.3 DEBT STACKING :

Debt stacking is a strategy for reducing and paying off debt. With this strategy, which is geared toward eliminating credit card debt, you'll allocate a set dollar amount to go toward your debt payments each month. Then you'll make the minimum payments due on each of your debt accounts but pay the extra money toward your highest priority debt. Once you pay off the first debt on your list, you'll reallocate your available funds to the second account on your list and continue this pattern until all the debts are eliminated. There are multiple ways to order and prioritize debt, each with its own name. Two of the most popular stacking methods are called debt avalanche and debt snowball.

i. **Debt avalanche:** The avalanche method works by prioritizing debts in order of the highest Annual Percentage Rate (APR). This will save you money on interest charges and help you pay off debt faster.
ii. **Debt snowball:** This strategy prioritizes the smallest balances and helps you eliminate accounts faster. The idea is that you will gain momentum as each account is paid off in full.
iii. **Debt Stacking Example**: As an example of how the debt stacking method works, imagine you have $1,000 a month available to pay toward the following credit card accounts:
    a) Mastercard: 25% APR. $1,000 balance, $100 minimum payment.
    b) Visa: 20% APR. $1,200 balance, $150 minimum payment.
    c) AMEX: 15% APR. $2,000 balance, $200 minimum payment.

If you were to make the minimum payments on all three accounts, it would take you 12 months and cost $382 in interest charges to pay off the debt. But with debt stacking, it would only take five months and cost $167 in interest.

Debt Stacking Example: Monthly Payment Amounts

Month	Mastercard	Visa	AMEX
1	$650	$150	$200
2	$350	$450	$200
3	–	$600	$400
4	–	–	$1,000
5	–	–	$200

Keep in mind that low-interest, high-dollar debt, like mortgages and student loans, can take decades to pay off, even with this method. It's OK to include them in your plan, but the main goal of debt stacking is to eliminate credit card debt and other high-interest debt.

17.4 STEPS FOR DEBT STACKING :

To use debt stacking effectively, you'll have to follow specific steps. We've included the necessary steps, plus some tips and guidelines that can help you maximize the debt stacking method and achieve faster debt payoff.

- **Stop Creating More Debt :** Maybe it goes without saying, but it's easier to become debt free when you're not racking up new credit card debt every month or taking on new loans and lines of credit. If possible, commit to only making purchases with cash or debit cards while using the debt stacking method. Going this route can help you accurately determine your debt payoff date and reach your goal on time.
- **Rank Debts by Interest Rate and Size :** You probably have certain debts you'd like to get rid of right away, like accounts where the creditor offers terrible customer service. Prioritizing debt according to which is the most expensive, however, is the best way to reduce your interest charges and speed up repayment. To find the costliest debt, look for the APR shown on your account statement or dashboard. This figure is the most accurate reflection of how costly the debt is since it includes both interest charges and fees associated with the account.
- **Lower Your Interest Rates :** Your interest rates may seem like they're set in stone, but some creditors will lower your credit card interest rates if you ask. Just be sure to do a bit of homework first, like shopping around for better offers, before you give them a call.
- **Create a Strategic Budget :** If paying off debt hasn't been your priority, or if your budget is already tight, it may seem like there's no room for debt stacking. Here are a few ways to review your budget and free up cash for your monthly debt payoff goal: Make a list of all your expenses: Review recent bank and credit card statements to ensure you don't miss anything. Cut items you don't need: Look through your transactions to identify stores you should avoid, non-necessities that can be cut and recurring charges you can cancel. Pick items to skip temporarily: Find expenses you can go without for a few months or more, like fast food, Lyft, or media subscriptions. Examine your income: If your income hasn't increased in the last 12 months, consider negotiating a pay increase or looking for a new job. After you go through each item on your list, identify how much cash you now have available for debt payments and commit to paying that amount each month.
- **Create a Payment Schedule :** With your monthly debt payment amount in mind, decide how much money you can allocate to the first debt on your list. Try using a simple debt payoff calculator to determine when the account will hit a $0 balance. Plan to roll the extra cash over to the next account on your debt stacking list after the first one if paid off.

17.5 PROS AND CONS OF DEBT STACKING :

The debt stacking method can help debtors tackle credit cards and personal loans, but how does debt stacking work for other situations? Depending on the types of debt you owe, your balances and your budget, it may or may not be your best path to financial freedom.

Pros of Debt Stacking :

i. For many people, adopting a strategy for debt payoff can have big rewards. When it comes to debt stacking, these are some of the main benefits:

ii. Set a date for when you'll be debt free.
iii. Pay off debt faster.
iv. Track your progress toward a meaningful financial goal.
v. Improve your credit scores as you pay down your debt balances.
vi. Save money by paying down high-interest debt first.

17.6 CONS OF DEBT STACKING :

i. In some cases, debt stacking isn't the best strategy. The drawbacks to this method include:
ii. Requires you to have a budget surplus.
iii. Other strategies or interventions may be better for reducing interest or balances (e.g. a debt management plan or bankruptcy).
iv. High account balances can have long repayment time frames.

17.7 INTERNATIONAL DEBT :

International debt the monies owed to the international community for providing loans in the form of Economic Aid, mainly to Developing Countries, to finance their economic development programmes and loans to cover countries' balance of payments deficits. International debt can play a useful role in facilitating economic development by providing funds to countries lacking domestic capital and helping countries with foreign exchange difficulties. From an individual country's perspective, modest levels of international debt are tolerable, but problems arise when a country becomes critically 'debt-laden'. The failure of many developing countries to break out of the 'poverty trap' (arising from exploding population growth not matched by economic progress) has posed a big problem for the international community in recent years. For these countries, foreign exchange earnings are often insufficient to service annual interest charges, let alone pay off outstanding debt.

Global debt : Global debt is borrowing by governments, businesses and people, and it's at dangerously high levels. In 2021, global debt reached a record $303 trillion, according to the Institute of International Finance, a global financial industry association. This is a further jump from record global debt in 2020 of $226 trillion, as reported by the IMF in its Global Debt Database. This was the biggest one-year debt surge since the Second World War, according to the IMF. COVID-19 caused high spending on measures to protect jobs, lives and livelihoods. "Now the war in Ukraine is adding risks to unprecedented levels of public borrowing," the IMF warns in a blog. The current debt wave is the world's fourth since 1970, the World Bank says.

Emerging and developing economies : Emerging and developing economies have been the worst hit by previous debt crises, World Bank research shows. To meet debt payments, at least 100 countries will have to reduce spending on health, education and social protection, the IMF estimates. If countries default on their debts, it can cause panic on financial markets and economic slowdowns. For businesses, meeting repayments on high levels of debt can mean less money is available to invest in jobs and expansion. Insolvency is also a risk for businesses that are unable to pay back their loans. For households, high levels of debt can force them to cut some areas of spending, such as food or fuel. Low-income households are most at risk, the IMF says.

Debt distress : What do experts say about global debt? When low-income countries get into debt distress, it's associated with "protracted recessions, high inflation and fewer resources going to essential sectors like health, education and social safety nets, with a disproportionate impact on the poor", the World Bank says. Debt distress is when a country is unable to fulfill

its financial obligations, such as repayments due on its debt. The IMF and World Bank believe 60% of low-income countries are at or near this point. At a time when the war in Ukraine is disrupting food supplies and pushing food prices higher, countries that "strain to pay their creditors will also struggle to help their poorest citizens", Al Jazeera reports. As food and fuel prices soar, governments may need to give more grants to households in need to help them cover costs, particularly in low-income countries, the IMF says.

Highest global debt levels : In 2021, the countries with the highest global debt levels compared to GDP were Japan (257%), Sudan (210%), Greece (207%), Eritrea (175%) and Cape Verde (161%), according to data published by Visual Capitalist. Rising prices mean inflation is spiking, so central banks are increasing interest rates to try and contain this. Rising interest rates, in turn, mean higher loan repayments. The most highly indebted governments, households and firms will be hardest hit by significant interest rate rises, so countries have to be careful to strike the "right balance", the IMF warns.

What is a Debt Collection Agency? :

If an invoice is past due, businesses can hire a debt collection agency to act as a middleman on your behalf to collect on that debt. Typically, debt collection agencies will charge you a percentage of the amount collected. In return, they will do the following: Send your client letters via email, post, or fax to notify them of the debt and late payment Call the client requesting immediate payment; Skip tracing to locate clients who have closed or moved operations-Litigation- Debt settlement- Debt collection agencies can pursue outstanding debt aggressively, but they must abide by the federal Fair Debt Collection Practices Act, and there are certain tactics agencies are forbidden from doing.

What is the Difference Between a Debt Buyer and a Debt Collection Agency? :

When you hire a debt collection agency, you retain ownership of the debt. You are simply hiring the agency to act on your behalf to recover the outstanding money owed.

i. By contrast, a debt buyer is a company that buys the debt from you. Once you sell it, you no longer have any access or control over the account. The debt buyer will use their own means to collect the money owed, including tactics like settlement or even litigation.
ii. Hiring a debt collection agency gives you more control over outstanding debts. And, with a reputable company that handles the process professionally, it's possible to collect the money that's owed to you and still retain your customers.
iii. When you sell your debt to a debt buyer, you lose that control—and you'll likely lose a customer, too. However, the tradeoff is that you'll get an upfront payment. If the customer is no longer a viable client, it may be worthwhile to sell the debt to get some of the money back that is owed to you.

Best Debt Collection Agencies : Choose the right agency for the needs of your business. We independently evaluate all recommended products and services. If you click on links we provide, we may receive compensation. Learn more. If you're a business owner or handle invoicing for a company, you know what a burden unpaid invoices can be. According to a study by independent consulting firm Plum, 11% of all invoices issued by small and medium-sized enterprises are paid late, totaling more than $1 trillion per year. How much you can expect to collect on your own depends on your industry and clients. However, spending time chasing down delinquent accounts can cost you valuable time and human resources. In the United States, companies need to allocate an average of 15 workdays to follow up on late payments, adding to their administrative burdens. Instead of doing the work yourself, hiring a debt collection agency can be a smart alternative. By working with a professional company,

you can collect outstanding debt and save time. We reviewed companies based on their minimum requirements, transparency, fees, and more.

The 5 Best Debt Collection Agencies of 2023 :

i. Best Overall: Atradius Collections
ii. Best for Commercial Collections: The Kaplan Group
iii. Best for Consumer Collections: Summit Account Resolution
iv. Best for Small Businesses: Rocket Receivables
v. Best for Low Invoice Amounts: Prestige Services Inc.

How Should I Choose a Debt Collection Agency? :

When choosing a debt collection agency, it's important to do your homework. Consider the following factors:

i. **Fees and Commission**: A fee structure may include flat fees per account, percent rates on contingency, or a mixture of both.
ii. **Debt Minimums**: Collections agencies listed here may collect on an account as low as $200, but often have minimums that are several thousand dollars or more.
iii. **Success and Recovery Rates**: Ask for a company's success rate and do the math to see if the fees are worth what you will get back.
iv. **Customer Service**: Check online reviews for reports of the company's customer service.
v. **Accreditation:** Top debt collection agencies are licensed in your state and accredited by trade associations like the Association of Credit and Collection Professionals and the International Association of Commercial Collectors. They also are members of these organizations.
vi. **Litigation:** You can look up enforcement actions the Consumer Financial Protection Bureau (CFPB) has taken against debt collection agencies by searching for the company on the CFPB website.

How Much Does a Debt Collection Agency Cost? :

When hiring an agency, keep in mind the different cost structures that include:

i. **Fixed Fees:** For fixed-fee collections, you'll generally pay $10 to $15 per account.
ii. **Commissions:** For firms that charge contingency commissions, you should expect to pay 25% to 50% of the total amount of debt collected.
iii. **Setup or Introduction Fees**: Some firms charge setup or introduction fees, which can add to your cost.

How We Chose the Best Debt Collection Agencies :

To select the above debt collection agencies, we researched 15 national companies. The criteria for measuring each one included minimum debt, fees and commissions, success rates, accreditation, and the inclusion of additional features. The most important factor in determining whether or not an agency was included in our list was transparency in fees. Agencies were immediately eliminated if their fees were not clear.

17.8 LIST OF COUNTRIES BY EXTERNAL DEBT:

From Wikipedia, the free encyclopedia:- For net international debt by country (external debt owing to other countries minus external debt of other countries held), see Net international investment position. For public debts by country, see List of countries by public debt.

This is a list of countries by external debt, it is the total public and private debt owed to nonresidents repayable in internationally accepted currencies, goods or services, where the public debt is the money or credit owed by any level of government, from central to local, and the private debt the money or credit owed by private households or private corporations based on the country under consideration. For informational purposes, several non-sovereign entities are also included in this list. Note that while a country may have a relatively large external debt (either in absolute or per capita terms) it could actually be a "net international creditor" if its external debt is less than the total of external debt of other countries held by it.

List of countries with respect to external debt

Country/Region	External debt US dollars	Date	Per capita US dollars	o% of GDP
United States	31 trillion	January 2023[1]	94,188	121.08
Unit Kingdom	8.73 trillion	June 2022[1]	129,203	273.06
France	7.04 trillion	June 2022[1]	107,245	253.35
Germany	6.46 trillion	June 2022[1]	77,607	160.35
Japan	4.36 trillion	June 2022[1]	34,841	101.41
China	2.64 trillion	June 2022[1]	1,866	14.39
Italy	2.51 trillion	31 Dec.2017[2]	42,300	141.00
Spain	2.26 trillion	31 Dec. 2017[3]	48,700	170.00
Canada	3.2 trillion	31 Dec.2017[4]	52,300	143.00
Australia	1.83 trillion	31Sept.2020[5]	71,906	130.00
Switzerland	1.82 trillion	31 Dec.2017[6]	213,100	285.00
Singapore	1.67 trillion	30 June 2021[7]	231,000	471.00
Belgium	1.28 trillion	30 June 2017[8]	112,000	269.00
Mexico	769 billion	January 2023[9]	3,300	51.70
Austria	757 billion	31	84,061	165.00

		Dec.2020[10]		
Norway	721 billion	June 2022[11]	132,676	133.40
South Korea	719 billion	Sept. 2022[12]	7,500	48.10
Finland	613.9 billion	31March 2022[13]	24,578	218.00
India	610.5 billion	Sept. 2022[14]	437	19.20
Brazil	556 billion	30 Sept. 2017[15]	3,200	38.00
Netherlands	555 billion	Dec. 2021[16]	26,540	52.00
Indonesia	518 billion	January 2023[17]	1,431	39.50
Denmark	492 billion	30 June 2017[18]	85,700	158.00
Russia	489 billion	1 Sept.2021[19]	3,700	32.00
Turkey	444 billion	31March 2022	5,155	55.00
Argentina	382 billion	31 Sept.2022[21]	6,037	79.30
Greece	350 billion	Sept. 2022[22]	42,800	175.70
Poland	344 billion	Dec. 2022[23]	9,500	49.30
Portugal	292 billion	Dec. 2022[24]	39,478	113.90
Thailand	285 billion	January 2023[25]	2,170	53.60
Philippines	251 billion	January 2023[26]	3,623	60.90
Malaysia	245 billion	Dec. 2022[27]	6,800	60.40
Ireland	228 billion	31 Dec. 2017[28]	49,000	701.00
Ukraine	225 billion	30 June 2021[29]	2,200	81.00
UArab Emirates	220 billion	31Dec.2016	23,500	59.00
Saudi Arabia	201 billion	31 Dec. 2016 [31]	6,100	31.00
Mauritius	200 billion	30 June 2018[32]	148,000	2.01
Taiwan	199 billion	30 June	7,400	28.00

		2018[33]		
New Zealand	192 billion	31March 2020[34]	38,400	90.00
Chile	187 billion	31 March 2019	9,771	82.00
Puerto Rico (US)	167 billion	31 January 2015	47,800	164.00
Kazakhstan	167 billion	31 March 2017	9,100	91.00
Qatar	159 billion	31Dec. 2016 [37]	68,100	83.00
Egypt	158 billion	March-2022 .[38]	700.00	34.00
Hungary	148 billion	30 June 2017[39]	15,000	160.00
South Africa	143 billion	31 Dec. 2016[40]	2,600	57.00
Vietnam	142 billion	Dec. 2021[41]	500.00	39.10
Czech Republic	138 billion	31 Dec. 2016[42]	13,000	76.00
Pakistan	122 billion	30 Sept. 2021[43]	554.00	43.00
Colombia	121 billion	31 Jan. 2017[44]	2,500	57.00
Cyprus	120 billion	30 June 2017[45]	97,200	849.00
Venezuela	111 billion	30 Sept. 2015[46]	3,500	23.00
Romania	109 billion	31 July 2017[47]	5,100	58.00
Malta	96.3 billion	30 June 2017[48]	223,000	691.00
Sweden	94.9 billion	30 sept. 2022[49]	94,330	23.00
Israel	89.4 billion	30 June 2017[50]	10,700	33.00
Slovakia	86.6 billion	30 June 2017[51]	15,900	112.00
Bangladesh	78.4 billion	16 Oct. 2021[52]	460.00	22.00
Peru	74.7 billion	31 Dec. 2016[53]	2,300	44.00
Iraq	68 billion	31Dec. 2016 [54]	1,800	44.00
Morocco	63.7 billion	1 March 2022[55]	1,400	46.00
Slovenia	52 billion	30 April	25,000	104.00

		2020[56]		
Kuwait	47.9 billion	31 Dec. 2016 [57]	11,700	51.00
Sri Lanka	46.6 billion	31 Dec. 2016[58]	2,200	68.00
Croatia	46.1 billion	30 June 2017[59]	10,700	74.00
Sudan	45 billion	31 Dec. 2015[60]	1,100	121.00
Latvia	41.1 billion	30 June 2017[61]	21,200	126.00
Bulgaria	40.4 billion	31 Jan. 2018[62]	5,700	63.00
Lebanon	39.6 billion	30 April 2022[63]	6,000	220.00
Belarus	39 billion	30 June 2017[64]	4,000	66.00
Angola	37.7 billion	31 Dec. 2016 [65]	1,400	41.00
Ecuador	36.7 billion	31 Aug. 2017[66]	2,100	57.00
Lithuania	36.4 billion	30 June 2017[67]	12,700	74.00
Serbia	28 billion	30 June 2017[68]	3,200	62.00
Jordan	27.8 billion	30 June 2017[69]	3,400	83.00
Cuba	26.3 billion	31 Dec.2016 [70]	2,300	34.00
Uruguay	26.1 billion	31 Dec.2016[71]	7,600	50.00
Dominican Repu	26.1 billion	31 Dec.2016	2,400	36.00
Mongolia	25.2 billion	30 June 2017[73]	7,800	245.00
Tunisia	25.1 billion	31 Dec.2012[74]	2,200	97.00
Costa Rica	24.9 billion	31 Dec.2016 [75]	5,100	43.00
Iceland	24.4 billion	30 June 2017[76]	72,700	81.00
Ethiopia	22.5 billion	31 Dec.2016 [77]	220.00	32.00
Kenya	22.2 billion	30 June	370.00	26.00

		2017[78]		
Pap.New Guinea	22 billion	31 Dec.2016 [79]	2,800	111.00
Trinidad Tobago	21.5 billion	31 Dec.2016[80]	15,700	76.00
Ghana	21.2 billion	31 Dec.2016.[81]	700.00	30.00
Bahrain	21.2 billion	31 Dec.2016 .[82]	14,900	66.00
Oman	20.9 billion	31 Dec.2016 .[83]	4,400	35.00
Estonia	20.5 billion	31 Dec.2016[84]	15,700	89.00
Guatemala	19.1 billion	31 Dec.2016 .[85]	1,100	28.00
Palau	18.4 billion	31 Dec.2014 [86]	846,000	6.21
Panama	18.3 billion	28 Feb. 2018[87]	4,400	157.00
Bahamas	17.6 billion	31 Dec.2013 .[88]	44,200	194.00
Jamaica	16.8 billion	31 Dec.2016 .[89]	6,000	122.00
Monaco	16.5 billion	30 June 2010 est.	434,000	240.00
Georgia	16.4 billion	30 June 2017[90]	3,900	128.00
Paraguay	16.1 billion	31 Dec.2016[91]	2,400	54.00
Tanzania	15.9 billion	31 Dec.2016 .[92]	280.00	34.00
Uzbekistan	15.8 billion	31 Dec.2016 [93]	500.00	24.00
Nigeria	15 billion	30 June 2017[94]	60.00	2.00
El Salvador	14.9 billion	31	2,400	56.00

		Dec.2016 [95]		
Laos	12 billion	31 Dec. 2016.[96]	1,700	53.00
Nicaragua	11.1 billion	31 Dec. 2016.[97]	1,800	83.00
Zimbabwe	10.9 billion	31 Dec.2016 [98]	670.00	77.00
Luxembourg	10.6 billion	31Mar. 2020 [99]	114,704	22.10
Albania	10.5 billion	31 Dec.2020[100]	3,634	66.00
Ivory Coast	10 billion	31 Dec.2015[101]	420.00	24.00
Zambia	9.27 billion	31 Dec.2016 [104]	540.00	45.00
Honduras	8.04 billion	31 Dec.2016.[105]	1,000	38.00
Kyrgyzstan	7.87 billion	31 Dec.2016[106]	1,300	112.00
N.Macedonia	7.65 billion	31 Dec.2016[107]	3,700	73.00
Cameroon	7.38 billion	31Dec.2016 .[108]	300.00	24.00
Yemen	7.19 billion	31 Jan. 2015[109]	260.00	21.00
Iran	7.12 billion	31Dec. 2016.[110]	90.00	2.00
Azerbaijan	6.91 billion	31 Dec.2016[109]	1,300	22.00
Moldova	6.59 billion	31 Dec.2016[111]	1,600	70.00
Namibia	6.52 billion	31Dec.2016 .[112]	2,500	64.00
Bolivia	6.34 billion	31 Dec.2015[91]	600.00	33.00
Uganda	6.24 billion	31Dec.2016 .[113]	150.00	24.00
Senegal	6.19 billion	31Dec.20	390.00	42.00

		16 [114]		
Armenia	6.05 billion	31 Dec.2020[115]	2,043	102.00
Myanmar	6.4 billion	31 Dec.2015[116]	120.00	17.00
Syria	5.92 billion	31 Dec.2016 [103]	300.00	24.00
D.R.of Congo	5.33 billion	31 Dec.2016 [117]	70.00	13.00
Gabon	5.16 billion	31 Dec.2016 [118]	2,900	35.00
North Korea	5 billion	31Dec.2013 .[119]	200.00	18.00
Republic of the Congo	4.82 billion	31Dec.2016 .[120]	1,000	55.00
Bosnia and Herzegovina	4.72 billion	30 June 2017[121]	1,300	23.00
Barbados	4.49 billion	2010 est.[122]	15,700	100.00
Montenegro	4.41 billion	26March 021[123]	6,742	151.00
Madagascar	4.01 billion	31 December 2016 est.[124]	160.00	41.00
Cambodia	9.82 billion	31 Dec. 2016[102]	600.00	57.00
Mozambique	9.55 billion	31Dec.2016 .[103]	320.00	72.00
Algeria	3.84 billion	31 Dec. 2019[125]	89.00	2.00
Mali	3.63 billion	31Dec.2016 [126]	200.00	26.00
Mauritania	3.59 billion	31 Dec.2016 [127]	840.00	76.00
Libya	3.53 billion	31Dec. 2016 [128]	550.00	9.00
Nepal	3.45 billion	31 July 2015[129]	120.00	16.00
Burkina Faso	3.09 billion	31 Dec. 2016 .[130]	160.00	26.00
Somalia	3.05 billion	31Dec. 2013 [131]	270.00	52.00

Niger	2.73 billion	31 Dec. 2016 [132]	130.00	36.00
Seychelles	2.55 billion	31Dec. 2016 .[133]	26,200	180.00
Rwanda	2.44 billion	31Dec. 2016 .[134]	200.00	29.00
Bermuda (UK)	2.44 billion	2015 est.[135]	39,700	47.00
Kosovo	2.39 billion	30 June 2017[136]	1,200	37.00
Benin	2.34 billion	31 Dec.2016 [137]	200.00	26.00
Tajikistan	2.27 billion	31Dec. 2016[138]	260.00	38.00
Bhutan	2.26 billion	31Dec.2016 .[139]	2,900	108.00
Haiti	2.02 billion	31 Dec.2016 .[140]	180.00	24.00
Malawi	1.92 billion	31 Dec.2016 .[141]	100.00	39.00
South Sudan	1.92 billion	2017[142]	167.00	62.70
Chad	1.88 billion	31 Dec.2016 [143]	130.00	18.00
Botswana	1.69 billion	31 March 2017[144]	720.00	8.00
Palestine	1.66 billion	31March 2016 [145]	340.00	35.00
Cape Verde	1.66 billion	31Dec. 2016 [146]	3,100	99.00
Sierra Leone	1.56 billion	31 Dec.2016 .[147]	230.00	36.00
Equatorial Guinea	1.36 billion	31 Dec.2016 [148]	1,500	12.00
Djibouti	1.34 billion	31 Dec.2016 .[149]	1,500	71.00
Guinea	1.33 billion	31 Dec.2016 [134]	100.00	20.00
Belize	1.33 billion	31 Dec.2016 [148]	3,500	75.00
Afghanistan	1.28 billion	FY-	40.00	7.00

		2010/11[150]		
Suriname	1.24 billion	31 Dec.2016 .[151]	2,200	30.00
Togo	1.17 billion	31 Dec.2016 .[152]	150.00	26.00
Guyana	1.14 billion	31 Dec.2015[153]	1,500	36.00
Andorra	1.11 billion	2014 est.[154]	14,345	41.00
Liberia	1.11 billion	31 Dec.2016 [155]	230.00	51.00
Guinea-Bissau	1.1 billion	31 Dec.2010 [156]	570.00	94.00
Lesotho	949 million	31 Dec.2016 [157]	430.00	53.00
Faroe Islands (Denmark)	889 million	2010[158]	18,400	38.00
Fiji	833 million	31 Dec.2016 .[159]	900.00	18.00
Eritrea	820 million	31 Dec.2016 .[160]	150.00	15.00
Maldives	742 million	2014 est.[161]	2,000	23.00
Burundi	705 million	31 Dec.2016 .[162]	60.00	26.00
Aruba	693 million	31 Dec.2014 .[163]	6,600	28.00
Central African Republic	687 million	31 Dec.2016 [164]	130.00	39.00
Grenada	679 million	2013 est.[165]	6,300	66.00
Gambia	542 million	31 Dec.2016 .[166]	260.00	61.00
Saint Lucia	513 million	31 Dec.2016 [167]	2,700	36.00

Turkmenistan	503 million	31 Dec.2016 .[168]	90.00	1.00
Solomon Islands	492 million	31 Dec. 2013 .[169]	800.00	40.00
Eswatini	471 million	31 Dec.2016 .[170]	360.00	14.00
Samoa	447 million	31 Dec.2013 .[171]	2,300	51.00
Antigua	441 million	31 Dec. 2012[172]	4,700	34.00
San Marino	352 million	2016[173]	10,604	23.00
Brunei	340 million	2017[174]	27,200	2.80
Saint Vincent	321 million	31 Dec. 2016 .[175]	2,900	42.00
Timor-Leste	312 million	31 Dec. 2014 .[176]	250.00	12.00
Dominica	289 million	31 Dec.2016 .[177]	3,900	55.00
Cook Islands	281 million	31 Dec.2011[178]	13,400	23.00
Sao Tome & Principe	237 million	31 Dec.2016 [179]	1,200	67.00
Tonga	233 million	31 Dec.2016 .[180]	2,200	54.00
Vanuatu	208 million	31 Dec. 2016 [181]	750.00	27.00
Saint Kitts and Nevis	188 million	31 Dec.2016 .[182]	3,300	20.00
Comoros	133 million	31 Dec.2016 [183]	160.00	21.00
New Caledonia (France)	112 million	31 Dec.2013.[184]	420.00	1.00
Marshall Islands	98 million	2013 est.[185]	1,800	52.00

Micronesia	93.6 million	2013 est.[186]	900.00	29.00
Cayman Islands (UK)	79 million	1998 est.	2,100	7.00
Greenland (Denmark)	36.4 million	2010[187]	650.00	2.00
Nauru	33.3 million	2004 est.[188]	3,200	22.00
British Virgin Islands (UK)	17.7 million	31 Dec.2016[189]	570.00	2.00
Tuvalu	14.8 million	2017 est.[190]	1,224	37.00
Kiribati	13.6 million	2013 est.[191]	120.00	8.00
Anguilla (UK)	8.8 million	1998[192]	590.00	5.00
WallisFutuna (France)	3.67 million	2004[193]	280.00	6.00
Montserrat (UK)	1.04 million	31 Dec.2011[194]	200.00	2.00
Liechtenstein	0.00	2001[195]	0.00	0.00
Niue (New Zealand)	0.00	27Oct. 2016[196]	0.00	0.00

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17.9 SUMMARY :

After studying this chapter, you should be able to: Know the term Debt and Types of Corporate Debt; Discuss about Debt Stacking and Pros and Cons of Debt Stacking.; Understand about International debt and List of countries by external debt. A corporate debt issue is priced over the same currency government bond yield curve. A liquid benchmark yield curve therefore is required to facilitate pricing. The extent of a corporate bond's yield spread over the government yield curve is a function of the market's view of the credit risk of the issuer (for which formal credit ratings are usually used) and the perception of the liquidity of the issue. The pricing of corporate bonds is sometimes expressed as a spread over the equivalent maturity government bond, rather than as an explicit stated yield, or sometimes as a spread over another market reference index such as Libor. If there is no government bond of the same maturity as the corporate bond, the issuing bank will price the bond over an interpolated yield, obtained from the yields of two government bonds with maturities lying either side of the corporate issue. If there is no government bond that has a maturity beyond the corporate issue, the practice in developed economies is to take a spread over the longest dated government issue. In developing markets however, the bond would probably not be issued.

17.10 TECCHNICAL TERMS :

Debt : Any money owed to an individual, company, or other organization. One acquires debt when one borrows money. Generally speaking, one acquires debt for a specific purpose, such as funding a college education or purchasing a house.

Corporate Debt : The issue of corporate debt in the capital markets require a primary market mechanism. The first requirement is a collection of merchant banks or investment banks that possess the necessary expertise. Investment banks provide advisory services on corporate finance as well as underwriting services, which is a guarantee to place an entire bond.

Debt Stacking : Debt stacking is a strategy for reducing and paying off debt. With this strategy, which is geared toward eliminating credit card debt, you'll allocate a set dollar amount to go toward your debt payments each month. Then you'll make the minimum payments due on each of your debt accounts but pay the extra money toward your highest priority debt.

Government bonds : A government bond is a debt security issued by a government to support government spending and obligations. Government bonds can pay periodic interest payments called coupon payments. Government bonds issued by national governments are often considered low-risk investments since the issuing government backs them.

17.10 SELF ASSESSEMENT QUESTIONS :

1. What Is Debt Stacking?
2. Steps for Debt Stacking
3. Pros and Cons of Debt Stacking
4. Is the Debt Stacking Method Right For You?
5. What is the Difference Between a Debt Buyer and a Debt Collection Agency?
6. What is debt? Explain about different types of corporate debts.
7. What is international Debt?
8. Discuss about different types of Debt Collection Agencies.

17.11 SUGGESTED READINGS :

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LESSON - 18

INTERNATIONAL DEBT PROBLEM

LEARNING OBJECTIVES :

After studying this lesson the student should able to:

- Know about India's External Debt as at End of September 2022
- Understand regarding Bank for International Settlements (BIS)
- Awareness about Reasons for less repayment of Loans from LDCs

STRUCTURE :

18.1 INTRODUCTION :

Foreign debt, also known as external debt, has been rising steadily in recent decades, with unwelcome side-effects in some borrowing countries. These include slower economic growth, particularly in low-income countries, as well as crippling debt crises, financial market turmoil, and even secondary effects such as a rise in human-rights abuses. A government or a corporation may borrow from a foreign lender for a range of reasons. For one thing, local debt markets may not be deep enough to meet their borrowing needs, particularly in developing countries. Or foreign lenders might simply offer more attractive terms. For low-income countries especially, borrowing from international organizations like the World Bank is an essential option, as it can provide funding it might not otherwise be able to attain, at attractive rates and with flexible repayment schedules. The World Bank, in conjunction with the IMF and the Bank for International Settlements (BIS), gathers short-term foreign debt data from the Quarterly External Debt Statistics (QEDS) database. Long-term external debt data compilation is also collectively accomplished by the World Bank, individual countries that carry foreign debt, and multilateral banks and official lending agencies in major creditor countries.

Consumed by the State : More often than not, the loans were used to aggrandize the state and expand its power. During the heaviest period of lending (1976-1982), the number of state-owned businesses in Mexico was doubled. The borrowed wealth allowed popular subsidy and transfer programs to flourish, and the public sphere grew at the expense of private freedom. In Mexico, for example, the portion of GNP consumed by the state virtually doubled between 1970 and 1986. To be sure, some funds were invested in bona fide capital projects. Unfortunately, these projects most often represented political and not consumer

priorities. In a free economy, what is produced is ultimately decided by consumers who cast their economic "votes" for particular products or services. By buying one product and not another, they communicate their preferences. Profit-seeking producers, eager to anticipate and fulfill consumers' desires, invest capital in the appropriate industries. The foreign loans of the 1970s, however, went primarily for capital projects chosen by the state. Such grandiose projects as the construction of the Itaipu Dam between Paraguay and Brazil, and the building of roads through the Amazon jungle, undoubtedly benefited some people and boosted the governments' popularity. However, they were not the most efficient use of capital; the same funds in the hands of free-market entrepreneurs would have been put to different uses and better satisfied the wants of consumers. Contrary to the hopes of the planners, the state investments did not generate the wealth necessary to repay the loans. With triple-digit inflation, price controls, oppressive taxation, stifling regulations, and a basic disrespect for private property rights, many of the debtor nations have almost destroyed private enterprise. Rather than invest in their own countries, many individuals have converted their currencies into dollars and invested them in nations which are economically freer and more stable. This is called "capital flight." One study by a New York bank found that from 1978 to 1983, while Argentina in-cuffed $35.7 billion in new loans, $21 billion left the country; the Philippines added $19.1 billion of new loans and $8.9 billion left the country; and Venezuela added $23 billion while its citizens spirited abroad $27 billion. This extraordinary capital flight indicates what the citizens of these nations think of their governments' policies. Fearful of their wealth's being consumed by taxation or destroyed by inflation, they convert it to hard currencies and invest abroad. It is ironic that while the LDC governments were borrowing in order to "direct" capital investment for the good of their economy, the same statist policies were driving out private capital.

The Impact of Rising Foreign Debt : Excessive levels of foreign debt can hamper countries' ability to invest in their economic future—whether it be via infrastructure, education, or health care—as their limited revenue goes to servicing their loans. This thwarts long-term economic growth. Poor debt management, combined with shocks such as a commodity-price collapse or severe economic slowdown, can also trigger a debt crisis. This is often exacerbated because foreign debt is usually denominated in the currency of the lender's country, not the borrower. That means if the currency in the borrowing country weakens, it becomes that much harder to service those debts. High levels of foreign debt have contributed to some of the worst economic crises in recent decades, including the Asian Financial Crisis and, at least in the case of Greece and Portugal, the Euro zone debt crisis.

Waves of Debt Accumulation over the past fifty years : The global economy has experienced four waves of debt accumulation over the past fifty years. The first three debt waves ended with financial crises in many emerging and developing economies. The latest, since 2010, has already witnessed the largest, fastest and most broad-based increase in debt in these economies. Their total debt has risen by 54 percentage points of GDP to a historic peak of almost 170 percent of GDP in 2018. Current low interest rates mitigate some of the risks associated with high debt. However, emerging and developing economies are also confronted by weak growth prospects, mounting vulnerabilities, and elevated global risks. A menu of policy options is available to reduce the likelihood of the current debt wave ending in crisis and, if crises were to take place, alleviate their impact. To shed light on the implications of the rapid debt accumulation, Global Waves of Debt presents the first in-depth analysis of the main features of global and national debt accumulation episodes, analyzes the linkages between debt accumulation and financial crises, and draws policy lessons. Global Waves of Debt was launched on December 19, 2019, at an event that featured a conversation between World Bank Group President David Malpass and Kenneth Rogoff (Harvard University)

followed by a panel discussion, moderated by World Bank Group VP Ceyla Pazarbasioglu, with Jahangir Aziz (J.P. Morgan), Valentina Bruno (American University), Anna Gelpern (Georgetown University), and Steve Kamin (Federal Reserve Board).

18.2 INDIA'S EXTERNAL DEBT AS AT END OF SEPTEMBER 2022 :

The stock of external debt as at end-September 2022 along with the revised data for earlier quarters is set out in Statement I (IMF format1) and Statement II (old format). The major developments relating to India's external debt as at end-September 2022 are presented below:
Highlights

- At end-September 2022, India's external debt was placed at US$ 610.5 billion, recording a decrease of US$ 2.3 billion over its level at end-June 2022 (Table 1).
- The external debt to GDP ratio stood at 19.2 per cent as at end- September 2022 as compared to 19.3 per cent at end-June 2022 (Table 1).
- Valuation gains due to the appreciation of the US dollar vis-à-vis major currencies such as Euro, Yen and Indian Rupee was placed at US$ 10.6 billion. Excluding the valuation effect, the increase in external debt would have been US$ 8.3 billion instead of a decrease of US$ 2.3 billion at end-September 2022 over end- June 2022.
- At end-September 2022, long-term debt (with original maturity of above one year) was placed at US$ 478.7 billion, recording a fall of US$ 8.0 billion over its level at endJune 2022 (Table 1).
- The share of short-term debt (with original maturity of up to one year) in total external debt increased to 21.6 per cent at end- September 2022 from 20.6 per cent at end-June 2022; the ratio of short-term debt (original maturity) to foreign exchange reserves increased to 24.7 per cent at end-September 2022 (21.4 per cent at end-June 2022) (Table 5).
- Short-term debt on residual maturity basis (i.e., debt obligations that include long-term debt by original maturity falling due over the next twelve months and short-term debt by original maturity) constituted 45.0 per cent of total external debt as at end-September 2022 (45.4 per cent at end-June 2022) and stood at 51.6 per cent of foreign exchange reserves (47.6 per cent at end-June 2022) (Table 2).
- US dollar denominated debt remained the largest component of India's external debt, with a share of 55.5 per cent at end-September 2022, followed by the Indian rupee (30.2 per cent), SDR2 (6.1 per cent), Yen (4.9 per cent), and the Euro (2.6 per cent). 1 The concepts set out in the IMF's 2013 External Debt Statistics (EDS) Guide are harmonized with those of the System of National Accounts (SNA) 2008 and the sixth edition of the IMF's Balance of Payments and International; Investment Position Manual (BPM6) published in 2009. 2 SDR: Special Drawing Rights
- The outstanding external debt of general government declined, while that of nongovernment sector marginally increased as at end-September 2022 over the previous quarter (Table 3).
- The share of outstanding debt of non-financial corporations in total external debt was 41.8 per cent, followed by deposit-taking corporations (except the central bank) (24.9 per cent), general government (20.4 per cent) and other financial corporations (8.3 per\ cent) (Table 3).
- Loans were the largest component of external debt, with a share of 30.9 per cent, followed by currency and deposits (22.2 per cent), trade credit and advances (21.0 per cent) and debt securities (17.8 per cent) (Table 4).
- Debt service (principal repayments plus interest payments) was at 5.0 per cent of current receipts as at end-September 2022 against 4.9 per cent as at end-June 2022 (Table 5).

Table 1: External Debt - Outstanding and Variation

(US$ Billion unless indicated otherwise)

Sector/Instrument	Sept 2021	June 2022 PR	Sept 2022 P	Absolute Variation		Percentage Variation	
				Sept 2022 over Sept 2021	Sept 2022 over June 2022	Sept 2022 over Sept 2021	Sep 2022 over Jun 2022
1	2	3	4	5	6	7	8
I. General Government	133.0	127.7	124.5	-7.5	-3.2	-5.7	-2.5
II. Central Bank	0.1	0.1	0.1	0.0	0.0	-18.0	-0.5
III. Deposit-taking Corporations, except the Central Bank	160.1	155.3	152.2	-8.0	-3.1	-5.0	-2.0
IV. Other Sectors	284.7	301.9	305.6	20.9	3.7	7.3	1.2
IV.1. Other financial corporations	52.0	51.6	50.5	-1.5	-1.1	-2.8	-2.1
IV.2. Non-financial corporations	232.7	250.3	255.1	22.3	4.8	9.6	1.9
IV.3. Households and non-profit institutions serving households (NPISHs)	0.0	0.0	0.0	0.0	0.0	-18.5	-6.3
V. Direct Investment: Intercompany Lending	26.0	27.7	28.1	2.2	0.4	8.4	1.6
Gross External Debt (I to V) (As a percentage of GDP)	602.9 (20.3)	612.7 (19.3)	610.5 (19.2)	7.6	-2.3	1.3	-0.4
Memo Items:							
A. Total Long-term Debt@	498.1	486.7	478.7	-19.4	-8.0	-3.9	-1.6
B. Short-term Debt#	104.8	126.1	131.7	27.0	5.7	25.8	4.5

Source: India's- Quarterly External Debt Report-For Quarter Ending September 2022, Government of India, Ministry of Finance,Department of Economic Affairs,External Debt Management Unit, www.dea.gov.in December 2022

PR: Partially Revised P: Provisional @ Debt with original maturity of above one year # Debt with original maturity up to one year

Note: Figures may not add up to total due to rounding off

Table 2: Residual Maturity of Outstanding External Debt as at end-September 2022

(US$ Billion)

Sector	Short-term up to one year	1 to 2 years	2 to 3 years	More than 3 years	Total (2 to 5)
1	2	3	4	5	6

I. General Government	6.9	8.1	9.0	100.5	124.5
I.A. Short-term	0.9	0.0	0.0	0.0	0.9
I.B. Long-term	6.0	8.1	9.0	100.5	123.6
II. Central Bank	0.1	0.0	0.0	0.0	0.1
II.A. Short-term	0.1	0.0	0.0	0.0	0.1
II.B. Long-term	0.0	0.0	0.0	0.0	0.0
III. Deposit-Taking Corporations, except the Central Bank	96.9	19.7	9.8	25.8	152.2
III.A. Short-term	1.8	0.0	0.0	0.0	1.8
III.B. Long-term	95.0	19.7	9.8	25.8	150.3
IV. Other Sectors	165.8	28.7	27.3	83.8	305.6
IV.A. Short-term	128.9	0.0	0.0	0.0	128.9
IV.B. Long-term	36.8	28.7	27.3	83.8	176.6
IV.1. Other financial corporations	12.9	8.3	5.9	23.4	50.5
IV.1.A. Short-term	1.4	0.0	0.0	0.0	1.4
IV.1.B. Long-term	11.5	8.3	5.9	23.4	49.1
IV.2. Non-financial corporations	152.9	20.3	21.5	60.4	255.1
IV.2.A. Short-term	127.5	0.0	0.0	0.0	127.5
IV.2.B. Long-term	25.3	20.3	21.5	60.4	127.5
IV.3. Households and non-profit institutions serving households (NPISHs)	0.0	0.0	0.0	90.0	0.0
IV.3.A. Short-term	0.0	0.0	0.0	0.0	0.0
IV.3.B. Long-term	0.0	0.0	0.0	0.0	0.0
V. Direct Investment: Intercompany Lending	5.1	4.2	4.3	14.6	28.1
A. Total Short-term Debt	131.7	0.0	0.0	0.0	131.7
B. Total Long-term Debt	143.0	60.7	50.4	224.7	478.7
C. Gross External Debt (A+B)	274.7	60.7	50.4	224.7	610.5
Memo Items: Short-term Debt (residual maturity) as per cent of Total External Debt 45.0 Short-term Debt (residual maturity) as per cent of Foreign Exchange Reserves 51.6					

Source: India's- Quarterly External Debt Report-For Quarter Ending September 2022, Government of India, Ministry of Finance,Department of Economic Affairs,External Debt Management Unit, www.dea.gov.in December 2022

Note: Figures may not add up to total due to rounding off

Table 3: Government and Non-Government External Debt

(US$ Billion)

Sector/Instrument	Sept 2021	Jun 2022 PR	Sep 2022 P
1	2	3	4
A. General Government (I+II)	132.0	127.7	124.5
(As a percentage of GDP)	(4.4)	(4.0)	(3.9)
I. External Assistance under Govt. A/C	85.7	86.2	84.3
II. Other Govt. External Debt	46.3	41.5	40.1

B. Non-Govt. Debt	470.9	485.0	486.0
(As a percentage of GDP)	(15.9)	(15.3)	(15.3)
B. I. Central Bank	0.1	0.1	0.1
B. II. Deposit-taking Corporations, except the Central Bank	160.1	155.3	152.2
B. III. Other financial corporations	52.0	51.6	50.5
B. IV. Non-financial corporations	232.7	250.3	255.1
B. V. Households and non-profit institutions serving households (NPISHs)	0.0	0.0	0.0
B. VI. Direct Investment: Intercompany Lending	26.0	27.7	28.1
Gross External Debt (A + B)	602.9	612.7	610.5

PR: Partially Revised P: Provisional

@: Other government external debt includes defence debt, investment in Treasury Bills/government securities by FPIs, foreign central banks and international institutions and IMF

Note: Figures may not add up to total due to rounding off

Table 4: Outstanding External Debt by Instruments

(US$ Billion)

Instruments	End-Sept 2021	End-June 2022 PR	End-Sept 2022 P
	1	2	3
Special Drawing Rights (allocations)	23.3	22.0	21.2
Currency and deposits	142.9	137.4	135.6
Debt securities	114.2	110.9	108.7
Loans	192.1	191.6	188.5
Trade credits and advances	104.4	123.2	128.3
Direct investment: Intercompany lending	26.0	27.7	28.1
Gross External Debt	602.9	612.7	610.5

Source: Table 3& 4--India's- Quarterly External Debt Report-For Quarter Ending September 2022, Government of India, Ministry of Finance,Department of Economic Affairs,External Debt Management Unit, www.dea.gov.in December 2022

PR: Partially Revised P: Provisional

Note: Figures may not add up to total due to rounding off

Table 5: India's Key External Debt Indicators

(Per cent, unless indicated otherwise)

End-March	External Debt (US$billion)	Ratio of External Debt to GDP	Debt Service Ratio	Ratio of Foreign Exchange Reserves to Total Debt	Ratio of Concessional Debt to Total Debt	Ratio of ShortTerm Debt to Foreign Exchange Reserves	Ratio of ShortTerm Debt (original maturity) to Total Debt

1	2	3	4	5	6	7	8
1991	83.8	38.3	35.3	7.0	45.9	146.5	10.2
1996	93.7	26.6	26.2	23.1	44.7	23.2	5.4
2001	101.3	22.1	16.6	41.7	35.4	8.6	3.6
2006	139.1	17.1	10.1#	109	28.4	12.9	14.0
2007	172.4	17.7	4.7	115.6	23.0	14.1	16.3
2008	224.4	18.3	4.8	138	19.7	14.8	20.4
2009	224.5	20.7	4.4	112.2	18.7	17.2	10.3
2010	260.9	18.5	5.8	106.9	16.8	18.8	20.1
2011	317.9	18.6	4.4	95.9	14.9	21.3	20.4
2012	360.8	21.1	6.0	81.6	13.3	26.6	21.7
2013	409.4	22.4	5.9	71.3	11.1	33.1	23.6
2014	446.2	23.9	5.9	68.2	10.4	30.1	20.5
2015	474.7	23.8	7.6	72.0	8.8	25.0	18.0
2016	484.8	23.4	8.8	74.3	9.0	23.2	17.2
2017	471.0	19.8	8.3	78.5	9.4	23.8	18.7
2018	529.3	20.1	7.5	80.2	9.1	24.1	19.3
2019	543.1	19.9	6.4	76.0	8.7	26.3	20.0
2020	558.4	20.9	6.5	85.6	8.8	22.4	19.1
2021	573.6	21.2	8.2	100.6	9.0	17.5	17.6
2022 PR	619.0	19.9	5.2	98.0	8.3	20.0	19.7
End-June 2022 PR	612.7	19.3	4.9	96.5	8.0	21.4	20.6
End-Sept 2022 P	610.5	19.2	5.0	87.3	7.7	24.7	21.6

SOURCE: India's- Quarterly External Debt Report-For Quarter Ending September 2022, Government of India, Ministry of Finance,Department of Economic Affairs,External Debt Management Unit, www.dea.gov.in December 2022

PR: Partially Revised. P: Provisional.

Works out to 6.3 per cent with the exclusion of India Millennium Deposits (IMDs) repayments of US$ 7.1billion and pre-payment of external debt of US$ 23.5 million.

18.3 REASONS FOR BORROWING :

Why were the developing countries so eager to borrow? One important factor was the economic philosophy which had gained prevalence in these nations. Western "development economists" had been influential in shaping economic thought in these countries, as had the prominent Western universities which educated (directly or indirectly) many of the debtor country's most influential citizens. These development economists and prestigious universities, with few exceptions, were teaching that economic development can best be achieved through a "directed" economy. The views of Nobel Laureate Gunnar Myrdal reflect the prevailing wisdom of development economists during the 1950s and 1960s. According to Myrdal: "All special advisers to underdeveloped countries who have taken the time and trouble to acquaint themselves with the problems, no matter who they are . . . all recommend central planning as the first condition of progress."

- **Centralized planning :** Although other development economists were not so blunt in their advocation of centralized planning, they were essentially in agreement with Myrdal. A group of leading development experts, writing in a volume sponsored by

MIT's Center for International Studies, stated that "there are limits to the effectiveness of the private market institutions, especially where development must be accelerated. It may be necessary to plan out in advance the key pieces of a general development program."

- **Accelerated economic growth:** Sadly, these Western counselors had rejected the very principles which were responsible for the economic success of their own nations. Private property rights and private investment, the experts advised, stood in the way of swift economic progress. Accelerated economic growth, they said, could be accomplished only through a large-scale inflow of capital, and this inflow could be best accomplished through state borrowing. This was just what LDC prime ministers and finance ministers wanted to hear, since borrowing and planning economic development would mean new power and prestige for their governments.
- **The value of the dollar depreciated**: Another incentive to borrow heavily was the continuing depreciation of the dollar throughout the 1970s. During much of the decade, the value of the dollar depreciated at a greater rate than the rate of interest at which the LDCs could borrow. This meant that during parts of the 1970s these loans, in effect, were at negative interest rates. In this bizarre inflationary environment, borrowers, at times, actually were being paid for borrowing.
- **Continuing inflation**: In anticipation of continuing inflation, the LDC countries borrowed expecting to repay their debts with less valuable dollars. But they were wrong. The U.S. did not continue to in-rate at increasing rates, and by the close of the decade the Federal Reserve, under new chairman Paul Volcker, had begun to slow the rate of monetary growth. Interest rates in 1981-82 were approximately double the level of 1978-79 rates, and the dollar no longer was depreciating so rapidly in value. By the early 1980s, many debtors were faced with economic stagnation and greatly increased interest burdens.

What had gone wrong? Where had the "development capital" gone? The truth is that a good deal of the money had not been productively invested, but was simply squandered. A significant amount was stolen by government officials. The Mexican government of Lopez Portillo was infamous for its billion-dollar frauds and the mordidas—bribes—which were commonly necessary to "arrange matters" with government officials. And Mexico was not unique. Several LDC leaders are among the world's wealthiest people. President Suharto of Indonesia has an estimated wealth of $3 billion, President Mobuto of Zaire owns an estimated $5 billion, and former Philippine President Marcos is believed to be worth $10 billion.

18.4 PROBLEMS FOR BANKS :

i. **Recognizing the default of these LDC debtors :** When in 1982 many countries could not pay their debts, commercial banks and governmental agencies, such as the International Monetary Fund (IMF), scrambled to reschedule the loans. This involved stretching out the payment periods and decreasing the interest rates. The IMF advanced new loans to struggling debtors on the condition that the LDC governments follow certain prescribed "austerity measures." Between 1982 and 1986, billions of dollars of new short-term loans were made to enable the debtor countries to make their interest payments. But this was only a band-aid solution. The banks were extending new loans, not because of their confidence in the future ability of these nations to repay, but rather to avoid having loan payments declared in arrears by bank regulators. Recognizing the default of these LDC debtors would mean that many of the large banks would be "insolvent," or in more blunt terms, bankrupt.

ii. **Baker Plan to address the debt crisis :** In 1985, Treasury Secretary James Baker announced the Baker Plan to address the debt crisis. The plan called for commercial

banks to extend $20 billion in new loans, and for the debtor countries to enact reforms reducing government intervention in their economies. It also called for an increase in funds and a new debt financing role for the World Bank. Under the Baker Plan, the IMF was to continue its role as the lender of last resort or "safety net" to the LDCs.

iii. **IMF rescue packages had failed to solve the debt problem :** But by 1986 it was clear that the new loans and IMF rescue packages had failed to solve the debt problem. The big debtors—Brazil, Mexico, and Argentina—showed little sign of improvement, and the money-center banks with large LDC loans were facing declining credit ratings and increasing costs of borrowing from depositors. Despite arm-twisting by Federal officials, many commercial banks were becoming reluctant to make new loans.

iv. **Major banks increased their loan-loss reserves :** In February 1987, Brazil, the largest international debtor, announced that it would no longer pay interest on its debt. In May of that year, Citicorp announced a record $3 billion increase in its loan-loss reserves. It was, in the words of Business Month, "a breathtaking public admission that the banks and the governments of the major industrial nations will never recoup the $1 trillion they are owed by developing countries." Following Citicorp's leadership, several other major banks increased their loan-loss reserves in recognition of the almost certain default of a large portion of their LDC loans.

18.5 BANK FOR INTERNATIONAL SETTLEMENTS (BIS) :

The Bank for International Settlements (BIS) is an international financial institution offering banking services for national central banks and a forum for discussing monetary and regulatory policies. The BIS, which is owned by 63 national central banks, also provides independent economic analysis. BIS serves as a forum for monetary policy discussions and facilitates financial transactions for central banks. It is governed by a board elected by the 63 central banks with ownership stakes, with permanent seats reserved for the U.S., U.K., Germany, France, Italy, and Belgium. BIS shares offices with, and provides a secretariat for, independently governed international committees and associations focused on economic co-operation. BIS is the rare international financial organization with for-profit operations. The Bank for International Settlements (BIS) also encourages cooperation among central banks. The Basel Committee for Banking Supervision (BCBS) is a closely associated international forum for financial regulation. It is one of several independently governed international committees and associations based at BIS headquarters and supported by its secretariat. The BCBS is responsible for the Basel Accords, which recommend capital requirements and other banking regulations widely adopted by national governments.

History of the BIS: The BIS was founded in 1930 as a clearinghouse for German war reparations imposed by the Treaty of Versailles. The original members were Germany, Belgium, France, Britain, Italy, Japan, the U.S., and Switzerland. Reparations were discontinued shortly after the bank's founding, and the BIS became a forum for cooperation and a counterparty for transactions among central banks. The bank was officially neutral during World War II, but was widely seen as abetting the Nazi war effort, beginning with its transfer of Czechoslovakian national bank gold to Germany's Reichsbank in early 1939. At the end of the war, the Allies agreed to shut the BIS down but did not go through with the plan, partly at John Maynard Keynes' urging.

While the Bretton Woods agreement remained in effect, the BIS played a crucial role in maintaining international currency convertibility. It also acted as the agent for the 18-country European Payments Union, a settlement system that helped restore convertibility among European currencies from 1950 to 1958. When the world transitioned to floating

exchange rates in the 1970s, the BIS and BCBS focused on financial stability, developing capital requirements for banks based on the riskiness of their financial positions. The resulting Basel Accords have been adopted widely by national governments to regulate their banking systems. Negotiations on Basel III, an update to previous accords that came as a response to the financial crisis, were completed in December 2017. In March 2022 the BIS said it suspended dealings with Russia's central bank in compliance with international sanctions following Russia's invasion of Ukraine.

Headquartered in Basel, Switzerland, the Bank for International Settlements is often called the "central bank for central banks" because it provides banking services to institutions such as the European Central Bank and the Federal Reserve. These services include accounts for interest-bearing deposits and securities, gold and currency transactions, asset management services, and the provision of short-term collateralized loans. The bank does not handle transactions for, or provide loans to, governments. It also does not do business with corporations or consumers.

Bank for International Settlements (BIS) Governance and Finances :

The BIS is governed by a board of 18 directors elected by its member central banks, The central bank governors of the U.S., the U.K., Germany, France, Italy, and Belgium are permanent directors, and may jointly appoint another director from one of those central banks. The remaining 11 directors are elected by the entire membership from among governors of the other member central banks. The board oversees a general manager responsible for BIS operations. The bank had 629 employees from 63 countries as of March 2022.

The BIS had assets of $347.6 billion in International Monetary Fund Special Drawing Rights (SDRs), an international currency used to settle accounts between countries as of March 2022. That was equivalent to $458 billion at the prevailing exchange rate on Aug. 9, 2022.

The BIS made a profit of about SDR $341 million for the year ended March 2022, mostly from the margin between its customer deposits and third-party assets.

Waiting for the Next Crisis: According to one estimate, the amount of money developing country governments are paying toward foreign debt nearly doubled from 2010 to 2018, as a percentage of government revenues. Extraordinarily low interest rates in place since the 2008 Global Financial Crisis have made it easier for governments, businesses, and consumers to take on higher levels of debt. And with a severe global economic downturn unfolding due to the spread of the novel corona virus, a disruptive debt crisis in one or more countries seems likely in the not-too-distant future.

The Human Cost of High Foreign Debt: In addition to the suffering that results from economic stagnation, the United Nations has also linked high levels of foreign debt and a government's dependency on foreign assistance to human rights abuses. Economic distress causes governments to cut social spending, and reduces the resources it has to enforce labor standards and human rights, the U.N. says.

18.6 THE INTERNATIONAL DEBT CRISIS :

Most people understand this story as far as it goes—how the international debt problem happened. But most of us are still in the dark as to why it happened, and how this crisis is likely to be resolved. Thursday, September 1, 1988. Once there was a man with a large sum of money. He decided to lend a considerable portion of it to a man from a faraway country who offered him a high rate of return. But the foreigner wasted some of the money in riotous living, he was careless and allowed some of the money to be stolen, and what he did

invest soon soured because of his poor investment skills. It wasn't long before he had trouble making the payments on his debt. The lender saw the debtor's poor stewardship, but not wanting to admit his own mistake in lending to the man, leant him still more money in the hopes that the debtor would begin to prosper. But the debtor continued his thriftless ways, and the lender soon found himself in serious financial trouble.

This simple story describes, by analogy, what economists call the "world debt crisis." In our parable, the lender symbolizes the several large commercial banks (American, Japanese, and European) which made substantial international loans during the 1970s and early 1980s, and the debtor represents countries such as Brazil, Mexico, and other less developed countries (LDCs) which borrowed heavily during that period. Most people understand this story as far as it goes—how the international debt problem happened. But most of us are still in the dark as to why it happened, and how this crisis is likely to be resolved.

Caused the Massive Debt for Less Developed Countries : By 1982 the (Less Developed Countries) LDCs owed over $500 billion to Western banks, governments, and international agencies. This amounted to a fivefold increase in their indebtedness during the previous decade. Clearly, there had been a worldwide splurge of credit. But why? Was it because of greedy bankers? Were avaricious LDC governments to blame? Both the banks in their reckless chase after profits, and the borrowing countries in their ill-advised pursuit of wealth and power bear responsibility for the present crisis. But greed alone does not adequately explain why so many people made the same sort of error at the same time. Why did the explosion in international debt occur in the 1970s rather than the 1960s or the 1950s? Was there a reason which caused the lenders to extend credit and the debtors to accrue debt on such a grand scale?

i. **Banks were recycling "petrodollars." :** The explanation often given for the huge loans made to LDCs during the mid and late 1970s is that the banks were recycling "petrodollars." This explanation goes as follows: In 1973 the OPEC cartel succeeded in exacting huge increases in the price paid for their oil and found themselves suddenly rich in dollars. These dollars needed to be invested, and many of them were deposited with the "money center" banks in London and New York. These banks, suddenly rich in deposits, turned around and invested these funds in the form of loans to the LDCs. The process was repeated in the late 1970s when OPEC again was able to increase sharply the price of off. It was this inflow of petrodollars which gave rise to spurts of extraordinary lending in the mid-1970s and again in the latter part of the decade.

ii. **Position to demand four times :** This explanation has some truth to it, but it fails to address an important issue. Why did OPEC, an obscure cartel which had been in existence for more than a decade, suddenly, in the early 1970s, find itself in a position to demand four times as many dollars as before for its product? One obvious reason for the cartel's success is that the dollars which the oil producers sought to "buy" with their oil had become more plentiful. But where did these dollars—which eventually became loans to the LDC debtor countries—come from in the first place?

iii. **Dollars are created by only one entity :** Dollars are created by only one entity—the Federal Reserve System (the Fed). The inflation the increase in the quantity of money and credit—of the late 1960s forced the Nixon administration to cut the tie between gold and the dollar in 1971. Too many dollars had been created, and the U.S. Treasury no longer had sufficient gold to redeem dollars at their declared value. With the Fed completely freed from the constraints of gold, the rest of the decade of the 1970s, on the whole, was even more inflationary. Between 1970 and 1984, the Eurodollar

market (U.S. dollar deposits held in foreign countries) grew from $100 billion to nearly $2 trillion.[2]

iv. **Excellent place to invest :** It was this monetary expansion which precipitated the massive amount of international lending that took place in the 1970s. Banks found themselves flush with new deposits (including OPEC's petrodollars) and the money had to be invested somewhere. From the vantage point of many bankers, the developing countries seemed an excellent place to invest.

Reason for Loans to LDCs and its less repayment : One obvious reason was the economy of scale inherent in these loans. It was much easier and potentially more profitable to make a single $100 million loan to the Mexican government as opposed to hundreds of separate loans to American developers, businesses, or homeowners. Rather than having to investigate a multitude of individual projects, a loan to the LDC meant that the LDC's government investigated (supposedly) and administered the funds to the assorted state and private borrowers. The loans also were alluring because of the guarantee (either implicit or explicit) of the LDC governments. Surely a sovereign government always having the power to tax would not go bankrupt.

Another attraction of these loans was the high yield which they offered. Many loans were negotiated for floating interest rates, often at rates of one-and-a-half to two per cent above LIBOR (the London Interbank Offered Rate). The fact that these loans had floating rates considerably lessened the risk of future inflation's wiping out the real value of the banks' loan assets. In contrast, domestic loans during the same period usually were negotiated at fixed rates, and were subject to interest rate ceilings and offered substantially lower rates of return.

18.7 REASONS FOR LESS REPAYMENT OF LOANS FROM LDCS :

i. **Option of "debt-equity swaps" :** One option that offers a glimmer of hope is "debt-equity swaps," in which the banks sell their loans back to the LDC country at a discount in return for local currency. The currency then is converted into equity investments in the LDC. This approach has its limitations, not the least of which is the lack of respect for private property in many of these countries (such as was exemplified by the nationalization of Mexican banks in 1982).

ii. **Inflation :** Other problems include the rampant inflation and wild currency swings which make business in an LDC difficult and the fact that most LDCs are wary of foreign investments and place strict limitations on them. To date, there have been only a few billion dollars worth of debt-equity swaps, hardly a dent in the three to four hundred billion dollars owed to Western banks.

iii. **Role of government :** There is little question that apart from a radical and sustained change in the role of government in the LDCs, the bulk of these loans will not be repaid. Most of these countries have long since stopped paying principal and many, such as Brazil and Argentina, are in virtual default. The pertinent question now is: if the debtors won't pay, who will?

iv. **Loan-Loss Reserves :** Recent moves by money-center banks to increase their loan-loss reserves are a significant step toward recognizing and bearing the losses. However, even Citicorp's record increase in reserves last year only amounts to a write-off of 25 per cent of its total LDC portfolio. Since the "secondary markets" currently value the LDC loans at somewhere between 45 and 55 cents on the dollar, Citicorp and other banks will likely need to make more large increases in their loan-loss reserves. This may mean several years of low stock prices, difficulty in raising

new equity, and high costs on borrowed funds—not a pleasant scenario for bank management.

v. **Sympathetic ears among policy makers :** But will the losses ultimately be borne by the banks and their shareholders? There are certainly those in the banking industry who are calling for government action to "socialize" the losses, or in other words to pass them onto individual citizens. Unfortunately, it seems that this call is falling on sympathetic ears among policy makers. There is no doubt that Washington fears the ramifications of one or several large banks' failing.

vi. **Devaluing the dollar and lowering interest rates :** One way these losses are being socialized is through monetary policy. The Fed has pursued a very loose policy since late 1984, thereby devaluing the dollar and lowering interest rates. This favors the debtor nations, making it possible for them to repay their debts with less valuable dollars. Through monetary inflation, a banking crisis may well be averted as the real value of the LDC debt is inflated away. Who pays in this scheme? All the individuals and institutions who own dollars pay. Dollar holders find the purchasing power of their savings deposits or securities eroding and their standard of living reduced.

vii. **World debt crisis :** But the extraordinary monetary ease since late 1984 has failed noticeably to help the debtor countries climb out of their hole. Bound by their addiction to paternalistic governments, they have only fallen more firmly into the grasp of debt. If these countries cannot service their debts when interest rates are low and dollars are easy to come by, there truly will be a world debt crisis when, inevitably, the Fed tightens and interest rates rise in recognition of the dollar inflation.

viii. **Foreign loans :** A second way the LDC debt is being foisted on the innocent is through lending by international agencies. Since these organizations are funded by the U.S. and other industrialized countries, new loans are really a transfer of wealth from American (and German, Japanese, etc.) citizens to the commercial banks with problem foreign loans.

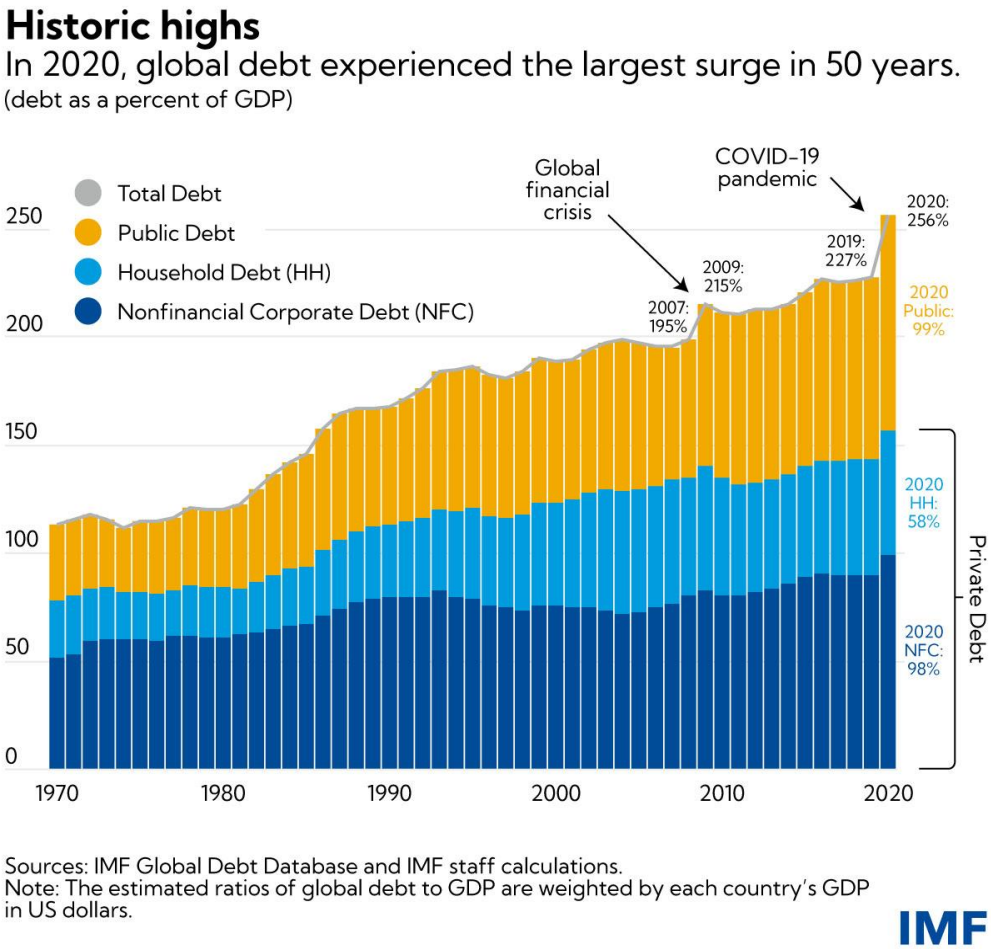
ix. **Bad LDC debts :** During the past few years, the citizens of the industrialized countries unwittingly have picked up an increasing portion of the tab for bad LDC debts. Between 1980 and 1984, transfers via the World Bank to Latin American debtors doubled from $1.6 billion to $3.2 billion, and the Inter-American Development Bank (IADB) increased its disbursements from $1.4 billion to $2.4 billion. Although these amounts are still relatively small in relation to the outstanding debt, the trend is alarming. It is quite possible that in the future, U.S. and European authorities will "socialize" larger portions of the debt through international agencies such as the World Bank, the IADB, and the IMF. While the Federal Reserve deserves considerable blame for its role in prompting the excessive lending, we must remember that some banks did lend wisely during the credit expansion. Not every bank was willing to loan more than 100 per cent of its equity capital to Latin American countries. Morally, there is no question as to who should bear the burden of these losses. The commercial banks which entered into these loans aware of the risks should face the consequences of what turned out to be their imprudence. The many innocent individuals who had no part in such lending should not be forced to pay for the injudicious behavior of a few banks.

18. 8 RISING INFLATION & REACHES HIGH GLOBAL DEBT :

Global Debt Reaches a Record $226 Trillion Policymakers must strike the right balance in the face of high debt and rising inflation. In 2020, we observed the largest one-year debt surge since World War II, with global debt rising to $226 trillion as the world was hit by a global health crisis and a deep recession. Debt was already elevated going into the crisis, but

now governments must navigate a world of record-high public and private debt levels, new virus mutations, and rising inflation. Global debt rose by 28 percentage points to 256 percent of GDP, in 2020, according to the latest update of the IMF's Global Debt Database. Borrowing by governments accounted for slightly more than half of the increase, as the global public debt ratio jumped to a record 99 percent of GDP. Private debt from non-financial corporations and households also reached new highs.

The debt surge amplifies vulnerabilities, especially as financing conditions tighten : Debt increases are particularly striking in advanced economies, where public debt rose from around 70 percent of GDP, in 2007, to 124 percent of GDP, in 2020. Private debt, on the other hand, rose at a more moderate pace from 164 to 178 percent of GDP, in the same



period.

Public debt now accounts for almost 40 percent of total global debt, the highest share since the mid-1960s. The accumulation of public debt since 2007 is largely attributable to the two major economic crises governments have faced—first the global financial crisis, and then the COVID-19 pandemic.

The great financing divide : Debt dynamics, however, differ markedly across countries. Advanced economies and China accounted for more than 90 percent of the $28 trillion debt surge in 2020. These countries were able to expand public and private debt during the pandemic, thanks to low interest rates, the actions of central banks (including large purchases of government debt), and well-developed financial markets. But most developing economies

are on the opposite side of the financing divide, facing limited access to funding and often higher borrowing rates.

Looking at overall trends, we see two distinct developments.

In advanced economies, fiscal deficits soared as countries saw revenues collapse due to the recession and put in place sweeping fiscal measures as COVID-19 spread. Public debt rose 19 percentage points of GDP, in 2020, an increase like that seen during the global financial crisis, over two years: 2008 and 2009. Private debt, however, jumped by 14 percentage points of GDP in 2020, almost twice as much as during the global financial crisis, reflecting the different nature of the two crises. During the pandemic, governments and central banks supported further borrowing by the private sector to help protect lives and livelihoods. Whereas during the global financial crisis, the challenge was to contain the damage from excessively leveraged private sector.

Difficult balancing act : The large increase in debt was justified by the need to protect people's lives, preserve jobs, and avoid a wave of bankruptcies. If governments had not taken action, the social and economic consequences would have been devastating. But the debt surge amplifies vulnerabilities, especially as financing conditions tighten. High debt levels constrain, in most cases, the ability of governments to support the recovery and the capacity of the private sector to invest in the medium term. A crucial challenge is to strike the right mix of fiscal and monetary policies in an environment of high debt and rising inflation. Fiscal and monetary policies fortunately complemented each other during the worst of the pandemic. Central bank actions, especially in advanced economies, pushed interest rates down to their limit and made it easier for governments to borrow.

Monetary policy is now appropriately shifting focus to rising inflation and inflation expectations. While an increase in inflation, and nominal GDP, helps reduce debt ratios in some cases, this is unlikely to sustain a significant decline in debt. As central banks raise interest rates to prevent persistently high inflation, borrowing costs rise. In many emerging markets, policy rates have already increased and further rises are expected. Central banks are also planning to reduce their large purchases of government debt and other assets in advanced economies—but how this reduction is carried out will have implications for the economic recovery and fiscal policy. As interest rates rise, fiscal policy will need to adjust, especially in countries with higher debt vulnerabilities. As history shows, fiscal support will become less effective when interest rates respond—that is, higher spending (or lower taxes) will have less impact on economic activity and employment and could fuel inflation pressures. Debt sustainability concerns are likely to intensify. The risks will be magnified if global interest rates rise faster than expected and growth falters. A significant tightening of financial conditions would heighten the pressure on the most highly indebted governments, households, and firms. If the public and private sectors are forced to deleverage simultaneously, growth prospects will suffer.

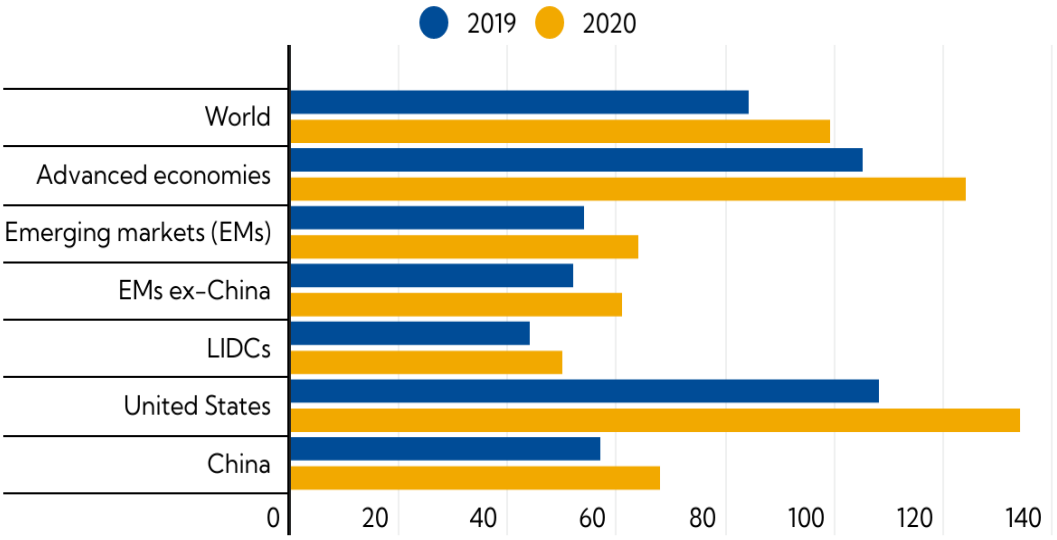
Emerging markets and low-income developing countries faced much tighter financing constraints, but with large disparities across countries. China alone accounted for 26 percent of the global debt surge. Emerging markets (excluding China) and low-income countries accounted for small shares of the rise in global debt, around $1–$1.2 trillion each, mainly due to higher public debt.

Nevertheless, both emerging markets and low-income countries are also facing elevated debt ratios driven by the large fall in nominal GDP in 2020. Public debt in emerging markets reached record highs, while in low-income countries it rose to levels not seen since the early 2000s, when many were benefiting from debt relief initiatives.

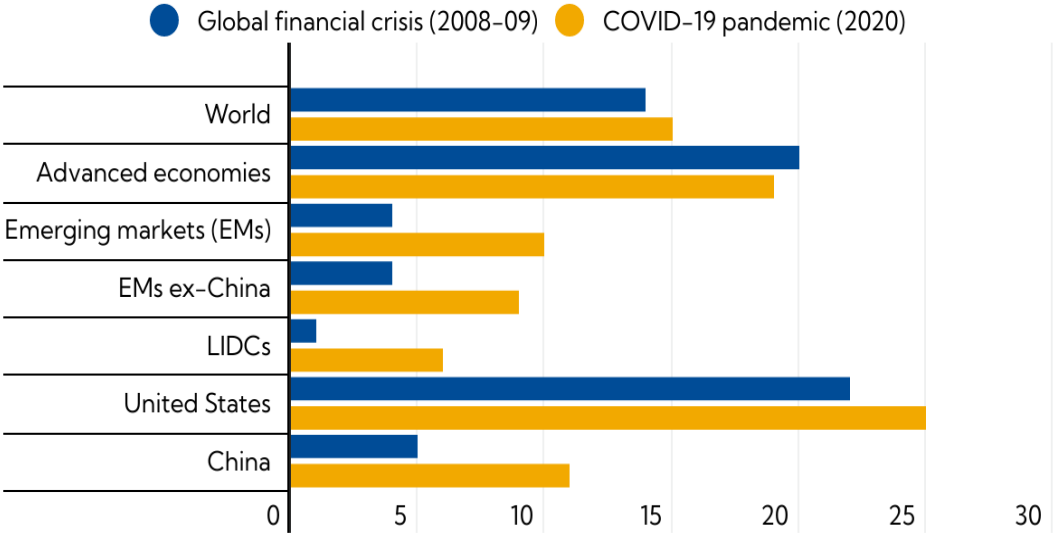
Now versus then

Public debt soared around the world in 2020, growing faster in some regions than during the global financial crisis.
(percent of GDP)

Public debt stock



Changes in debt



Sources: IMF Global Debt Database and IMF staff calculations.
Note: LIDCs = Low-income developing countries.

IMF

18. 9 SUMMARY :

After studying this lesson the student should able to: Know about India's External Debt as at End of September 2022; Understand regarding Bank for International Settlements (BIS) and Reasons for less repayment of Loans from LDCs. Further, it is revealed the following aspects such as: Reasons for Borrowing by the Less Developed Countries; Problems for Banks and Bank for International Settlements (BIS); The International Debt Crisis and Reasons for less repayment of Loans from LDCs; Global Debt Reaches high and rising inflation and etc. The uncertain outlook and heightened vulnerabilities make it critical to achieve the right balance between policy flexibility, nimble adjustment to changing circumstances, and commitment to credible and sustainable medium-term fiscal plans. Such a strategy would both reduce debt vulnerabilities and facilitate the work of central banks to contain inflation. Targeted fiscal support will play a crucial role to protect the vulnerable (see the October 2021 Fiscal Monitor). Some countries—especially those with high gross financing needs (rollover risks) or exposure to exchange rate volatility—may need to adjust faster to preserve market confidence and prevent more disruptive fiscal distress. The pandemic and the global financing divide demand strong, effective international cooperation and support to developing countries.

18.10 TECHNICAL TERMS :

- **External Debt :** External debt is the portion of a country's debt that is borrowed from foreign lenders, including commercial banks, governments, or international financial institutions. These loans, including interest, must usually be paid in the currency in which the loan was made. To earn the needed currency, the borrowing country may sell and export goods to the lending country.
- **LDCs :** Least developed countries (LDCs) are low-income countries confronting severe structural impediments to sustainable development. They are highly vulnerable to economic and environmental shocks and have low levels of human assets. There are currently 46 countries on the list of LDCs which is reviewed every three years by the Committee for Development (CDP). LDCs have exclusive access to certain international support measures in particular in the areas of development assistance and trade.
- **GDD :** The Global Debt Database (GDD) is the result of a multiyear investigative process that started with the October 2016 Fiscal Monitor. The dataset comprises total gross debt of the (private and public) nonfinancial sector for an unbalanced panel of 190 advanced economies, emerging market economies and low-income countries, dating back to 1950. For more details on the methodology and definitions, please see the Mbaye, Moreno Badia and Chae (2018).
- **Fiscal Monitoring :** The Fiscal Monitor provides governments the tools to analyze the resilience of public finances. By identifying risks within the balance sheet, governments can act to manage or mitigate those risks early, rather than dealing with the consequences after problems occur.

18.11 SELF ASSESSMENT QUESTIONS :

1. What is international debt?
2. Explain about India's External Debt as at End of September 2022
3. What are the Reasons for Borrowing international debt in India?
4. What are the Problems faced by the Banks in providing loans to LDCs?
5. Explain about Bank for International Settlements (BIS).

6. Discuss briefly about the International Debt Crisis.
7. What are the Reasons for less repayment of Loans from LDCs? Explain it.
8. Which level Global Debt Reaches high and also rising inflation*explain it.

18.12 SUGGESTED READINGS :

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LESSON - 19

PROBLEM OF DEBT SERVICING

LEARNING OBJECTIVES :

After studying this lesson the student should able to :

- Know about Debt Servicing Problem in India
- Understand Reasons for Difficult in Money Recovery and Debt Collection in India
- Awareness about The Debt Service Suspension Initiative (DSSI)

STRUCTURE :

19.1 INTRODUCTION :

The debt servicing capability of an individual or a company refers to its ability to repay the interest and principal on debt obligations. For example, a range of debts such an amortized loan, capital loans, mortgage loans, or personal loan, will require payment on time. A prospective borrower will have certain requirements for loans that will be outlined in the repayment schedule for eligible debt. Essentially, debt service is how trustworthy a borrower is to pay off the remaining loan. The debt restructuring process can also play a big role in any debt burdens, such as yearly debt. Debt service refers to the money required to cover the payment of interest and principal on a loan or other debt for a particular time period. The term can apply both to individual debts, such as a home mortgage or student loan, and corporate or government debt, such as business loans and debt-based securities such as bonds. The ability to service debt is a key factor when a person applies for a loan or a company needs to raise additional capital to operate its business. To “service a debt” means to make the necessary payments on it. Debt service refers to the money required to pay the principal and interest on an outstanding debt for a particular period of time. The debt service ratio is a tool used to measure a company’s leverage. Prospective lenders or bond buyers want to know that a company will be able to cover any new debt on top of its current debt

load. To carry a high debt load, a company must generate consistent and reliable profits to service its debts.

Have you ever used a credit card and forgotten to pay off your balance? Maybe you took out a student loan and want to know how much you need to contribute to help pay it off more efficiently. Whatever type of debt it is, debt service is an effective way to help figure out how much you need to pay and when. This can be an important strategy to use if you want to take on more debt in the future. And it works similarly for both individuals and businesses. Creditors want to know if you have a solid credit history of servicing debts before they issue another loan, for example. Read on to learn all about debt service and how it works. We will break down how to calculate it and touch on the debt service coverage ratio.

19.1.1 Importance of Debt Service :

Debt service refers to the amount of cash that's needed to repay the principal and interest on a debt. The amount is for a specific period of time. For example, if you take out a student loan or a mortgage, you will need to calculate the monthly or annual debt service that's required and any additional resources. It works the same way for a company, as well. In this case, a company would need to meet the debt service requirements for any bonds or loans that were issued. A company's ability to service debt becomes an important factor when it looks to raise capital for business operations.

i. Being able to raise funds and capital is an important part of any business venture. One of the best ways to do this is by borrowing money. However, obtaining debt and carrying it isn't always as easy as it might seem and it can affect the balance sheet of a company. Plus, in order to carry debt, the bank, investor, or lending institution needs to trust that the borrower will be able to repay. In essence, the debt servicing capacity of a company is a key indicator of trustworthiness.
ii. When a company can service its debts consistently, it's going to have a good credit score. In turn, this is going to increase the opportunity of being approved by lenders for future credit for more sustainable debt.
iii. It works the same way for individuals, as well, who will have to manage their personal finances by focusing on debt servicing. When debts are serviced consistently your credit score will increase, which will improve the chance of receiving a car loan, a mortgage, reducing credit card debt, or a wide range of other debts.

19.1.2 How Debt Service Works :

Determining the debt service coverage ratio is often one of the first things a company will do before it approaches a financial institution or banker. If it is looking to take out a commercial loan or wants to know what to offer for the rate of interest for a bond issue, this is important to know.

Understanding the debt service coverage ratio will help gain insight into how well the borrower can make any debt service payments. This is because the ratio compares the amount of interest and principal that must be paid against the company's net operating income. If the ratio shows that the business isn't going to be able to have consistent earnings to pay off the device debt, the loan won't be issued by the lender. However, both bondholders and lenders are going to be interested in the leverage a company has and their debt levels.

Leverage refers to the amount of current debt load a company can use to finance asset purchases. When a business takes on additional debt capacity, it's going to need to earn higher profits in its income statement to cover the debt obligations. As well, the business will need to generate these profits consistently to be able to carry the high debt load. Certain debt

decisions are going to affect the overall capital structure of a company. So, one with reliable and consistent earnings will be able to raise extra funds using its debt. On the flip side, a business that has inconsistent profits will usually issue equity to raise funds, such as common stock.

19.1.3 How Do You Calculate Debt Service? :

Calculating debt service is fairly simple, all you're going to need to do is have knowledge of or access to the loan's repayment schedule and interest rate. Then, you need to calculate the principal payments and the periodic interest that's due on a loan. Debt service calculations play a big role in determining how much cash flow would be required to cover payments. This is why calculating the annual debt service is so useful. From here, you can use the calculations to compare against the annual net operating income of a company. Before a business is able to start borrowing, it needs to determine its debt service coverage ratio (DSCR). This ratio is important to measure the ability of the company to make its debt payments on time.

19.1.4 Debt-Service Coverage Ratio (DSCR) :

To calculate the DSCR, you divide the net income of a company with the total amount of principal and interest that needs to get paid. When a company has a higher ratio, it's going to have a better chance to obtain a loan. Before a company approaches a bank or other lender for a commercial loan or decides what rate of interest to offer on a new bond issue, it will need to consider its debt-service coverage ratio (DSCR). This ratio compares the company's net operating income with the amount of principal and interest that it is obligated to pay on its current debts. If a lender decides that a business cannot generate consistent earnings to service the new debt along with its existing debts, then the lender won't make the loan. Both lenders and bond investors are interested in a firm's leverage. That refers to the total amount of debt a company uses to finance asset purchases. If a business intends to take on more debt, it needs to generate higher profits to service the debt, and it must be able to consistently generate profits to carry a high debt load. A company that is generating excess earnings may be able to service additional debt, but it must continue to produce a profit every year sufficient to cover the year's debt service. A company that has taken on too much debt relative to its income is said to be overleveraged. Decisions about debt affect a company's capital structure, which is the proportion of total capital raised through debt vs. equity (i.e., selling shares). A company with consistent, reliable earnings can raise more funds using debt, while a business with inconsistent profits must issue equity, such as common stock, to raise funds.

For example, utility companies have the ability to generate consistent earnings, in part because they often have no competitors. These companies raise the majority of their capital using debt, with less of it raised through equity. As mentioned, the debt-service coverage ratio is defined as net operating income divided by total debt service. Net operating income refers only to the earnings generated from a company's normal business operations. Suppose, for example, that

ABC Manufacturing makes furniture and that it sells one of its warehouses for a gain. The profit it receives from the warehouse sale is non-operating income because the transaction is unusual. If ABC's furniture sales produced annual net operating income totaling $10 million, then that number would be used in the debt service calculation. So if ABC's principal and interest payments for the year total $2 million, its debt-service coverage ratio would be 5 ($10 million in income divided by $2 million in debt service). Because of that relatively high ratio, ABC is in a good position to take on more debt if it wishes to do so.

19.1.5 Debt-To-Income (DTI) Ratio :

A debt-to-income (DTI) ratio is similar to a debt-service coverage ratio, although typically used in personal (nonbusiness) borrowing. The DTI ratio measures an individual's ability to service their debts by dividing their gross income by their debt obligations for the same time period. For example, someone who earns $5,000 a month and pays $2,000 a month on their mortgage will have a DTI of 40%. An acceptable DTI will vary from lender to lender and according to the type of loan product.

i. **Loan servicing :** While they sound similar, loan servicing and debt servicing are two different things. Loan servicing refers to administrative work performed by lenders or by other companies they hire, such as sending out monthly statements to borrowers and processing their payments.
ii. Debt servicing refers to the process of a borrower paying down a loan or other debt. Debt service refers to the money that a person, business, or government needs to cover the payments on a loan or other debt for a particular time period. A company's debt-service coverage ratio measures its ability to handle additional debt by comparing its available income to the amount it is currently paying to service its debts.

19.2 DEBT SERVICING PROBLEM IN INDIA :

Unmanageable accumulation of debt Decrease in volume of OIL imports Increase in trade credits. India's external debt at end-March 2015 was placed at US$ 475.8 billion recording an increase of US$ 29.5 billion (6.6 per cent) over its level at end-March 2014. Higher debt service payments during 2014-15 relative to the preceding year, were largely on account of higher repayments of ECBs during the year. Rising interest rates in the domestic market are encouraging large firms in the Indian corporate sector to resort to foreign borrowing to finance domestic expenditures. Though still incipient, this is a tendency that should give cause for concern.

19.2.1 Overview of Money Recovery and Debt Collection in The Indian Economy :

India being a developing economy is plagued with a lot of fundamental problems against which there has been no real development for a long time. Of these, the most basic of problem is that of "contract enforcement". While lack of legal awareness and general education amongst the people of this country is a big factor, the other reason is inefficient, costly and a glacially slow legal system. While getting into contracts, most people do not even consider the remote possibilities of what may happen in the future in case of breakdowns or even if some do, they do not tend to question the terms and conditions or even what are the means available to enforce that agreement in the event the other party does not honor the agreement. According to a World Bank survey, India ranks second last, i.e., 189 out of 191 countries for contract enforcement as per the latest statistics. Quantitatively speaking, the amount of unclaimed money just sitting in several bank accounts total to over Lacs of Crores. This not only include amounts such as a little over 64,000 Cr. Of unclaimed deposits and 3,500 Cr. Of unclaimed insurance money but also a whopping 30,000,000 Cr of unpaid bills!

19.2.2 Debt Recovery Tribunals :

Debt Recovery Tribunals, which only banks get to access, have a staggering success rate of under 25%! No wonder there is so much unclaimed money in the economy. The difficulty in money recovery and contract enforcement leads to a massive uncertainty which

is a big cost of doing business in India. Uncertain cash flow is a major factor for businesses closing down in India. It renders the entire business environment ineffective and pulls down India's score in the Ease of Doing Business Index released by the World Bank.

19.2.3 Government undertakes :

If the Government undertakes to have a more systematic approach to money and debt recovery in general, not only large corporations but also small enterprises will be benefitted with massive competitive edge over others as a whole. Therein lies the purpose of the guide, to not only make aware but also to provide solutions to long standing problems involved with Debt collection and Money recovery. Court systems in India are glacially slow and a business owner should not opt for it unless they have exhausted all other means. In business, time is crucial and everything depends upon the timeliness and reliability of information. Getting stuck with an expensive and slow litigation is a thing no one wants and so this guide, to make them aware of the alternative means they can take to recover their dues.

19.3 REASONS FOR DIFFICULT IN MONEY RECOVERY AND DEBT COLLECTION IN INDIA :

Although the problem of debt servicing has been somewhat neglected in the literature on international capital movements, it is of central importance for the debtor countries. Debt services — which include payments for the floating of the loan abroad, interest, and amortization — flow in the direction opposite to the capital flow. These payments are not merely monetary transactions, but transactions that ultimately require a corresponding transfer of goods and services. Consequently, the "transfer problem" arises as in the case of the original movement of capital.

i. **Issues with Money Recovery :** Some of the most common problems with money recovery start from the very inception of the agreement with things like certainty of terms of the agreement, financial background of the parties entering into it, etc. Some of these, the more important and crucial ones are covered below so that the reader can understand and timely avoid these pitfalls.

ii. **Problems with Oral Contracts :** The problems with Oral contracts is that they are not written down anywhere meaning, there is no paper trail to follow and prove its existence in the event of things going bad. The most basic thing a business owner can do is to avoid entering into oral agreements altogether. This strategy should be quite sound for most situations but what about those instances where the accepted trade practice is oral contracts? For such instances, the best thing to do, is to have witnesses who can attest the existence of such contracts in the event of a breach.

iii. **Faulty Written Agreements :** One might think that shifting from Oral contracts to written ones might possibly solve all your woes but guess what? Written ones have even more problems. Unlike oral ones where if you can prove the existence of such an agreement, your job is done, but in written ones, that's just the very beginning of the entire process. The problem mainly with written agreements is that many parties do not have the habit of asking questions about terms and conditions, and that a great majority of contracts are very poorly drafted. Many a times people enter into agreements which turn out to be null and void at the very beginning leading to cancellation of the entire thing and the person who lent the money is left with no recourse. Always ask as many questions as you can before signing something. If something sounds fishy, question it! If you feel something is vague, question it! Questioning something will not only clear your doubts but also keep the opposite party always on their toes and they'll think twice before trying to cheat you.

iv. **Issues with Jurisdiction :** Jurisdiction is critical because it tells you where you can or have to go to enforce a certain contract. If a contract is executed in Delhi that specifies the governing jurisdiction as the State of New York, in the event of a breach, almost never would the aggrieved be willing to go to New York to enforce it. As a standard practice, there is almost always going to be a pre-determined jurisdiction governing the agreement. You should look into this particular jurisdiction and adjudge whether it would be favorable for you in the event you need to enforce it. In the rare instances where jurisdiction is missing, law in general says, it shall be the jurisdiction of where the contract is being entered into.

v. **Instances of Cheating :** No matter how careful you are, sometimes, things just don't work out. This may be attributed to two aspects namely (a) Being Acts of God and (b) Being Act of Cheating. For the former, there nothing as party to the contract you can do since it is something which is much beyond the scope of foreseeable outcomes. But, in case of the later scenario breaches can be attributed to the acts of the other party.

Figuring something out on the face of it might be a bit difficult so the best thing as a contracting party a person can do is to look into the background of the other party to get a rough idea of the character of the other party and decide accordingly.

vi. **Bankruptcy of the Borrower :** With cheating out of the way, there is another thing that may happen, i.e., Bankruptcy. Bankruptcy relates to the other party being completely unable to execute the contract due to a complete cash crunch and possible insolvency from his end.

The best way to avoid such a scenario is to look into the balance sheets and financial statements of the other party at the point of signing. If things seem sketchy, it's advisable to either not enter into the contract or to ask for Indemnifiers or Guarantors.

vii. **Issues with Corporate :** The main problem with corporates is a lot of red-tapism, communication gaps and inefficient management. As a contracting party, a person can have two types of relationships with a corporate. The first being an investor relationship, the second a business relationship. For the former, although the SEBI Act, Securities Contract Regulation Act and the Companies Act lays down fixed timelines, the main problem is that the investor is not aware of his right at the time of signing the agreement. The best way to know the rights an investor has is to either go through the SEBI website once or attend any of the SEBI camps aimed at increasing investor education so that the investor can assert his rights and take what is owed to him. For the later bit when there is a business relationship, red-tapism is the primary problem where the best thing to do as a contracting party is to establish a proper person of contact in the higher management and get things done through that person so that, there is minimum confusion and errors due to time lag and communication gaps.

viii. **Issues with the Slow Legal System :** Let's face it, the main reason why most business owners do not want to go through the entire court process is due to the painfully slow legal system. The remedy to this is to opt for alternative means in enforcing the contract such as through Legal Notices, F.I.Rs, and Complaining to regulator, etc., before heading to court. Finally, if nothing works, then only the person should head to court to have his matter sorted out. The most effective way to end court proceedings quickly is to go for summary proceedings under Order 37 of the Civil Procedure Code. Summary proceedings are all based on written statements from both parties without any unnecessary trial hearing and this drastically reduces the time lag from filing to judgment.

ix. **Expensive Arbitration :** If there is an Arbitration clause in the agreement, a court will not entertain the suit. Then the only alternative the aggrieved has is to go for Arbitration. Although Arbitration is a much faster means than litigation, it is a much more costly affair than litigation. The best way to curb Arbitration expenses is to go for Institutionalized Arbitration since the institution have a fixed rate chart and the aggrieved has to pay only the amount which significantly reduces costs.

x. **Expensive Lawyers :** Another big reason why people don't go for Money recovery is because of the rates charged by their lawyers. The general trend is that, the aggrieved is exploited into paying much more than he should be due to his lawyer. The easiest way to remove such difficulties is to contact Legal aggregators and such services who maintain a database of qualified and cheap lawyers willing to quickly settle their matters.

Remedies to Such Issues :

Once a contract has been breached, the first thing an aggrieved party should do is refer to the contract to check his available remedies. There are a lot of things a person as an aggrieved party can do once a contract has been breached, which are discussed here in brief and in detail at a later chapter in this guide.

Civil Remedies Available : In terms of civil remedies, there are a lot of things an aggrieved party can do ranging from very simple things like sending a legal notice to things like initiating a civil suit for damages or debts due.
Civil suits take a tedious amount of time and should be resorted to only when the main relief the aggrieved is seeking is monetary in nature. For more serious consequences, without delay, the aggrieved should opt for criminal remedies.

Criminal Remedies Available : For seeking criminal remedies, the first thing to do is once the jurisdiction is established the agreement is to forthwith file an F.I.R with the local police station having jurisdiction over the matter and set things in motion. Once a sufficient amount of evidence has been gathered through police investigation, a criminal suit should be initiated for quick disposal of the matter.

Out of Court settlements : Finally, for high monetary value contracts, the best way is to settle differences and cut off loses through alternative dispute mechanisms such as Arbitration or Mediation. This is a method which is most effective against corporates as the matter can be resolved very expeditiously without furthering the loses they'd normally have to bear without having to resort to the tedious court process. For Out of Court settlements, the contract needs to specifically speak of Arbitration/ Mediation/ Conciliation or both parties need to agree to it. Without the presence of either, an aggrieved cannot go for this method of Debt recovery.

19.4 DEBT SERVICE SUSPENSION INITIATIVE (DSSI) :

The Debt Service Suspension Initiative (DSSI) means that bilateral official creditors are, during a limited period, suspending debt service payments from the poorest countries (73 low- and lower middle-income countries) that request the suspension. It is a way to temporarily ease the financing constraints for these countries and free up scarce money that they can instead use to mitigate the human and economic impact of the COVID-19 crisis. The DSSI helps address immediate liquidity needs but does not mean that existing debt sustainability problems in some of these countries will be resolved. Before the onset of the COVID-19 crisis, debt vulnerabilities had become elevated in many IDA countries, with more than 50 percent being classified as either in or at high risk of debt distress. But DSSI

does help by providing more time to properly assess and address debt sustainability on a country-by-country basis.

i. How much debt service relief will be provided? The overall amount of relief depends on how many countries request to benefit from the DSSI. As of March 8, 2021, more than 60 percent of the eligible countries have made requests for the debt service suspension. In 2020, 43 countries are estimated to have benefited from US$5.7 billion in debt service suspension. The first six-month DSSI extension through June 2021 could provide an additional US$7.3 billion of debt service suspension for the participating countries as of March 8, 2021.

ii. How long will this debt service suspension last? Is this long enough? On April 7, 2021, G20 bilateral official creditors agreed to a final extension of the DSSI by 6 months through end-December 2021. The DSSI is part of broader package to support low-income countries, including the provision of further concessional financing, debt relief under the CCRT, support for capacity development and a new general SDR allocation. DSSI eligible countries that need debt relief beyond the DSSI, are encouraged to seek such relief under the G20 Common Framework (see the following section for more details).

iii. What progress has been made on getting the private sectors to contribute on equal terms as the official creditors under the DSSI? The recommendation by the International Institute of Finance , the IIF, that private creditors voluntarily grant debt payment forbearance in a similar way, is welcome. On May 28, 2020, the IIF released Terms of Reference (ToR) to facilitate voluntary private sector involvement in the DSSI after extensive discussions and collaboration with private sector creditors. The IIF's ToR provide a flexible framework to allow sustained progress in the conversations between sovereign borrowers and creditors. However, private sector participation has been limited so far. The IMF, as the G20, would like to see private creditors participating in the debt service suspension on equal terms when requested by eligible countries. By supporting low income countries at this time, private creditors can facilitate their efforts to cope with and recover from the pandemic, which is also in the long-term commercial interest of private creditors.

iv. Do countries need to qualify for IMF financing in order to have access to the G20 debt service suspension initiative (DSSI)? In order to apply for the DSSI, a country either needs to be in an IMF financing arrangement, or it needs to have requested financing (including emergency financing) from the IMF. However, a request is enough. This means that even countries that could not have access to IMF financing because their debts are not sustainable can still benefit from the DSSI. A country that is already participating in the DSSI and would like an extension into 2021 could continue to participate. There is no need for the country to make another request for IMF financing.

v. What is the IMF's role in supporting the implementation of the G20 DSSI? The IMF and the World Bank staffs are providing technical support to the Debt Service Suspension Initiative (DSSI), with our country teams working to inform countries about the initiative and also by supporting the provision of information requested by the G20 such as monitoring the use of the resources released by the DSSI to address the pandemic shock.

vi. The poorest countries are offered temporary debt service relief, but many of them are already in debt distress or at high risk of debt distress. Wouldn't it be better to restructure their debt? When debt is unsustainable, restructuring is urgently needed. The IMF takes a case-by-case approach in assessing whether a country needs a debt

restructuring, taking into account debt sustainability analysis and the continued availability of the financing that countries need for their long term growth and development. For those countries that have unsustainable debts, the IMF is precluded from lending unless the member takes steps to restore debt sustainability (including a debt restructuring). Already, the IMF is working with a number of countries to conduct the debt sustainability analysis (DSA) to determine the financing envelope necessary to restore debt sustainability and underpin member's efforts to gain the debt relief needed to enable a lasting economic recovery. But assessing debt sustainability takes times, especially in the current situation of immense uncertainty about the economic impact of the pandemic. Countries need immediate relief. The DSSI helps to temporarily ease the financing constraints for the poorest countries by freeing up scarce money that they can use to mitigate the human and economic impact of the COVID-19 crisis. In anticipation of the need for deeper debt relief in some cases, the G20 agreed on a Common Framework for Debt Treatments beyond the DSSI, which should help facilitate debt restructuring on a case-by-case basis and burden sharing across creditors. Depending on the economic and debt situation of each country, this relief could be a deferral of a portion of debt service payments for a number of years (a reprofiling or rescheduling), or, where the situation is more difficult, a reduction in debt service payments in present value terms may be required (for more information on the G20 Common Framework see the next section).

vii. The DSSI provides relief to the poorest countries. What about the middle-income countries that also need debt relief? The initiative focuses on IDA countries, because they are the poorest countries and are in urgent need of relief in order to increase health spending and address other needs related to the COVID-19 pandemic. But it is true that some middle-income countries that do not qualify for the G20 official bilateral debt service suspension are also facing severe falls in growth and large impacts on their fiscal and debt positions. The IMF has been providing rapid support through its emergency financing facilities and is ready to continue to provide further support, including to middle-income countries, if needed.

viii. Debt service due to the multilateral official creditors (the IMF and the World Bank) is about the same size as to bilateral official creditors. Why not suspend debt service payments to the IMF? In supplying new financing to member countries, the IMF, like many other IFIs, provides these member countries with much needed resources to deal with emergency situations like this. While most official bilateral creditors have agreed to at least maintain their overall outstanding lending to the DSSI beneficiary countries, the IMF and the World Bank are substantially increasing their overall outstanding lending, and this lending is on favorable terms compared to the market. The provision of this additional financing is already well under way.

ix. As of early April, 2021, the IMF Executive Board has approved emergency financing to 51 LICs, totaling about $12bn, and support for more can be approved. More financing is made available to countries who request additional financing through the Fund's regular concessional financing facilities. In addition, the IMF has been providing debt service relief through the Catastrophe Containment and Relief Trust (CCRT) to 29 of its poorest and most vulnerable member countries, covering these countries' eligible debt falling due to the IMF for the period between April 2020 and mid-October 2021. We are working with donors to increase funds for further debt relief through this trust, so that we can extend the duration of grant-based debt relief to our most vulnerable members to up to a two year period, ending April 2022.

19.5 WORLD BANK'S GLOBAL DEVELOPMENT FINANCE REPORT 2012 :

Data in the World Bank's global development finance 2012 report shows total external debt stocks owed by developing countries increased by $437bn over 12 months to stand at $4tn at the end of 2010, the latest period for which data is available.

Many poor countries in Asia and Latin America (for example, Jamaica and El Salvador) did not have debts written off because their income per capita was too high to meet the IMF and World Bank criteria. Others, such as Bangladesh, did not qualify for cancellation because their debts were seen as sustainable.

Ethiopia's public sector debt is almost back at pre-MDRI levels, with China becoming Ethiopia's third biggest lender (11% of new loans) behind the World Bank (34.3%) and IMF (11.5%), according to the AEO report. Ghana was also highlighted in the report. It used the space created by debt reductions to borrow more money on the international markets, at interest rates 10 times higher than institutions such as those imposed by the World Bank and African Development Bank.

The IMF highlights 12 countries it says are at high risk of not being able to pay their debts: Afghanistan, Burkina Faso, Burundi, the Democratic Republic of the Congo, Djibouti, Gambia, Grenada, Haiti, Kiribati, Laos, Maldives, São Tomé and Príncipe, Tajikistan, Tonga and Yemen. Ratio of external debt to GNI averaged 22 percent in 2014, and the ratio of external debt to exports averaged 79 percent. International reserves stood at 114 percent of external debt stocks. Net equity inflows, $668 billion, were 7 percent higher than the 2013 level propelled by a 4 percent increase in net foreign direct investment and robust portfolio equity flows, which were up 29 percent.

19.6 SUMMARY :

After studying this lesson the student should able to: After studying this lesson the student should able to: Know about Debt Servicing Problem in India; Understand Reasons for Difficult in Money Recovery and Debt Collection in India; Awareness about The Debt Service Suspension Initiative (DSSI). Generally speaking, the higher, the better. But business lenders will usually want to see a ratio of at least 1.25. A debt-service ratio of 1, for example, means that a company is devoting all of its available income to paying off debt—a precarious position that would likely make further borrowing impossible. Companies can also have a debt-service coverage ratio of less than 1, meaning that it costs them more to service their debt than they are generating in income. However, a business in that situation might not survive for long.

19.7 TECHNICAL TERMS :

- **Capital Flow :** Capital flows refer to the movement of money for the purpose of investment, trade, or business operations. Inside of a firm, these include the flow of funds in the form of investment capital, capital spending on operations, and research and development (R&D). On a larger scale, a government directs capital flows from tax receipts into programs and operations and through trade with other nations and currencies. Individual investors direct savings and investment capital into securities, such as stocks, bonds, and mutual funds.
- **Foreign Capital :** Foreign investment involves capital flows from one country to another, granting the foreign investors extensive ownership stakes in domestic companies and assets. Foreign investment denotes that foreigners have an active role in management as a part of their investment or an equity stake large enough to enable

the foreign investor to influence business strategy. A modern trend leans toward globalization, where multinational firms have investments in a variety of countries.

- **Import Price :** The U.S. import and export price indexes (MXP) measure the change in prices of goods and services purchased from abroad by U.S. consumers and businesses (imports)
- **Debt Service :** Debt service refers to the money required to cover the payment of interest and principal on a loan or other debt for a particular time period. The term can apply both to individual debts, such as a home mortgage or student loan, and corporate or government debt, such as business loans and debt-based securities such as bonds. The ability to service debt is a key factor when a person applies for a loan or a company needs to raise additional capital to operate its business. To "service a debt" means to make the necessary payments on it.

19.8 SELF ASSESSMENT QUESTIONS :

1. What is debt servicing? Explain the Debt Servicing Problem in India
2. What is Money Recovery?
3. What is Debt Collection
4. Explain the Reasons for Difficult in Money Recovery and Debt Collection in India
5. Discuss about the Debt Service Suspension Initiative (DSSI).
6. What are the highlights of World Bank's global development finance report 2012

19.9 SUGGESTED READINGS :

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LESSON - 20

INTERNATIONAL DEBT CRISIS IN DEVELOPING COUNTRIES

LEARNING OBJECTIVES :

After studying this chapter, you should be able to :

- Know the Causes of the international debt crisis
- Discuss about Challenges Faced by Developing Countries under Debt Distress
- Understand about Solutions for Solving the Low-Income Country Debt Crisis

STRUCTURE :

20.1 INTRODUCTION :

i. **An Overview of Foreign Debt Crisis in Developing Countries :** During the 1970s and early 1980s developing countries accumulated a huge foreign debt which they subsequently found difficult to service (i.e., repay along with interest). This debt burden seriously hampered their development planning during the 1980s. The debt arose as many developing countries borrowed heavily from private banks in developed nations to finance their growing capital needs and to pay for sharply rising crude oil bills during the 1970s. Over the past two decades, many firms and governments of developing countries borrowed billions of dollars from banks in the developed countries. But while the 19th century railway companies were able to repay their debts, it become apparent in the 1980s that some of the countries that had borrowed heavily—particularly Brazil, Argentina and Mexico, could not repay what they owed.

ii. **Borrowing by developing countries from international banks :** The resulting crisis threatened the economic prospects of the developing countries and the financial viability of many banks in the rich countries. The 1970s saw large-scale external borrowing by developing countries from international banks. By 1982, the accumulated debt of developing countries totaled $600 billion. Increase in US interest

rates from 1979 and the appreciation of the dollar put pressure on the ability of the developing countries to service their debts.

iii. **Slowly expanding exports :** All these adverse developments occurred in the face of slowly expanding exports to developed countries (as the latter faced the problem of slow growth), lower prices for their commodity exports, and higher interest rates. By borrowing heavily abroad, developing countries somehow managed to grow at a relatively rapid pace even during the second half of the 1970s. However, in the early 1980s, their huge and rapidly growing foreign debts caught up with them and large-scale defaults were avoided only by repeated large-scale intervention by the IMF.

iv. **The debt-service ratio is particularly crucial :** The World Bank uses two main criteria to judge whether a country's level of debt is sustainable whether the debt to export ratio exceeds 200-250%; and whether the debt service ratio exceeds 20-25%. The debt-service ratio is particularly crucial because this measures the amount of foreign exchange earnings that cannot be used to purchase imports and is, therefore, measure of the extent to which a government might decide to default on its repayment obligations.

v. **The more the debt service payments :** The more the debt service payments, the more that development is thwarted (hampered). Many developing countries, particularly in Africa, are in a debt crisis situation with debt-export and debt-service ratios much above the World Bank limits of sustainability. The debt-service ratio measures the ratio of amortization and interest payments to export earnings. A constantly rising ratio means a greater fixed claim on export receipts, and, therefore, there is a greater proneness to default if these receipts fluctuate and foreign exchange requirements for other purposes cannot easily be curtailed.

vi. **Foreign exchange problem :** In this sense, the world debt problem is essentially a foreign exchange problem. It represents the inability of debtors to earn enough foreign exchange through exports to service foreign debts, and, at the same time to sustain the growth of output (which requires foreign exchange to pay for imports). Either debt service payments have to be suspended or growth curtailed, or a combination of both.

vii. **Renegotiate their debt repayment schedules :** Facing default several developing countries were forced to renegotiate their debt repayment schedules and interest payments with their creditor banks in the developed countries, with the help of IMF and as directed by it. As part of the deal debtor nations were required to adopt austerity and to cut inflation, prevent wage increases and curtail domestic programmers, so as to be able to achieve economic growth on a more sustainable basis.

viii. **Private banking system and sovereign lenders :** The debt crisis first started in the middle of 1982, when Mexico became the first country to suspend the repayment of loans due to the private banking system and sovereign lenders, the crisis has become more and more serious since then with more and more countries finding it difficult to service accumulated debts out of foreign exchange earnings. In 1987 Brazil became the first country to suspend interest payments to foreign creditors.

ix. **Balance of payments surpluses :** The origin of the current debt problem of developing countries can be traced to the huge balance of payments surpluses of the oil exporting countries in the early 1970s with counterpart deficits elsewhere. The factors that caused the supply of capital to increase created its own demand. Private banks were eager to lend their surplus funds and there was no deficiency of demand.

x. **Credit became cheap and risk of lending was low :** Demand was very strong due to world commodity boom, exports were buoyant and inflation had reduced the real rate of intersect on loans to almost zero. Credit became cheap and risk of lending was low. But things changed very quickly. Depression in the developed countries, caused by the adoption of domestic anti-inflationary policies, caused world commodity market to collapse, prices of tumble, exports to languish and real interest rates to soar. On top of this, nominal interest rates moved upwards and the dollar appreciated.

xi. **Spent by the Government on current consumption :** The LDCs' debt problem was exacerbated by the uses to which much of the money has been put. Instead of being invested in productive projects, it has been spent by the Government on current consumption to gain popularity or for keeping inefficient state enterprises alive, or it had simply disappeared in the pockets of politicians and officials. The outcome was that, by 1982, many LDCs were burdened with vast debts that they were unable to service. The debt crisis began in August 1982 when Mexico, the second largest LDC debtor, announced a payment moratorium. New loans and rescheduled time-table for repayments were required. The new Mexican moratorium was a shock to the international banks, which realized that other LDCs faced similar problems.

20.2 CAUSES OF THE INTERNATIONAL DEBT CRISIS :

- Four main causes of the international debt crisis of the 1980's were the following:
- The root cause of the debt crisis was a rise in US interest rates and the inability of the debtors to anticipate it and to appreciate its adverse effects.
- The second reason was miscalculations of the county risk.
- The third reason was that banks have relaxed their credit criteria in their lust (passionate desire) for profit from the petro-dollar recycling business.
- Finally, the syndicated loan system provided a false sense of security. To everybody's surprise all the banks were involved in wrong doing at the same time.
- Surely the main cause of the debt crisis was rising interest rates. In the 1970s, real interest rate were low, and banks were flushed with petrodollars dollars that oil produces, particularly in the middle East, had earned from selling their oil at the high prices that prevailed from 1973 and wanted to invest or deposit them abroad. Both borrowers and lenders were optimistic that the loans would stimulate economic growth, and repayments would be easy. Then three things happened.
- First nominal and real interest rates rose sharply in the late 1970.
- Secondly, the world economy was hit by a recession in the early 1980s, and the worldwide slowdown in growth made it even more difficult for the developing countries to pay back their loans.
- Thirdly, oil prices fell in the early 1980s. This made it difficult for some of the largest borrowers, mainly oil producers such as Mexico and Indonesia, to repay their loans by selling oil.
- Those countries like the Republic of Korea borrowed heavily but invested the money wisely and have been able to repay it. In contrast, Mexico, Indonesia and several countries invested the borrowed funds in projects that were not economically viable. Since funds were not invested productively repayment because virtually impossible.

20.2.1 Effects of the international debt crisis :

1. Bank exposes to highly indebted countries posed a threat to the western banking system. Governments of developed countries and international institutions such as the IMF and World

2. Bank became involved in the management of the debt crisis through various structural adjustment programmed.
3. Resolution of the debt problem imposed burdens on the borrowers, in the form of austerity and unemployment, on bank shareholders and on taxpayers in the developed world who ultimately paid for their governments rescue operations through the international financial institutions.
4. Most international banks reported losses to their shareholders. Others started the process of restoring the quality of balance sheets.

20.2.2 Reverse Flow of Capital :

In the 1970s and early 1980s, prior to the Mexican moratorium of 1982, the developing countries were net recipients of international capital flows, that is, new loans exceeded interest paying plus repaying of principal. With the onset of the debt crisis, the payments pattern reversed and there were substantial net transfers from developing to developed countries. These were achieved by developing countries at the cost of recession.

20.2.3 Solutions for the international debt crisis :

1. **Rescheduling :** Massive defaults on loans were avoided only by debt rescheduling. As a payment came due, the banks lent the debtor country more money. So the date of repayment was postponed. As a condition for this scheduling, the lenders insisted that the borrowers cut back on their huge budget deficits. But this did not solve the problem.

   The only way the countries could repay was for them to grow faster than in the past. But growth required additional capital, which foreign lenders were reluctant to provide. The only way out was to forgive some of the debt and then count on the 'rest's being repaid.

2. **Debt forgiveness :** Debt forgiveness amounts to a gift to the debtor countries. But it creates other problems. It may encourage countries to borrow more in the future than they have the capacity to repay. Under this scheme a country like Brazil is at an advantageous position compared to poor countries in Latin America, Africa because the former borrows heavily. Debt forgiveness is just like a huge gift to Brazil.

20.3 DEBT DISTRESS CHALLENGES FACED BY DEVELOPING COUNTRIES :

External indebtedness poses important challenges for developing countries, particularly in the context of floating exchange rate systems, open capital accounts and fast integration into international financial markets. The historical position of developing countries as debtors in foreign currency has been a recurrent source of vulnerability to external shocks, for example, during a commodity price slump. This is because the servicing of external debt obligations ultimately requires generating sufficient export earnings or other forms of income. At the same time, exchange rate volatility is likely to affect the value of debt owed externally and that of export earnings in opposite directions. Thus, a depreciation of the local currency against hard currencies may result in increased export earnings (provided that the fall in the dollar price of local exports is compensated by a commensurate increase in export volumes), but will automatically imply an increase in the value of foreign-currency denominated debt obligations in local currency.

i. **Insufficient international public finance flows :** Against a backdrop of insufficient international public finance flows and limited access to concessional resources (UNCTAD, 2020a), developing economies have increasingly raised development

finance on commercial terms in international financial markets. They have also opened their domestic financial markets to non-resident investors, and they have allowed their citizens and firms to borrow and invest abroad. While increased access to international financial markets can help capital-scarce countries to quickly raise much-needed funds, it also exposes them to higher risk profiles of debt contracts, i.e., shorter maturities and more volatile financing costs, as well as to sudden reversals of private capital I in flows. In conjunction with other exogenous shocks, such as natural disasters, pandemics or episodes of political instability, external debt burdens deemed sustainable by international creditors can quickly become unsustainable.

ii. **External debt sustainability through several transmission channels :** In the light of this analytical background, upcoming years appear very challenging for debt sustainability in developing countries due to the unfortunate crossroads of various exogenous shocks and the systemic fragility of the international financial architecture. The COVID-19 pandemic hit developing countries' external debt sustainability through several transmission channels simultaneously, in the form of unprecedented non-resident portfolio capital outflows and reductions in foreign direct investment during the first months of the pandemic, and then sharp falls in export earnings and the virtual collapse of the tourism industry, compounded with slumps in commodity prices and remittances. The immediate consequence was drastically reduced fiscal space in many developing countries. In the longer term, other shocks, including climate-related disasters and the triple impact of the Ukrainian conflict on food, energy and finance prices - as well as rising global interest rates aimed at curbing inflation - have further reinforced those forces that jeopardize growth and progress with the SDGs. Coordinated efforts by international governance has so far managed to prevent a tidal wave of sovereign defaults but the expiration of exceptional measures for debt relief coupled with the tightening of monetary conditions in advanced economies do not bode well.

These trends are largely influenced by China, whose economy accounted for 21.1 per cent of total external debt stocks of developing economies and 41.6 per cent of their GDP in 2020. During the period from 2009-2020, China's external debt stock grew at a rate twice as fast as the developing country average (16.1 per cent), while its GDP grew on average 10.1 per cent per year. As a result, the country's external debt to GDP ratio increased from 8.9 per cent to 15.9 per cent in the period. Excluding China, the ratio of external debt to GDP for developing economies is 14.5 percentage points higher, reaching 45.4 per cent of their GDP in 2021.

iii. **Increase of private sector lending :** This increase of private sector lending participation in developing countries' PPG external debt accelerated after 2009, and this trend has not always been warranted by positive developments in these economies' domestic financial and banking systems. Instead, the driving forces have mostly been global "push factors", such as the impact of accommodative monetary policies in many developed economies in the aftermath of the global financial crisis. The majority of international private lending into developing countries went to high-income and upper-middle income economies, particularly in Asia and Latin America. But the trend has also been upward in other developing regions, including those with a large share of low-income economies, such as Sub-Saharan Africa. High levels of private external indebtedness are of concern since they represent a large contingent liability on public sector finances, ultimately backed by international reserves held in the domestic economy. In the event of wide-spread private sector debt distress, governments will have little choice but to transfer the bulk of distressed private debt to public balance sheets.

iv. **Debt service costs on public external debt continue to pose a serious challenge :** Rising external debt burden along with increased risk profiles of such debt translate into rising servicing costs. Debt service ratios are considered important indicators of a country's debt sustainability. In this sense, SDG indicator 17.4.1 measures "debt service as a proportion of exports of goods and services". This indicator reflects a government's ability to meet external creditor claims on the public sector through export revenues. A fall (increase) in this ratio can result from increased (reduced) export earnings, a reduction (increase) in debt servicing costs, or a combination of both. A persistent deterioration of this ratio signals an inability to generate enough foreign exchange income to meet external creditor obligations on a country's PPG debt, and thus potential debt distress in the absence of multilateral support or effective sovereign debt restructuring.

v. **Creates maturity mismatches :** Only high-income developing countries have maintained a stable ratio of external long-term PPG debt to export revenues of around two to four per cent in the last decade. This is largely due to their greater capacity to issue domestic public debt, with a view to avoiding currency mismatches. However, while greater reliance on local-currency denominated public debt reduces vulnerability to exchange rate volatility, it frequently creates maturity mismatches. Even governments in high-income developing countries are often unable to issue long-term government securities at a sustainable rate of interest, yet they need to be able to pay off or roll over maturing short-term obligations. In contrast, a marked increase of debt service ratios has been registered since 2012 across all other income categories, with a dip in the value for several groups of countries – especially the LICs – related to the G20 DSSI of the G20, beginning of April 2020. The DSSI made 73 countries eligible to suspend their interest payments to official bilateral creditors until December 2021. In the end, 48 countries took up the option – gaining short-term relief on debt servicing, as reflected in the data here (World Bank, 2022b).

vi. **Increasingly tapped into international capital markets :** The amounts suspended will have to be repaid over a period of five years, with a one-year grace period, so this ratio is likely to rise again. Among the 38 UN member states that are SIDS, 22 were eligible to the DSSI, and only 13 joined the initiative. The group of SIDS saw the ratio of debt servicing to long term PPG debt continue to rise from 13.6 per cent prior to the pandemic (2019) to 17.9 per cent in 2021, due to worsening of export performance and little debt relief as only lower-income SIDS were eligible for DSSI. As these economies increasingly tapped into international capital markets, this reflects rising external public debt stocks since 2012 in a context of commodity price volatility, sluggish global economic growth and rising debt service. This is of concern since low-income developing countries still rely predominantly on public financing to mobilize resources for structural transformation, yet also struggle the most with limited fiscal space given their shallow domestic financial and banking systems and limited options to refinance maturing debt obligations in the international financial markets.

vii. **The challenges posed by the COVID-19 shock :** While developed countries have put together massive stabilization packages to flatten both the pandemic curve and the curve of economic and financial crisis, this is not an option open to many developing economies, at least not at the required scale. On one hand, developing countries cannot easily lock down their largely informal economies effectively without more people being affected by hunger rather than by illness. On the other, they face

substantive limitations on their fiscal space to mount rescue packages comparable to those currently under way in developed economies.

To pay for imports and to meet external debt obligations, the vast majority of developing countries are heavily reliant on access to hard currencies, earned primarily through commodity and service exports, such as food, oil and tourism, or received through remittances, as well as access to further concessional and market-based borrowing. Their central banks cannot act as lenders of last resort to their governments to the extent central banks in developed economies can without risking a large depreciation of their local currencies and its effects in terms of steep increases in the value of foreign-currency denominated debt. This has the potential to unleash destructive inflationary pressures and rising borrowing costs, as hinted by recent developments.

It is against this backdrop that already existing debt vulnerabilities and distress in developing countries require decisive action to avoid liquidity constraints turning into wide-spread insolvency crises. Well-designed debt relief through a combination of temporary standstills with sovereign debt reprofiling and restructuring including further enhancing the scale and scope of the G20 Common Framework for Debt Treatments- to help developing countries cope with the wall of upcoming sovereign debt payments. This is likely to be necessary to address not only immediate liquidity pressures, but also to restore long term external debt sustainability in many developing countries, not least with a post-COVID-19 view of achieving the 2030 Agenda for Sustainable Development (United Nations, 2022; UNCTAD, 2020b).

20.4 SOLUTIONS FOR SOLVING THE LOW-INCOME COUNTRY DEBT CRISIS : (Written By Jesse Griffiths) :

This is the second in an ODI series of blogs, briefing papers and reports examining whether a new debt or financial crisis is brewing that could threaten the Sustainable Development Goals – and what should be done to prevent it. My previous blog highlighted the fact that public debt in low-income countries is rising and becoming more expensive, with an increasing number of countries in, or at high risk of a debt crisis. In this blog, based on a forthcoming report, I argue that there are four actions that need to be taken urgently if this brewing crisis in many low-income countries is to be resolved.

1. Boost alternatives to borrowing Low-income countries face major public financing shortfalls to meet even basic public expenditure needs. For example, a recent ODI study documented how significant increases in tax and aid will be needed to ensure that all countries can afford the necessary investments in healthcare, education and social protection in order to end extreme poverty by 2030. Many low-income countries can do more to improve tax collection to reduce the need for borrowing, but this is often a difficult challenge as they tend to have a significantly lower tax potential than other countries. This is partly due to the structure of low-income country economies, which often have small manufacturing and formal sectors, and a less educated workforce. But it is also due to failings in the international system. Tackling the use of offshore financial centers, intra-company operations within multinational corporations, and financial secrecy (which allows for tax avoidance and evasion) are on the international agenda, but far stronger action is needed if this discussion is to result in tangible improvements for low-income countries. In addition, the international debate needs to go beyond tax avoidance and evasion and recognize that international competition over tax incentives and other ‘spillover’ effects means tax policies in developed countries can damage the tax base in many developing countries. However, as our study showed, even if developing countries improved their

tax collection to the maximum extent possible, 46 of them would still face public spending gaps to end extreme poverty. To meet these financing gaps that cannot be filled from domestic taxation, all donors must reach the 0.7% Overseas Development Assistance (ODA) target and direct half the money to the poorest category of countries.

2. Manage borrowing and lending better Careful management of the opportunities, costs and risks of different sources of borrowing is crucial for low-income countries. Capacity for debt management remains weak in many low-income countries, and increased support to tackle this is important. But the underlying reasons for the limited improvement in debt management are linked to a lack of demand, accountability and political commitment. I'll come to this point under proposal three. Lenders should play a key role in improving the borrowing options available to low-income countries. Creditors could offer State Contingent Debt Instruments (SCDIs), where repayments are paused if the borrower faces repayment difficulties. They can also support changes to debt contracts to make restructuring easier, and endorse better contractual terms and conditions. This could entail supporting clauses that allow for restructuring by a majority of creditors, 'standstills' where repayments are halted during difficult periods, or supporting mediation and arbitration mechanisms.
3. Increase accountability to improve the behavior of borrowers and lenders There is considerable room for improvement in debt transparency at the country level, so that domestic citizens and parliaments can provide incentives for governments to improve debt contraction, use, and management. In addition, levels of 'hidden debts' such as contingent liabilities are high in many countries. Meaning, without greater transparency, the real debt risks that low-income countries face are obscured. Transparency is a theme that has only been taken up to a limited extent by international initiatives. Good proposals (PDF) include creating a mandatory public register of lending and requiring both multilateral actors and private sector creditors to use the register. The public disclosure of lending contracts would allow parliaments, journalists, and civil society organizations to examine them, and would also allow other lenders to have the full information before making further loans.
4. Introduce better ways of managing shocks and crises Low-income countries are vulnerable to crises – especially those caused externally – for various reasons. A high proportion of their debt is in foreign currency and their economies are small and vulnerable to changes in the prices of commodities or in global financial markets, including the availability and cost of borrowing. Ensuring debt is managed to deal with potential shocks is an important but difficult element of low-income countries' debt management. Tools that they can use as part of their national development strategy include capital account management techniques, and the use of public development banks and other institutions to try to direct national savings towards longer term productive investment. Nevertheless, there are limits to how much individual countries can be expected to insulate themselves from shocks, which is why the role of creditors and the international system is important. The evidence shows that restructuring is a common feature of sovereign debt markets and given that many countries are in or close to crisis, the focus should be on how to restructure unsustainable debt better. The development of a permanent mechanism for resolving sovereign debt problems has long been on the international agenda and should be revived as the best solution. The key feature of such an institution is that it would be impartial and draw upon expertise, with a legal basis that would make its decisions binding. Fast-disbursing international finance to help developing countries deal with

temporary shocks should also be promoted. These four issues should be at the top of the international agenda. Crucially, preventing another widespread low-income country debt crisis is not solely the responsibility of borrowing countries: it will require serious changes on the part of creditors and the international system.

20.5 IMF'S ROLE IN THE G20 COMMON FRAMEWORK :

The IMF played a vital role in coping with the Mexican debt moratorium of August 1982 that marked the beginning of the 'debt crisis'. It assumed the key role in brokering debt rescheduling and restructuring agreements between banks and borrowers countries were obliged to implement austerity measures and economic reforms; and banks were required to make further loans. The IMF itself took the lead as a lender. The Fund not only provided assistance from its own resources, but coordinated and cajoled contributions from international banks and creditors. The IMF took on the role of key intermediary between all the parties. A balance was struck between 'rescheduling' the extension of existing loans and the supply of new funds and 'adjustment' the adoption of more stringent economic policies by borrowers on a case-by-case basis. The Brady Plan of 1989 added a new dimension, allowing the IMF to set aside 25% of the resources provided by a funded programmed for debt reduction.

20.5.1 To main elements of the plan were :

i. Providing funds via the IMF and the World Bank for various forms of debt relief to those middle income debtor countries that were willing to adopt policy reforms, and
ii. Encouraging countries to buy back- from banks at a discount, thereby reducing future obligations. On possibility was for countries to swap old loans for new long-term (30-year) bonds at a discount of some 35% and an interest rate only marginally above the market rate — the bonds were guaranteed by the IMF. Agreements of this type were reached with Mexico, the Philippines, Costa Rica, Venezuela and Uruguay. The deal with Mexico relieved it of $20 billion of debt service payments.

However, the debtor countries soon became this enchanted with the economic hardships inflicted by the IMF-brokered adjustment programmers. Debt reduction and debt forgiveness are particularly relevant in the cases of some of the poorest countries. Since the 1980s the IMF has been confronted with the problem of repayment arrears.

The World Bank has always been against write-offs, but, the share of debt-service payments going to multilateral creditors has increased in recent years, accounting for nearly 50% of the debt service payments of African countries. This World Bank facility, therefore, marks a radical departure in thinking and attitude.

i. To benefit from a debt treatment under the Common Framework : To benefit from a debt treatment under the Common Framework a country must have an IMF-supported program, such as an Extended Credit Facility, to support the implementation of suitable economic policies and structural reforms. In practice, this means that if a country does not currently already have a Fund-supported program, it will need to request one in conjunction with making a request for a debt treatment under the Common Framework. The IMF has a key role in working with the country authorities toward the development of a policy framework that will assist the country to regain external viability including by restoring sustained inclusive growth.

ii. Define the financing envelope : The second key role for the IMF is to define the financing envelope (or debt relief envelope) consistent with the parameters of the IMF-supported program, which informs creditor and debtor discussions on the

necessary debt treatment. This financing envelope is based on the program macroeconomic framework and the accompanying debt sustainability analysis (DSA).

iii. **Tailored to their specific needs :** The recent requests from Chad, Ethiopia, and Zambia for a debt treatment under the Common Framework are welcome. The debt challenges that these countries face are quite different, but the Common Framework can provide a treatment that is tailored to their specific needs. In some cases, where debt is sustainable, the debt treatment will help reduce debt vulnerabilities, such as the risk of debt distress. In other countries where debt is unsustainable, a debt treatment under the Common Framework could help the country meet the debt sustainability requirements necessary to enable to Fund to lend.

iv. **Fully financed :** An IMF-supported program must be fully financed. In some cases, the Fund supported program serves to mobilize sufficient financing to meet a country's needs, e.g., from multilateral development banks and other sources. In cases where these efforts do not generate sufficient financing to fill the program's financing gaps, countries may need to seek a debt treatment under the Common. Framework to ensure the program is fully financed, such as a rescheduling of debt service payments. Does the IMF require countries to seek external debt treatments under the Common Framework to access IMF program financing?

v. **Debt treatments must be made by the country authorities :** Any decision to seek debt treatments must be made by the country authorities. If there are debt vulnerabilities and/or financing issues that prevent the Fund from providing financial support to a country, the Fund would advise the country authorities accordingly. The country would then decide whether to seek a suitable debt treatment. If the G20 Common Framework can also be used as a tool to mitigate liquidity pressures through a rescheduling of debt service over time,

vi. **Urgent financing needs :** Given countries' urgent financing needs and the highly uncertain environment, the DSSI provided temporary liquidity relief with the same debt treatment provided to all requesting countries. The debt service that was suspended in May to December 2020 is due for repayment after a one-year grace period with payments spread over the following three years. For the debt service suspended in the first six months of 2021, the grace period remains the same, but the repayments are spread over five years to avoid overlaps and bunching of debt service payments.

vii. **Provide liquidity relief :** In contrast, when the Common Framework is used to provide liquidity relief, the rescheduling of debt service is tailored to the country's specific needs, with the potential to cover debt service payments due over a number of years and to cover all or part of those payments. The terms of repayments, including the grace period, are to be adjusted to meet the duration and depth of the liquidity pressures facing the county. A further important difference is that the DSSI encouraged, but did not require, comparable debt relief from private creditors and any other creditors that were not directly participating in the DSSI. By contrast, the Common Framework requires the debtor to seek from other creditors, including private creditors, a treatment at least as favorable as the one agreed under the Common Framework.

viii. **The voluntary private sector participation :** How comparability of treatment will be implemented in relation to the private sector will depend on the circumstances as evaluated by the official bilateral creditors signing the agreement with the debtor country, who, in practice, apply comparability of treatment at the level of private creditors as a whole, rather than to each private creditor. The voluntary private sector participation in the Debt Service Suspension Initiative to date has been limited, partly

reflecting debtor countries' concerns about their standing with private creditors including their credit rating.

ix. **The DSSI lacked private sector participation :** The DSSI lacked private sector participation in part because comparable treatment of private creditors was encouraged but not required. This reflected the priority at the outset of the crisis to provide immediate support to as many countries as possible. In contrast, under the G20/Paris Club agreement on the Common Framework, the debtor country is required to seek a treatment from private creditors that is not less favorable than the treatment from official bilateral creditors. How the comparability of treatment will be implemented in relation to the private sector will depend on the circumstances as evaluated by the official creditors signing the agreement with the debtor country, who, in practice, apply comparability of treatment at the level of private creditors as a whole, rather than to each private creditor.

20.6 DECISIONS ON FUTURE COMING DEBT CRISIS IN DEVELOPING OUNTRIES:

i. **Normal trade finance** : Emerging markets and developing countries have about $11 trillion in external debt and about $3.9 trillion in debt service due in 2020. Of this, about $3.5 trillion is for principal repayments. Around $1 trillion is debt service due on medium- and long-term (MLT) debt, while the remainder is short-term debt, much of which is normal trade finance.

ii. **Poorest countries eligible for support from IDA :** For the poorest countries (all those eligible for support from the International Development Association or IDA), 2020 MLT debt service is about $36 billion, divided in roughly equal proportions between multilateral, bilateral (mostly non-Paris Club), and commercial creditors. All developing country regions are potentially seriously affected: Latin America has the highest debt service/exports ratio, Africa has the least diversified export mix, East Asia has the largest absolute amount of debt service.

iii. **Refinanced in global capital markets :** In normal circumstances, the principal amounts would simply be refinanced in global capital markets or offset by new disbursements from existing lenders. But circumstances are not normal. Credit markets have tightened, spreads have risen, and many countries are faced with very large reductions in foreign exchange revenues.

iv. **In the face of huge global economic uncertainty :** In the face of huge global economic uncertainty, it is hard to predict which countries and regions will be most vulnerable, and not all the vulnerability has been caused by the pandemic. Already, Venezuela, Argentina, and Lebanon have defaulted and face lengthy and damaging legal proceedings with each creditor trying to negotiate individually, resulting in dead-weight losses for everyone until the situation is sorted out.

v. **Access emergency financing instruments :** One indication that the problem is widespread is that already 90 countries have approached the IMF to access emergency financing instruments. It seems clear that this is not just a low-income or an African country problem. There are several calls for debt standstills (here, here and here) to ease the burden on developing countries. Debt threatens to create a global development emergency in much the same way as the pandemic is creating a global health emergency. Both could result in social unrest and instability. Something will have to be done, so it is useful to recap the lessons from previous debt crises.

20.7 SUMMARY :

After studying this chapter, you should be able to Know the Causes of the international debt crisis ; Discuss about Challenges Faced by Developing Countries under Debt Distress:; Understand about Solutions for Solving the Low-Income Country Debt Crisis. Further , it is emphasized on IMFs Role In The G20 Common Framework ; Decisions on Future Coming Debt Crisis in Developing Countries, etc, Some countries have been suspended from eligibility to use the Fund's resources until the arrears were cleared. In 1995 a plan was introduced by the World Bank to establish a multilateral debt facility to allow 40% of the poorer countries in the world, mainly in Africa, to write off part of their $160 billion debt the so-called HIPC (Higher Indebted Poor Country) initiative. The first comprehensive plan to assist Heavily Indebted Poor Countries (HIPCs) was drawn up in 1996. But the results were disappointing and by 1999 only three of them Bolivia, Gyana and Uganda had benefited. At the Group of Seven meeting in thirty three poorest countries (with a total population of 430 mn.) stood to benefit from the Cologne Initiative, cutting their outstanding debts from $130 billion to $60 billion.

20.8 TECHNICAL TERMS :

- **Debt Distress :** Financial distress is a condition in which a company or individual cannot generate sufficient revenues or income, making it unable to meet or pay its financial obligations. This is generally due to high fixed costs, a large degree of illiquid assets, or revenues sensitive to economic downturns.
- **Debt Crisis :** A debt crisis occurs when an entity has more debt than they can pay off. Individuals, businesses, and countries all experience debt crises. However, a country has a significant advantage over individuals and businesses—it can print its money. Find out why cutting expenses, which is the best way for you to get out of debt, might be the worst way for a country to resolve its debt crisis.
- **Debt facility :** A debt facility is an agreement between a company and a public or private lender that allows the business to borrow a particular amount of money for different purposes for a short period of time. The loan is for a set amount and does not require collateral. The borrower makes monthly or quarterly payments, with interest, until the debt is paid in full. A credit facility offers the greatest level of flexibility for a company's financing needs.
- **Common Framework :** G20 Common Framework is the Common Framework for Debt Treatments beyond the Debt Service Suspension Initiative (DSSI). It was announced in November 2020 to deal with the issue of unsustainable debts faced by various countries as an impact of COVID-19.

20.9 SELF ASSESSMENT QUESTIONS :

1. What is international debt ?
2. Explain the Causes of the international debt crisis.
3. Challenges Faced by Developing Countries under Debt Distress
4. What is Debt Distress?
5. What are the Solutions for Solving the Low-Income Country Debt Crisis
6. What is Common Framework?
7. What is the IMFs Role in The G20 Common Framework
8. Decisions on Future Coming Debt Crisis in Developing Countries

20.10 SUGGESTED READINGS :

1. HOMI KHARAS, Senior Fellow- Global Economy and Development, Centre for Sustainable Development
2. Jesse Griffiths, Former Director of Programme (Development and Public Finance
3. Sanket Suman: The below mentioned article provides an overview on the foreign debt crisis in developing countries.
4. Virat Singh, Andrew Womer, and Yuan Xiang provided valuable research assistance updating the Global Debt Database.
5. Sarah Brady, Experian, Investopedia and more, and she's been syndicated by Yahoo! News and MSN ; Personal Finance Writer, 2013 ; sarahcbrady.com
6. Adam Hayes Updated August 12, 2022; Reviewed by Robert C. Kelly; Fact checked by Vikki Velasquez.
7. Vitor Gaspar, Paulo Medas, Roberto Perrelli; December 15, 2021
8. Ken S. Ewert, the editor of U-Turn, a quarterly publication addressing theological, political, economic, and social issues from a biblical perspective.
9. KAT TRETINA Updated May 07, 2023- Fact checked by WILHELMINA RANDTKE
10. Apte, P. G., Multinational Financial Management, Tata-McGraw Hill, New Delhi , 1998.
11. Baker, J.C., International Finance: Management, Markets and Institutions, Prentice Hall, Englewood Cliffs, 1998.
12. Eitemean, David K., Arthur Stone – Hill and Michael H. Moffett, Multinational Business Finance, Addison-Wesley Publishing Company, Readings Mass, 1998.
13. Levi, Maurice, International Finance, McGraw Hill Inc., New York, 1996.
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18. Peter Neeves, Updated July 27, 2017

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MODEL QUESTION PAPER

INTERNATIONAL FINANCIAL MARKETS & SERVICES

Max. Marks: 70 Time: 3 hrs.

SECTION A (Total: 5x3=15 Marks)
(Answer the following questions. Each answer carries 3 marks)

1. Financial System (OR) b) Monetary System
2. Exchange rate (OR) b) Quotations
3. Spot market (OR) b) Forward market
4. Financial Markets (OR) b) Financial Instruments
5. International Debt (OR) b) Debt servicing

SECTION B (Total: 5x8 = 40 Marks)
(Answer the following questions. Each answer carries 8 marks)

1. a) Explain International Monetary System Features and Requirements.
(or)
b) Discuss briefly about European Monetary System

2. a) What is the Role of Arbitrage in Foreign Exchange market?
. (or)
b) What is Speculation? How is it impact on Foreign Exchange market?

3. a) Discuss briefly about Exchange Rate Determination in spot and forward market
(or)
b)What is IRP? Explain in detail about the Interest Rate Parity (IRP).

4. a) Explain about International capital and money market instruments.
(or)
b) Briefly explain about International securities markets and instruments.

5. a) Briefly discussed about International Debt Problem.
(or)
b) What is Debt? Explain about International Debt servicing problems.

SECTION C (Total: 1x15 =15 Marks)

6. a) What is International liquidity? Explain about European Monetary System.
(or)
b) What is the importance of Fisher open equation Monetary and portfolio balance approaches?