International Finance

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About the Tutorial

International Finance deals with the management of finances in a global business. It explains how to trade in international markets and how to exchange foreign currency, and earn profit through such activities.

This tutorial provides a brief overview of the current trends in finance, along with detailed inputs on the current global markets, foreign exchange markets, international capital markets, hedging and risk management, and strategic decision-making.

Audience

This tutorial is an easy and informative read for management students and finance professionals. The objective of this tutorial is to equip the readers with an understanding of the international financial system and its growing importance.

Prerequisites

To understand this tutorial, it is advisable to have a foundation level knowledge of business and macroeconomics. However, general students who wish to get a brief overview International Finance may find it quite useful.

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Part 1 – International Finance and Global Markets

1. INTERNATIONAL FINANCE – INTRODUCTION

International Finance is an important part of financial economics. It mainly discusses the issues related with monetary interactions of at least two or more countries. International finance is concerned with subjects such as exchange rates of currencies, monetary systems of the world, foreign direct investment (FDI), and other important issues associated with international financial management.

Like international trade and business, **international finance** exists due to the fact that economic activities of businesses, governments, and organizations get affected by the existence of nations. It is a known fact that countries often borrow and lend from each other. In such trades, many countries use their own currencies. Therefore, we must understand how the currencies compare with each other. Moreover, we should also have a good understanding of how these goods are paid for and what is the determining factor of the prices that the currencies trade at.

> **Note**: The World Bank, the International Finance Corporation (IFC), the International Monetary Fund (IMF), and the National Bureau of Economic Research (NBER) are some of the notable international finance organizations.

International trade is one of the most important factors of growth and prosperity of participating economies. Its importance has got magnified many times due to globalization. Moreover, the resurgence of the US from being the biggest international creditor to become the largest international debtor is an important issue. These issues are a part of international macroeconomics, which is popularly known as international finance.

Importance of International Finance

International finance plays a critical role in international trade and inter-economy exchange of goods and services. It is important for a number of reasons; the most notable ones are listed here:

- International finance is an important tool to find the exchange rates, compare inflation rates, get an idea about investing in international debt securities, ascertain the economic status of other countries and judge the foreign markets.

- Exchange rates are very important in international finance, as they let us determine the relative values of currencies. International finance helps in calculating these rates.

- Various economic factors help in making international investment decisions. Economic factors of economies help in determining whether or not investors' money is safe with foreign debt securities.

- Utilizing **IFRS** is an important factor for many stages of international finance. Financial statements made by the countries that have adopted IFRS are similar. It helps many countries to follow similar reporting systems.

- IFRS system, which is a part of international finance, also helps in saving money by following the rules of reporting on a single accounting standard.

- International finance has grown in stature due to globalization. It helps understand the basics of all international organizations and keeps the balance intact among them.

- An international finance system maintains peace among the nations. Without a solid finance measure, all nations would work for their self-interest. International finance helps in keeping that issue at bay.

- International finance organizations, such as IMF, the World Bank, etc., provide a mediators' role in managing international finance disputes.

The very existence of an international financial system means that there are possibilities of international financial crises. This is where the study of international finance becomes very important. To know about the international financial crises, we have to understand the nature of the international financial system.

Without international finance, chances of conflicts and thereby, a resultant mess, is apparent. International finance helps keep international issues in a disciplined state.

2. FINANCIAL GLOBALIZATION

In the last two decades, the financial economies have increasingly got interconnected around the world. The impact of globalization has been felt in every aspect of economy. Financial globalization has offered substantial benefits to the national economies and to both investors and wealth creators. However, it has a wreaking effect on financial markets as well.

Driving Forces of Financial Globalization

When we talk about financial globalization, there are four major factors to be considered. They are:

- **Advancement in information and communication technologies**: Technological advancements have made market players and governments far more efficient in collecting the information needed to manage financial risks.
- **Globalization of national economies**: Economic globalization has made production, consumption, and investments dispersed over various geographic locations. As barriers to international trade have been lowered, international flows of goods and services have dramatically increased.
- **Liberalization of national financial and capital markets**: Liberalization and fast improvements in IT and the globalization of national economies have resulted in highly spread financial innovations. It has increased the growth of international capital movements.
- **Competition among intermediary services providers:** Competition has increased manifold due to technological advancements and financial liberalization. A new class of nonbank financial entities, including institutional investors, have also emerged.

Changes in Capital Markets

The driving forces of financial globalization have led to four dramatic changes in the structure of national and international capital markets.

- First, banking systems have been under a process of **disintermediation**. Financial intermediation is happening more through tradable securities and not through bank loans and deposits.
- Second, cross-border financing has increased. Investors are now trying to enhance their returns by diversifying their portfolios internationally. They are now seeking the best investment opportunities from around the world.
- Third, the non-banking financial institutions are competing with banks in national and international markets, decreasing the prices of financial instruments. They are taking advantage of economies of scale.

- Fourth, banks have accessed a market beyond their traditional businesses. It has enabled the banks to diversify their sources of income and the risks.

Benefits and Risks of Financial Globalization

One of the major benefits of Financial Globalization is that the risk of a "credit crunch" has been reduced to extremely low levels. When banks are under strain, they can now raise funds from international capital markets.

Another benefit is that, with more choices, borrowers and investors get a better pricing on their financing. Corporations can finance the investments more cheaply.

The disadvantage is that the markets are now extremely volatile, and this can be a threat to financial stability. Financial globalization has altered the balance of risks in international capital markets.

With financial globalization, creditworthy banks and businesses in emerging markets can now reduce their borrowing costs. However, emerging markets with weak or poorly managed banks are at risk.

Safeguarding Financial Stability

The crises of the 1990s have shown the importance for a prudent sovereign debt management, effective capital account liberalization, and management of domestic financial systems.

Private financial institutions and market players can now contribute to financial stability by managing their businesses well and avoiding unnecessary risk-taking.

As financial stability is a global public good, governments and regulators also play a key role in it. The scope of this role is increasingly getting international.

The IMF is a key role-player as well. Its global surveillance initiatives to enhance its ability to manage international financial stability must also stay in track.

Part 2 – Foreign Exchange Markets

3. BALANCE OF PAYMENTS

It is important to measure the performance of an economy. **Balance of Payment** (BOP) is one way to do so. It shows the big picture of the total transactions of an economy with other economies. It takes the net inflows and outflows of money into account and then differentiates them into sections. It is important to balance all accounts of BOP in case of an imbalance so that the economic transactions can be measured and taken into account in a systematic and prudent manner.

Balance of Payment is a statement that shows an economy's transactions with the remaining world in a given duration. Sometimes also called the balance of international payments, BOP includes each and every transaction between a nation's residents and its nonresidents.

Current Account and Capital Account

All the transactions in BOP are classified into two accounts: the **current account** and the **capital account**.

- **Current account**: It denotes the final net payment a nation is earning when it is in surplus, or spending when it is in deficit. It is obtained by adding the **balance of trade** (exports earnings minus imports expenses), **factor income** (foreign investment earning minus expenses for investment in a foreign country) and other **cash transfers**. The *current* word denotes that it covers transactions that are happening "here and now".

- **Capital account**: It shows net change in foreign-asset-ownership of a nation. The capital account consists the **reserve** account (the net change of foreign exchange of a nation's central bank in market operations), **loans and investments** made by the nation (excluding the future interest payments and dividends yielded by loans and investments). If net foreign exchange is negative, the capital account is said to be in deficit.

BOP data does not include the real payments. Rather, it is involved with the transactions. This means that the figure of BOP may differ significantly from net payments made to an entity over a period of time.

BOP data is crucial in deciding the national and international economic policy. Part of the BOP, such as current account imbalances and foreign direct investment (FDI), are very important issues which are addressed in the economic policies of a nation. Economic policies with specific objectives impact the BOP.

The Tweak in Case of IMF

The IMF's BOP terminology uses the term "financial account" to include the transactions that would under alternative definitions be included in the general capital account. The IMF uses the term **capital account** for a subset of transactions that form a small part of the overall capital account. The IMF calculates the transactions in an additional top level division of the BOP accounts.

The BOP identity, according to IMF terminology, can be written as:

Current account + Financial account + Capital account + Balancing item = 0

According to IMF, the term **current account** has its own three leading sub-divisions, which are: the goods and services account (the overall trade balance), the primary income account (factor income), and the secondary income account (transfer payments).

Points to Note

- BOP is an account to show the expenses made by consumers and firms on imported goods and services.
- BOP is also a pointer to how much the successful firms of a country are exporting to foreign countries.
- The money or the foreign currency entering a nation is taken as a positive entry (e.g. exports sold to foreign countries)
- The money going out or expenses of foreign currency is adjusted as a negative entry (e.g. imports such as goods and services)

BOP Table for a Hypothetical Country

The following table shows the BOP for a hypothetical country.

Item of the BoP	Net Balance ($ billion)	Comment
Current Account		
(A) Balance of trade in goods	-20	There is a trade deficit in goods.
(B) Balance of trade in services	+10	There is a trade surplus in services.
(C) Net investment income	-12	Net outflow of income, i.e., due to profits of international corporations
(D) Net overseas transfers	+8	Net inflow of transfers, say, from remittances from non-resident citizens
Adding A+B+C+D = Current account balance	**-14**	Overall, the nation runs a current account deficit

Financial Account		
Net balance of FDI flows	+5	Positive FDI net inflow
Net balance of portfolio investment flows	+2	Positive net inflow into equity markets, property etc.
Net balance of short term banking flows	-2	Small net outflow of currency from nation's banking system
Balancing item	+2	There to reflect errors and omissions in data calculations
Changes to reserves of gold and foreign currency	+7	(Means that gold and foreign currency reserves have been reduced
Overall balance of payments	0	

BOP Imbalances

BOP has to balance, however surpluses or deficits on its individual elements may create imbalances. There are concerns about deficits in the current account. The types of deficits that typically raise concerns are:

- A *visible trade deficit* in case of a nation that is importing significantly more goods than it exports.
- An overall *current account deficit*.
- A *basic deficit* which is the current account plus FDI, excluding short-term loans and the reserve account.

Reasons behind BOP Imbalances

Conventionally, current account's factors are thought to be the primary cause behind BOP imbalances – these include the exchange rate, the fiscal deficit, business competitiveness, and private behavior.

Alternatively, it is believed that the capital account is the major driver of imbalances where a global savings satiation created by the savers in surplus countries goes ahead of the present investment opportunities.

Reserve Assets

BOP defines the reserve asset as the currency or other standard value that is used for their foreign reserves. The reserve asset can either be gold or the US Dollar.

Global Reserves

According to IMF, between 2000 to mid-2009, official reserves increased from $1,900 billion to $6,800 billion. Global reserves were at the top, about $7,500 billion in mid-2008, then the reserves declined by about $430 billion during the financial crisis. From Feb 2009, global reserves increased again to reach $9,200 billion by the end of 2010.

BOP Crisis

A BOP crisis, or **currency crisis**, is the inability of a nation to pay for the necessary imports and/or return the pending debts. Such a crisis occurs with a very quick decline of the nation's currency value. Crises are generally preceded by large capital inflows.

How to Correct BOP Imbalances

There are three possible processes to correct BOP imbalances:

- Adjustments of exchange rates,
- Adjustment of nation's internal prices along with its levels of demand, and
- Rules-based adjustment.

Rebalancing by Changing the Exchange Rate

If a nation's currency price is increased, it will make exports less competitive and imports cheaper.

When a country is exporting more than what it imports, the demand for its currency will increase in foreign countries because other countries ultimately seek the country's currency to pay for the exports. Therefore, if the country is earning more, it will change (increase) the exchange rate to contain the current account surplus.

Rebalancing by Adjusting Internal Prices and Demand

A possible policy is to increase its level of internal demand (i.e. the nation's expenditure on goods). An alternative expression for current account is that it is the excess of savings over investment. That is,

$$\text{Current Account} = \text{National Savings} - \text{National Investment}$$

When the Savings are in surplus, the nation can increase its investments. For example, in 2009, Germany amended its constitution to reduce its surplus by increasing demand.

Rules-based rebalancing mechanisms

Nations can also agree to determine the exchange rates against each other, and then try to correct the imbalances by rules-based and mutually negotiated exchange-rate changes.

The **Bretton Woods system** of fixed but adjustable exchange rates is an example of a rules-based system.

Keynesian Idea for Rules-based Rebalancing

John Maynard Keynes believed that surpluses impose negative effects on the global economy. He suggested that traditional balancing mechanisms should add the threat of possession of a section of excess revenue if the surplus country chooses not to spend it on additional imports.

4. FOREX MARKET PLAYERS

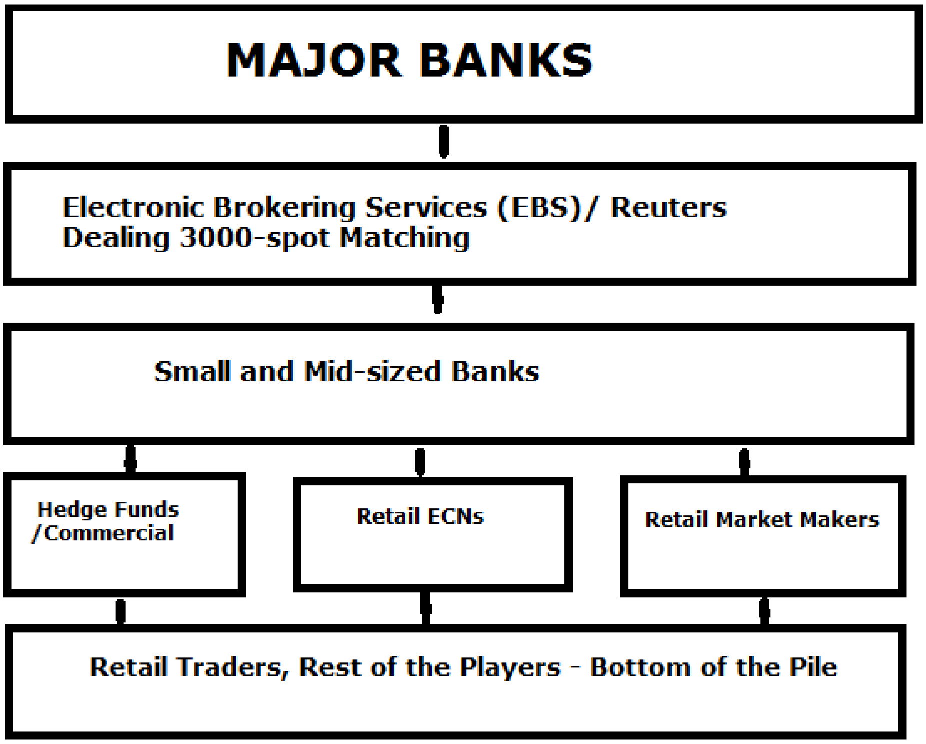
There are various players in the Foreign Exchange (Forex) market and all of them are important in one way or the other. In this chapter, we take each one of them and check their major attributes and responsibilities in the overall Forex market.

Interestingly, internet technology has really changed the existence and working policies of the Forex market-players. These players now have easier access to data and are more productive and prompt in offering their respective services.

Capitalization and **sophistication** are two major factors in categorizing the Forex market players. The sophistication factor includes money management techniques, technological level, research abilities, and the level of discipline. Considering these two broad measures, there are six major Forex market players:

- Commercial and Investment Banks
- Central Banks
- Businesses and Corporations
- Fund Managers, Hedge Funds, and Sovereign Wealth Funds
- Internet-based Trading Platforms
- Online Retail Broker-Dealers

The following figure depicts the top-to-bottom segmentation of Foreign Exchange Market players in terms of the volume they handle in the market.



Commercial and Investment Banks

Banks need no introduction; they are ubiquitous and numerous. Their role is crucial in the Forex network. The banks take part in the currency markets to neutralize the foreign exchange risks of their own and that of their clients. The banks also seek to multiply the wealth of their stockholders.

Each bank is different in terms of its organization and working policy, but each one of them has a **dealing desk** responsible for order processing, market-making, and risk management. The dealing desk plays a role in making profits by trading currency straight through hedging, arbitrage, or a mixed array of financial strategies.

There are many types of banks in a forex market; they can be huge or small. The most sizeable banks deal in huge amounts of funds that are being traded at any instant. It is a common standard for banks to trade in 5 to 10 million Dollar parcels. The biggest ones even handle 100 to 500 million Dollar parcels.

Central Banks

A central bank is the predominant monetary authority of a nation. Central banks obey individual economic policies. They are usually under the authority of the government. They facilitate the government's monetary policies (dealing in keeping the supply and the availability of money) and to make strategies to smoothen out the ups and downs of the value of their currency.

We have earlier discussed about the reserve assets. Central banks are the bodies responsible for holding the foreign currency deposits called "reserves" aka "official reserves" or "international reserves".

The reserves held by the central banks of a country are used in dealing with foreign-relation policies. The reserves value indicates significant attributes about a country's ability to service foreign debts; it also affects the credit rating measures of the nation.

Businesses and Corporations

All participants involved in the forex market do not have the power to set prices of the currency as market makers. Some of the players just buy and sell currency following the prevailing exchange rate. They may seem to be not so significant, but they make up a sizeable allotment of the total volume that is being traded in the market.

There are companies and businesses of differing sizes; they may be a small importer/exporter or a palpable influencer with a multi-billion Dollar cash flow capability. These players are identified by the nature of their business policies that include: (a) how they get or pay for the goods or services they usually render and (b) how they involve themselves in business or capital transactions that require them to either buy or sell foreign currency.

These "commercial traders" have the aim to utilize financial markets to offset their risks and hedge their operations. There are some non-commercial traders as well. Unlike commercial traders, the non-commercial ones are considered speculators. Non-commercial players include large institutional investors, hedge funds, and other business entities that trade in the financial markets for profits.

Fund Managers, Hedge Funds, and Sovereign Wealth Funds

This category is not involved in defining the prices or controlling them. They are basically transnational and home-country's money managers. They may deal in hundreds of millions of dollars, as their portfolios of investment funds are often quite large.

These participants have investment charters and obligations to their investors. The major aim of hedge funds is to make profits and grow their portfolios. They want to achieve absolute returns from the Forex market and dilute their risk. Liquidity, leverage, and low cost of creating an investment environment are the advantages of hedge funds.

Fund managers mainly invest on behalf of the various clients they have, such as the pension funds, individual investors, governments and even the central bank authorities. Sovereign wealth funds that manage government-sponsored investment pools have grown at a fast rate in the recent years.

Internet-based Trading Platforms

Internet is an impersonal part of the forex markets nowadays. Internet-based trading platforms do the task of systematizing customer/order matching. These platforms are responsible for being a direct access point to accumulate pools of liquidity.

There is also a human element in the brokering process. It includes all the people engaged from the instant an order is put to the trading system till it is dealt and matched by a counter party. This category is being handled by the "straight-through-processing" (STP) technology.

Like the prices of a Forex broker's platform, a lot of inter-bank deals are now being handled electronically by two primary platforms: the **Reuters web-based dealing system**, and the **Icap's EBS** which is short for "electronic brokering system that replace the voice broker once common in the foreign exchange markets.

Online Retail Broker-Dealers

The last segment of the Forex markets, the **brokers**, are usually very huge companies with huge trading turnovers. This turnover provides the basic infrastructure to the common individual investors to invest and profit in the interbank market. Most of the brokers are taken to be a market maker for the retail trader. To provide competitive and popular two-way pricing model, these brokers usually adapt to the technological changes available in the Forex industry.

A trader needs to produce gains independently while using a market maker or having a convenient and direct access through an ECN.

The Forex broker-dealers offset their positions in the interbank market, but they do not act exactly the same way as banks do. Forex brokers do not rely on trading platforms like EBS or Reuters Dealing. Instead, they have their own data feed that supports their pricing engines.

Brokers typically need a certain pool of capitalization, legal business agreements, and straightforward electronic contacts with one or multiple banks.

Part 3 – International Capital Markets

5. THE INTEREST RATE PARITY MODEL

What is Interest Rate Parity?

Interest Rate Parity (IRP) is a theory in which the differential between the interest rates of two countries remains equal to the differential calculated by using the forward exchange rate and the spot exchange rate techniques. Interest rate parity connects interest, spot exchange, and foreign exchange rates. It plays a crucial role in Forex markets.

IRP theory comes handy in analyzing the relationship between the spot rate and a relevant forward (future) rate of currencies. According to this theory, there will be no arbitrage in interest rate differentials between two different currencies and the differential will be reflected in the discount or premium for the forward exchange rate on the foreign exchange.

The theory also stresses on the fact that the size of the forward premium or discount on a foreign currency is equal to the difference between the spot and forward interest rates of the countries in comparison.

Example

Let us consider investing € 1000 for 1 year. We'll have two options as investment cases:

Case I: Home Investment

In the US, let the spot exchange rate be $1.2245 / €1.

So, practically, we get an exchange for our €1000 @ $1.2245 = $1224.50

We can invest this money $1224.50 at the rate of 3% for 1 year which yields $1261.79 at the end of the year.

Case II: International Investment

We can also invest €1000 in an international market, where the rate of interest is 5.0% for 1 year.

So, €1000 @ of 5% for 1 year = €1051.27

Let the forward exchange rate be $1.20025 / €1.

So, we buy forward 1 year in the future exchange rate at $1.20025/€1 since we need to convert our €1000 back to the domestic currency, i.e., the U.S. Dollar.

Then, we can convert € 1051.27 @ $1.20025 = $1261.79

Thus, when there is no **arbitrage**, the Return on Investment (ROI) is equal in both cases, regardless the choice of investment method.

Arbitrage is the activity of purchasing shares or currency in one financial market and selling it at a premium (profit) in another.

Covered Interest Rate Parity (CIRP)

According to Covered Interest Rate theory, the exchange rate forward premiums (discounts) nullify the interest rate differentials between two sovereigns. In other words, covered interest rate theory says that the difference between interest rates in two countries is nullified by the spot/forward currency premiums so that the investors could not earn an arbitrage profit.

Example

Assume Yahoo Inc., the U.S. based multinational, has to pay the European employees in Euro in a month's time. Yahoo Inc. can do this in many ways, one of which is given below:

- Yahoo can buy Euro forward a month (30 days) to lock in the exchange rate. Then it can invest this money in dollars for 30 days after which it must convert the dollars to Euro. This is known as **covering**, as now Yahoo Inc. will have no exchange rate fluctuation risk.
- Yahoo can also convert the dollars to Euro now at the spot exchange rate. Then it can invest the Euro money it has obtained in a European bond (in Euro) for 1 month (which will have an equivalently loan of Euro for 30 days). Then Yahoo can pay the obligation in Euro after one month.

Under this model, if Yahoo Inc. is sure that it will earn an interest, it may convert fewer dollars to Euro today. The reason for this being the Euro’s growth via interest earned. It is also known as **covering** because by converting the dollars to Euro at the spot rate, Yahoo is eliminating the risk of exchange rate fluctuation.

Uncovered Interest Rate Parity (UIP)

Uncovered Interest Rate theory says that the expected appreciation (or depreciation) of a particular currency is nullified by lower (or higher) interest.

Example

In the given example of covered interest rate, the other method that Yahoo Inc. can implement is to invest the money in dollars and change it for Euro at the time of payment after one month.

This method is known as **uncovered**, as the risk of exchange rate fluctuation is imminent in such transactions.

Covered Interest Rate and Uncovered Interest Rate

Contemporary empirical analysts confirm that the uncovered interest rate parity theory is not prevalent. However, the violations are not as huge as previously contemplated. The violations are in the currency domain rather than being time horizon dependent.

In contrast, the covered interest rate parity is an accepted theory in recent times amongst the OECD economies, mainly for short-term investments. The apparent deviations incurred in such models are actually credited to the transaction costs.

Implications of IRP Theory

If IRP theory holds, then it can negate the possibility of arbitrage. It means that even if investors invest in domestic or foreign currency, the ROI will be the same as if the investor had originally invested in the domestic currency.

- When domestic interest rate is below foreign interest rates, the foreign currency must trade at a forward discount. This is applicable for prevention of foreign currency arbitrage.

- If a foreign currency does not have a forward discount or when the forward discount is not large enough to offset the interest rate advantage, arbitrage opportunity is available for the domestic investors. So, domestic investors can sometimes benefit from foreign investment.

- When domestic rates exceed foreign interest rates, the foreign currency must trade at a forward premium. This is again to offset prevention of domestic country arbitrage.

- When the foreign currency does not have a forward premium or when the forward premium is not large enough to nullify the domestic country advantage, an arbitrage opportunity will be available for the foreign investors. So, the foreign investors can gain profit by investing in the domestic market.

6. MONETARY ASSETS

Monetary assets are cash in possession of a corporation, country, or a company. There is always some demand and an equivalent amount of supply for each country's currency. The cash in hand determines the strength of an economy.

Monetary assets have a dollar value that will not change with time. These assets have a constant numerical value. For example, a dollar is always a dollar. The numbers will not change even if the purchasing power of the currency changes.

We can understand this concept by contrasting them against a non-monetary item like a production facility. A production facility's value – its price denoted by a number of dollars – may fluctuate in future. It may lose or gain value over the years. So a company owning the factory may record the factory as being worth $500,000 one year and $480,000 the next. But, if the company has $500,000 in cash, it will be recorded as $500,000 every year.

In other words, monetary items are just cash. It can be a debt owed by an entity, a debt owed to it, or a cash reserve in its account.

For example, if a company owes $40,000 for goods delivered by a supplier. It will be recorded at $40,000 three months later even though; the company may have to pay $3,000 more because of inflation.

Similarly, if a company has $300,000 in cash, that $300,000 is a monetary asset and will be recorded as $300,000 even when, five years later, it may be able to only buy $280,000 worth of goods compared to when it was first recorded five years ago.

Demand and Supply of Currency in Forex Market

The demand for currencies in forex markets arise from the demand for a country's exports. Also, speculators who are looking for a profit relying on the changes in currency values create demand.

The supply of a particular currency is derived by domestic demands for imports from the foreign nations. For example, let us suppose the UK has imported some cars from Japan. So, UK must pay the price of cars in Yen (¥), and it will have to buy Yen. To buy Yen, it must sell (supply) Pounds. The more the imports, the greater will be the supply of Pounds onto the Forex market.

7. EXCHANGE RATES

Due to demand and supply, there is always an exchange rate that keeps changing over time. The rate of exchange is the price of one currency expressed in terms of another. Due to increased or decreased demand, the currency of a country always has to maintain an exchange rate. The more the exchange rate, the more is the demand of that currency in forex markets.

Exchanging the currencies refer to trading of one currency for another. The value at which an exchange of currencies takes place is known as the **exchange rate**. The exchange rate can be regarded as the *price* of one particular currency expressed in terms of the other one, such as £1 (GBP) exchanging for US$1.50 cents.

The equilibrium between supply and demand of currencies is known as the **equilibrium exchange rate**.

Example

Let us assume that both France and the UK produce goods for each other. They will naturally wish to trade with each other. However, the French producers will have to pay in Euros and the British producers in Pounds Sterling. However, to meet their production costs, both need payment in their own *local* currency. These needs are met by the forex market which enables both French and British producers to exchange currencies so that they can trade with each other.

The market usually creates an equilibrium rate for each currency, which will exist where demand and supply of currencies intersect.

Changes in Exchange Rates

Changes in currency exchange rate may occur due to changes in demand and supply. In case of a demand and supply graph, the price of a currency, say Sterling, is expressed in terms of another currency, such as the $US.

When exports increase, it would shift the demand curve for Sterling to the right and the exchange rate will go up. One Pound was bought at $1.50, but now it buys $1.60, hence the value has gone up.

Note: The world's three most common currency transactions are exchanges between the Dollar and the Euro (30%), the Dollar and the Yen (20%), and the Dollar and the Pound Sterling (12%).

8. INTEREST RATES

Each currency carries an interest rate. It is like a barometer of the strength or weakness of an economy. If a country's economy strengthens, the prices may sometime rise due to the fact that the consumers become able to pay more. This may sometimes result in a situation where more money is spent for roughly the same goods. This can increase the price of the goods.

When inflation goes uncontrolled, the money's buying power decreases, and the price of ordinary items may rise to unbelievably high levels. To stop this imminent danger, the central bank usually raises the **interest rates**.

When the interest rate is increased, it makes the borrowed money more expensive. This, in turn, demotivates the consumers from buying new products and incurring additional debts. It also discourages the companies from expansion. The companies that do business on credit have to pay interest, and hence they do not spend too much in expansion.

The higher rates will gradually slow the economies down, until a point of saturation will come where the Central Bank will have to lower the interest rates. This reduction in rates is aimed at encouraging the economic growth and expansion.

When the interest rate is high, foreign investors desire to invest in that economy to earn more in returns. Consequently, the demand for that currency increases as more investors invest there.

Countries offering the highest RoI by offering high interest rates tend to attract heavy foreign investments. When a country's stock exchange is doing well and offer a good interest rate, the foreign investors are encouraged to invest capital in that country. This again increases the demand for the country's currency, and value of the currency rises.

In fact, it is not just the interest rate that is important. The direction of movement of the interest rate is a good pointer of demand of the currency.

9. FOREX INTERVENTION

Foreign exchange intervention is a monetary policy of a nation's central bank. It is aimed at controlling the foreign exchange rates so that the interest rates and thereby the inflation in the country is kept under control.

Many developed countries nowadays believe in **non-intervention**. It has been backed by research that intervention may not be a good policy for the developed economies. However, the recession has again brought the topic under consideration as whether Forex intervention is really necessary to keep the economy affluent.

Foreign exchange intervention is an intervention of the central bank of a nation to influence the monetary fund's-transfer rate of the national currency. Central banks generally intervene in the Forex market to increase the reserves, stabilize the fluctuating exchange rate and rectify misalignments. The success of intervention depends on the sterilization of the impact, and the general government macroeconomic policies.

There are mainly two difficulties in an intervention process. They are the determination of the timing and the amount. These decisions are often a judgment and not a set policy. The reserve capacity, the country's exact type of economic troubles, and its fluctuating market conditions affect the decision-making process.

Forex interventions can be risky because it can degrade the central bank's credibility in case of a failure.

Why Forex Intervention?

The primary objective of Forex intervention is to adjust the volatility or to change the level of the exchange rate. Excessive short-term volatility diminishes market confidence and affects both the financial and the real goods markets.

In case of instability, exchange rate uncertainty results in extra costs and reduction of profits for companies. Investors do not invest in foreign financial assets and firms do not trade internationally. Exchange rate fluctuation affects the financial markets and thereby threatens the financial system. The government's monetary policy goals become more difficult to attain. In such situations, intervention is necessary.

Moreover, during change of economic condition and when the market misinterprets the economic signals, foreign exchange intervention rectifies the rates so that overshooting can be avoided.

Non-intervention

Today, forex market intervention is hardly used in developed countries. The reasons for non-intervention are:

- Intervention is only effective when seen as preceding interest rate or other similar policy adjustments.
- Intervention has no lasting impact on the real exchange rate and thus on competitive factors for the tradable sector.

- Large-scale intervention diminishes the effectiveness of monetary policy.
- Private markets can absorb and manage enough shocks – "guiding" is unnecessary.

Direct Intervention

Direct currency intervention is generally defined as foreign exchange transactions that are conducted by the monetary authority and aimed at influencing the exchange rate. Depending on the monetary base changes, currency intervention can be broadly divided into two types: **sterilized** and **non-sterilized interventions**.

Sterilized intervention

Sterilized intervention influences the exchange rate without changing the monetary base. There are two steps in it. First, the central bank buys (selling) foreign currency bonds with domestic currency. Then the monetary base is sterilized by selling (buying) equivalent domestic-currency-denominated bonds.

The net effect is the same as a swap of domestic bonds for foreign bonds without money supply changes. The purchase of foreign exchange is accompanied by a sale of an equivalent amount of domestic bonds, and vice versa.

The sterilized intervention has little or no effect on domestic interest rates. However, sterilized intervention can influence the exchange rate through the following two channels:

- The Portfolio Balance Channel – In the portfolio balance approach, agents balance their portfolios of domestic currency and bonds, and foreign currency and bonds. In case of any change, a new equilibrium is reached by changing the portfolios. Portfolio balancing influences the exchange rates.

- The Expectations or Signalling Channel – According to the signalling channel theory, agents see exchange rate intervention as a signal for a change of policy. The change of expectation affects the current level of the exchange rate.

Non-sterilized intervention

Non-sterilized intervention affects the monetary base. The exchange rate is affected due to purchase or sale of foreign money or bonds with domestic currency.

In general, non-sterilization influences the exchange rate by bringing changes in the monetary base stock, which, in turn, changes the monetary assets, interest rates, market expectations and finally, the exchange rate.

Indirect intervention

Capital controls (taxing international transactions) and exchange controls (restricting trade in currencies) are indirect interventions. Indirect intervention influences the exchange rate indirectly.

Chinese Yuan Devaluation

There had been a large increase in American imports of Chinese goods in the 1990s and 2000s. China's central bank allegedly devalued Yuan by buying large amounts of US dollars. This has increased the supply of the Yuan in the market, and also increased the demand for US dollars, increasing the Dollar price.

At the end of 2012, China had a reserve of $3.3 trillion, which is the highest foreign exchange reserve in the world. Roughly, 60% of this reserve is US government bonds and debentures.

The actual effects of the devalued Yuan on capital markets, trade deficits, and the US domestic economy are highly debated. It is believed that the Yuan devaluation helps China as it boosts its exports, but hurts the United States by widening its trade deficit. It has been suggested that the US should apply tariffs on Chinese goods.

Another viewpoint is that US protectionism may hurt the US economy. Many think the undervalued Yuan hurts China more in the long-run, as a devalued Yuan doesn't subsidize the Chinese exporter, but subsidizes the American importer. Thus, they argue that importers within China have been substantially hurt due to the large-scale foreign exchange intervention.

10. INTERNATIONAL MONEY MARKET

A **money market** is one of the safest financial markets available for currency transactions. It is often used by the big financial institutions, large corporations, and national governments. The investments made in money markets are usually for a very short period of time and therefore they are commonly known as **cash investments**.

The International Money Market

The international money market is a market where international currency transactions between numerous central banks of countries are carried on. The transactions are mainly carried out using gold or in US dollar as a base. The basic operations of the international money market include the money borrowed or lent by the governments or the large financial institutions.

The international money market is governed by the transnational monetary transaction policies of various nations' currencies. The international money market's major responsibility is to handle the currency trading between the countries. This process of trading a country's currency with another one is also known as **forex trading**.

Unlike share markets, the international money market sees very large funds transfer. The players of the market are not individuals; they are very big financial institutions. The international money market investments are less risky and consequently, the returns obtained from the investments are less too. The best and most popular investment method in the international money market is via **money market mutual funds** or **treasury bills**.

Note: The international money market handles huge sums of international currency trading on a daily basis. The Bank for International Settlements has revealed that the daily turnover of a traditional exchange market is about $1880 billion.

Some of the major international money market participants are:

- Citigroup
- Deutsche Bank
- HSBC
- Barclays Capital
- UBS AG
- Royal Bank of Scotland
- Bank of America
- Goldman Sachs
- Merrill Lynch
- JP Morgan Chase

The international money market keeps track of the exchange rates between currency-pairs on a regular basis. Currency bands, fixed exchange rate, exchange rate regime, linked exchange rates, and floating exchange rates are the common indices that govern the international money market in a subtle manner.

The International Monetary Market

The International Monetary Market (IMM) was formed in December 1971 and was established in May 1972. The roots of IMM can be linked to the finish of Bretton Woods via the 1971 Smithsonian Agreement and then, Nixon's abolition of US dollar's convertibility to gold.

The IMM was formed as a separate entity of the Chicago Mercantile Exchange (CME). By the end of 2009, IMM was the second biggest futures exchange in terms of currency volume in the world. The major purpose of the IMM is to trade currency futures. It is comparatively a new product which was earlier studied by the academics as a tool to operate a freely-traded exchange market to initiate trade among the nations.

The first futures transactions included trades of currencies against the US dollar, such as the British Pound, Swiss Franc, German Deutschmark, Canadian Dollar, Japanese Yen, and the French Franc. The Australian Dollar, the Euro, emerging market currencies such as the Russian Ruble, Brazilian Real, Turkish Lira, Hungarian Forint, Polish Zloty, Mexican Peso, and South African Rand were later introduced as well.

The Drawbacks of Currency Futures

The challenge of the IMM was in connecting the values of IMM foreign exchange contracts to the interbank market, which is the prominent means of currency trading in the 1970s. The other aspect was how to allow the IMM to become the best and a free-floating exchange.

To contain these aspects, clearing member-firms were allowed to act as the arbitrageurs between central banks and the IMM to allow orderly markets between the bid and ask spreads.

Later on, the Continental Bank of Chicago was incorporated as a delivery agent for contracts. These initial successes led to fierce competition for new futures products.

The Chicago Board Options Exchange was a competitor. It had received the right to trade US 30-year bond futures while the IMM obtained the official right to trade Eurodollar contracts. The Eurodollars were a 90-day interest rate contract settled in cash and not in any physical delivery.

Eurodollars later became the "Eurocurrency Market," which were mainly used by the Organization for Petroleum Exporting Countries (OPEC). OPEC required payment for oil in US dollars.

This cash settlement aspect later introduced index futures known as IMM Index. Cash settlements also allowed the IMM to later known as a "cash market" because the trades were interest rate sensitive instruments of short-term.

A System for Transactions

As competition grew, a transaction-system to handle the transactions in IMM was required. The CME and Reuters Holdings introduced Post Market Trade (PMT) for worldwide electronic automated transactions. The system became the single clearing entity to link the major financial centres like Tokyo and London.

Now, PMT is called **Globex**, which deals not only in clearing but also in electronic trading for traders around the world. In 1976, US T-bills began trading on the IMM. T-bill futures were introduced in April 1986 that was approved by the Commodities Futures Trading Commission.

Financial Crises and Liquidity

In financial crises, central banks need to provide liquidity to stabilize markets, as risks may trade at premiums (money rates) to a bank's target rates. Central bankers then need to infuse liquidity to the banks that trade and control rates. These are known as **repo rates**, and these are traded via IMM.

Repo markets allow the participating banks to offer rapid refinancing in the interbank market that is independent of any credit limits to smoothen the market.

A borrower has to pledge for securitized assets, such as equity, in exchange for cash to allow its operations to continue.

11. INTERNATIONAL BOND MARKETS

Unlike Equity and Money markets, there is no specific bond market to trade bonds. However, there are domestic and foreign participants who sell and buy bonds in various bond markets.

A bond market is much larger than equity markets, and the investments are huge too. However, bonds pay on maturity and they are traded for short-time before maturity in the markets.

Bonds also have risks, returns, indices, and volatility factors like equity and money markets. The international bond market is composed of three separate types of bond markets: **Domestic Bonds**, **Foreign Bonds**, and **Eurobonds**.

Domestic Bonds

Domestic bonds trade is a part of the international bond market. Domestic bonds are dealt in local basis and domestic borrowers issue the local bonds. Domestic bonds are bought and sold in local currency.

Foreign Bonds

In foreign bond market, bonds are issued by foreign borrowers. Foreign bonds normally use the local currency. The concerned local market authorities supervise the issuance and sale of foreign bonds.

Foreign bonds are traded in the foreign bond markets. Some special characteristics of the foreign bond markets are:

- Issuers of bonds are usually governments and private sector utilities.
- It is a standard practice to underwrite and organize underwriting the risks.
- Issues are generally pledged by the retail and the institutional investors.

In the past, Continental private banks and old merchant houses in London linked the investors with the issuers.

Eurobonds

Eurobonds are not sold in any specific national bond market. A group of multinational banks issue Eurobonds. A Eurobond of any currency is sold outside the nation that has the currency. A Eurobond in the US dollar would not be sold in the United States.

The **Euromarket** is the trading place of Eurobonds, Eurocurrency, Euronotes, Eurocommercial Papers, and Euroequity. It is commonly an offshore market.

International Bond market participants

Bond market participants are either buyers (debt issuer) or sellers (institution) of funds and often both of these. Participants include:

- Institutional investors
- Governments
- Traders
- Individuals

Since there is a specificity of individual bond issues, and a condition of lack of liquidity in case of many smaller issues, a significantly larger chunk of outstanding bonds are often held by institutions, such as pension funds, banks, and mutual funds. In the United States, the private individuals own about 10% of the market.

International Bond Market Size

Amounts outstanding on the global bond market on March 2012 were about $100 trillion. That means in March 2012, the bond market was much larger than the global equity market that accounted for a market capitalization of around $53 trillion.

The outstanding value of international bonds in 2011 was about $30 trillion. There was a total issuance of $1.2 trillion in the year, which was down by around one fifth of the 2010's total. In 2012, the first half saw a strong start with issuance of over $800 billion.

International Bond Market Volatility

For the market participants owning bonds, collecting coupons and holding it till maturity, **market volatility** is not a matter to ponder over. The principal and interest rates are pre-determined for them.

However, participants who trade bonds before maturity face many risks, including the most important one – changes in interest rates. When interest rates increase, the bond-value falls. Therefore, changes in bond prices are inversely proportional to the changes in interest rates.

Economic indicators and paring with actual data usually contribute to market volatility. Only little price movement is seen after the release of "in-line" data. When economic release does not match the consensus view, a rapid price movement is seen in the market. Uncertainty is responsible for more volatility.

Bond Investments

Bonds have (generally) $1,000 increments. Bonds are priced as a percentage of par value. Many bonds have minimums imposed on them.

Bonds pay interests at given intervals. Bonds with fixed coupons usually divide the coupon according to the payment schedule. Bonds with floating rate coupons have set calculation schedules. The rate is calculated just before the next payment. Zero-coupon bonds are issued at a deep discount, but they don't pay interests.

Bond interest is taxed, but in contrast to dividend income that receives favorable taxation rates, they are taxed as ordinary. Many government bonds are, however, exempt from taxation.

Individual investors can participate through bond funds, closed-end funds, and unit-investment trusts offered by investment companies.

Bond Indices

A number of bond indices exist. The common American benchmarks include Barclays Capital Aggregate Bond Index, Citigroup BIG, and Merrill Lynch Domestic Master.

12. INTERNATIONAL EQUITY MARKETS

International equity markets are an important platform for global finance. They not only ensure the participation of a wide variety of participants but also offer global economies to prosper.

To understand the importance of international equity markets, market valuations and turnovers are important tools. Moreover, we must also learn how these markets are composed and the elements that govern them. Cross-listing, Yankee stocks, ADRs and GRS are important elements of equity markets.

In this chapter, we will discuss all these aspects along with the returns from international equity markets.

Market Structure, Trading Practices, and Costs

The **secondary equity markets** provide marketability and share valuation. Investors or traders who purchase shares from the issuing company in the primary market may not desire to own them forever. The secondary market permits the shareholders to reduce the ownership of unwanted shares and lets the purchasers to buy the stock.

The secondary market consists of brokers who represent the public buyers and sellers. There are two kinds of orders:

- **Market order** – A market order is traded at the best price available in the market, which is the market price.

- **Limit order** – A limit order is held in a limit order book until the desired price is obtained.

There are many different designs for secondary markets. A secondary market is structured as a dealer market or an agency market.

- In a **dealer market**, the broker takes the trade through the dealer. Public traders do not directly trade with one another in a dealer market. The over-the-counter (OTC) market is a dealer market.

- In an **agency market**, the broker gets client's orders via an agent.

Not all stock market systems provide **continuous trading**. For example, the **Paris Bourse** was traditionally a **call market** where an agent gathers a batch of orders that are periodically executed throughout the trading day. The major disadvantage of a call market is that the traders do not know the bid and ask quotations prior to the call.

Crowd trading is a form of **non-continuous trade**. In crowd trading, in a trading ring, an agent periodically announces the issue. The traders then announce their bid and ask prices, and look for counterparts to a trade. Unlike a call market which has a common price for all trades, several trades may occur at different prices.

Trading In International Equities

A greater global integration of capital markets became apparent for various reasons:

- First, investors understood the good effects of international trade.
- Second, the prominent capital markets got more liberalized through the elimination of fixed trading commissions.
- Third, internet and information and communication technology facilitated efficient and fair trading in international stocks.
- Fourth, the MNCs understood the advantages of sourcing new capital internationally.

Cross-listing

Cross-listing refers to having the shares listed on one or more foreign exchanges. In particular, MNCs do this generally, but non-MNCs also cross-list. A firm may decide to cross-list its shares for the following reasons:

- Cross-listing provides a way to expand the investor's base, thus potentially increasing its demand in a new market.
- Cross-listing offers recognition of the company in a new capital market, thus allowing the firm to source new equity or debt capital from local investors.
- Cross-listing offers more investors. International portfolio diversification is possible for investors when they trade on their own stock exchange.
- Cross-listing may be seen as a signal to investors that improved corporate governance is imminent.
- Cross-listing diminishes the probability of a hostile takeover of the firm via the broader investor base formed for the firm's shares.

Yankee Stock Offerings

In 1990s, many international companies, including the Latin Americans, have listed their stocks on U.S. exchanges to prime market for future Yankee stock offerings, that is, the direct sale of new equity capital to U.S. public investors. One of the reasons is the pressure for privatization of companies. Another reason is the rapid growth in the economies. The third reason is the expected large demand for new capital after the NAFTA has been approved.

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.

- An ADR can be sold by trading the ADR to another investor in the US stock market, and shares can also be sold in the local stock market.

- 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.

Global Registered Shares (GRS)

GRS are a share that are traded globally, unlike the ADRs that are receipts of the bank deposits of home-market shares and are traded on foreign markets. The GRS are fully transferrable — GRS purchased on one exchange can be sold on another. They usually trade in both US dollars and euros.

The main advantage of GRS over ADRs is that all shareholders have equal status and the direct voting rights. The main disadvantage is the cost of establishing the global registrar and the clearing facility.

Factors Affecting International Equity Returns

Macroeconomic factors, exchange rates, and industrial structures affect international equity returns.

Macroeconomic Factors

Solnik (1984) examined the effect of exchange rate fluctuations, interest rate differences, the domestic interest rate, and changes in domestic inflation expectations. He found that international monetary variables had only weak influence on equity returns. Asprem (1989) stated that fluctuations in industrial production, employment, imports, interest rates, and an inflation measure affect a small portion of the equity returns.

Exchange Rates

Adler and Simon (1986) tested the sample of foreign equity and bond index returns to exchange rate changes. They found that exchange rate changes generally had a variability of foreign bond indexes than foreign equity indexes. However, some foreign equity markets were more vulnerable to exchange rate changes than the foreign bond markets.

Industrial Structure

Roll (1992) concluded that the industrial structure of a country was important in explaining a significant part of the correlation structure of international equity index returns.

In contrast, Eun and Resnick (1984) found that the correlation structure of international security returns could be better estimated by recognized country factors rather than industry factors.

Heston and Rouwenhorst (1994) stated that "industrial structure explains very little of the cross-sectional difference in country returns volatility, and that the low correlation between country indices is almost completely due to country-specific sources of variation."

Part 4 – Hedging and Risk Management

13. EXCHANGE RATE FORECASTS

Economists and investors always tend to forecast the future exchange rates so that they can depend on the predictions to derive monetary value. There are different models that are used to find out the future exchange rate of a currency.

However, as is the case with predictions, almost all of these models are full of complexities and none of these can claim to be 100% effective in deriving the exact future exchange rate.

Exchange Rate Forecasts are derived by the computation of value of vis-à-vis other foreign currencies for a definite time period. There are numerous theories to predict exchange rates, but all of them have their own limitations.

Exchange Rate Forecast: Approaches

The two most commonly used methods for forecasting exchange rates are:

- **Fundamental Approach**: This is a forecasting technique that utilizes elementary data related to a country, such as GDP, inflation rates, productivity, balance of trade, and unemployment rate. The principle is that the 'true worth' of a currency will eventually be realized at some point of time. This approach is suitable for long-term investments.

- **Technical Approach**: In this approach, the investor sentiment determines the changes in the exchange rate. It makes predictions by making a chart of the patterns. In addition, positioning surveys, moving-average trend-seeking trade rules, and Forex dealers' customer-flow data are used in this approach.

Exchange Rate Forecast: Models

Some important exchange rate forecast models are discussed below.

Purchasing Power Parity Model

The purchasing power parity (PPP) forecasting approach is based on the **Law of One Price**. It states that same goods in different countries should have identical prices. For example, this law argues that a chalk in Australia will have the same price as a chalk of equal dimensions in the U.S. (considering the exchange rate and excluding transaction and shipping costs). That is, there will be no arbitrage opportunity to buy cheap in one country and sell at a profit in another.

Depending on the principle, the PPP approach predicts that the exchange rate will adjust by offsetting the price changes occurring due to inflation. For example, say the prices in the U.S. are predicted to go up by 4% over the next year and the prices in Australia are going to rise by only 2%. Then, the inflation differential between America and Australia is:

4% – 2% = 2%

According to this assumption, the prices in the U.S. will rise faster in relation to prices in Australia. Therefore, the PPP approach would predict that the U.S. dollar will depreciate by about 2% to balance the prices in these two countries. So, in case the exchange rate was 90 cents U.S. per one Australian dollar, the PPP would forecast an exchange rate of:

(1 + 0.02) × (US $0.90 per AUS $1) = US $0.918 per AUS $1

So, it would now take 91.8 cents U.S. to buy one Australian dollar.

Relative Economic Strength Model

The relative economic strength model determines the direction of exchange rates by taking into consideration the strength of economic growth in different countries. The idea behind this approach is that a strong economic growth will attract more investments from foreign investors. To purchase these investments in a particular country, the investor will buy the country's currency – increasing the demand and price (appreciation) of the currency of that particular country.

Another factor bringing investors to a country is its interest rates. High interest rates will attract more investors, and the demand for that currency will increase, which would let the currency to appreciate.

Conversely, low interest rates will do the opposite and investors will shy away from investment in a particular country. The investors may even borrow that country's low-priced currency to fund other investments. This was the case when the Japanese yen interest rates were extremely low. This is commonly called **carry-trade strategy**.

The relative economic strength approach does not exactly forecast the future exchange rate like the PPP approach. It just tells whether a currency is going to appreciate or depreciate.

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.

For example, say, a forecaster for a Canadian company has researched factors he thinks would affect the USD/CAD exchange rate. From his research and analysis, he found that the most influential factors are: the interest rate differential (INT), the GDP growth rate differences (GDP), and the income growth rate (IGR) differences.

The econometric model he comes up with is:

USD/CAD (1 year) = z + a(INT) + b(GDP) + c(IGR)

Now, using this model, the variables mentioned, i.e., INT, GDP, and IGR can be used to generate a forecast. The coefficients used (a, b, and c) will affect the exchange rate and will determine its direction (positive or negative).

Time Series Model

The time series model is completely technical and does not include any economic theory. The popular time series approach is known as the **autoregressive moving average** (ARMA) process.

The rationale is that the past behavior and price patterns can affect the future price behavior and patterns. The data used in this approach is just the time series of data to use the selected parameters to create a workable model.

To conclude, forecasting the exchange rate is an ardent task and that is why many companies and investors just tend to hedge the currency risk. Still, some people believe in forecasting exchange rates and try to find the factors that affect currency-rate movements. For them, the approaches mentioned above are a good point to start with.

14. EXCHANGE RATE FLUCTUATIONS

Exchange rate fluctuations affect not only multinationals and large corporations, but also small and medium-sized enterprises. Therefore, understanding and managing exchange rate risk is an important subject for business owners and investors.

There are various kinds of exposure and related techniques for measuring the exposure. Of all the exposures, economic exposure is the most important one and it can be calculated statistically.

Companies resort to various strategies to contain economic exposure.

Types of Exposure

Companies are exposed to three types of risk caused by currency volatility:

- **Transaction exposure** – Exchange rate fluctuations have an effect on a company's obligations to make or receive payments denominated in foreign currency in future. Transaction exposure arises from this effect and it is short-term to medium-term in nature.

- **Translation exposure** – Currency fluctuations have an effect on a company's consolidated financial statements, particularly when it has foreign subsidiaries. Translation exposure arises due to this effect. It is medium-term to long-term in nature.

- **Economic (or operating) exposure** – Economic exposure arises due to the effect of unpredicted currency rate fluctuations on the company's future cash flows and market value. Unanticipated exchange rate fluctuations can have a huge effect on a company's competitive position.

Note that economic exposure is impossible to predict, while transaction and translation exposure can be estimated.

Economic Exposure – An Example

Consider a big U.S. multinational with operations in numerous countries around the world. The company's biggest export markets are Europe and Japan, which together offer 40% of the company's annual revenues.

The company's management had factored in an average slump of 3% for the dollar against the Euro and Japanese Yen for the running and the next two years. The management expected that the Dollar will be bearish due to the recurring U.S. budget deadlock, and growing fiscal and current account deficits, which they expected would affect the exchange rate.

However, the rapidly improving U.S. economy has triggered speculation that the Fed will tighten monetary policy very soon. The Dollar is rallying, and in the last few months, it has gained about 5% against the Euro and the Yen. The outlook suggests further gains, as the monetary policy in Japan is stimulative and the European economy is coming out of recession.

The U.S. company is now facing not just transaction exposure (as its large export sales) and translation exposure (as it has subsidiaries worldwide), but also economic exposure. The Dollar was expected to decline about 3% annually against the Euro and the Yen, but it has already gained 5% versus these currencies, which is a variance of 8 percentage points at hand. This will have a negative effect on sales and cash flows. The investors have already taken into account the currency fluctuations and the stock of the company fell 7%.

Calculating Economic Exposure

Foreign asset or overseas cash flow value fluctuates with the exchange rate changes. We know from statistics that a regression analysis of the asset value (P) versus the spot exchange rate (S) will offer the following regression equation:

$$P = a + (b \times S) + e$$

Where, **a** is the regression constant, **b** is the regression coefficient, and **e** is a random error term with a mean of zero. Here, **b** is a measure of economic exposure, and it measures the sensitivity of an asset's dollar value to the exchange rate.

The regression coefficient is the ratio of the covariance between the asset value and the exchange rate, to the variance of the spot rate. It is expressed as:

$$b = \frac{\mathrm{Cov}\,(P, S)}{\mathrm{Var}\,(S)}$$

Economic Exposure – Numerical Example

A U.S. company (let us call it **USX**) has a 10% stake in a European company – say **EuroStar**. USX is concerned about a decline in the Euro, and as it wants to maximize the Dollar value of EuroStar. It would like to estimate its economic exposure.

USX thinks the probabilities of a stronger and/or weaker Euro is equal, i.e., 50–50. In the strong-Euro scenario, the Euro will be at 1.50 against the Dollar, which would have a negative impact on EuroStar (due to export loss). Then, EuroStar will have a market value of EUR 800 million, valuing USX's 10% stake at EUR 80 million (or $120 million).

In the weak-Euro scenario, currency will be at 1.25; EuroStar would have a market value of EUR 1.2 billion, valuing USX's 10% stake will be equal to $150 million.

If **P** represents the value of USX's 10% stake in EuroStar in Dollar terms, and **S** represents the Euro spot rate, then the covariance of **P** and **S** is:

$$\mathrm{Cov}\,(P,S) = -1.875$$

$$\mathrm{Var}\,(S) = 0.015625$$

Therefore, b = −1.875 ÷ (0.015625) = – EUR 120 million

USX's economic exposure is a negative EUR 120 million, which is equivalent to saying that the value of its stake in EuroStar decreases as the Euro gets stronger, and increases as the Euro weakens.

Determining Economic Exposure

The economic exposure is usually determined by two factors:

- Whether the markets where the company inputs and sells its products are competitive or monopolistic? Economic exposure is more when either a firm's input costs or goods' prices are related to currency fluctuations. If both costs and prices are relative or secluded to currency fluctuations, the effects are cancelled by each other and it reduces the economic exposure.

- Whether a firm can adjust to markets, its product mix, and the source of inputs in a reply to currency fluctuations? Flexibility would mean lesser operating exposure, while sternness would mean a greater operating exposure.

Managing Economic Exposure

The economic exposure risks can be removed through **operational strategies** or **currency risk mitigation strategies**.

Operational strategies

- **Diversifying production facilities and markets for products**: Diversification mitigates the risk related with production facilities or sales being concentrated in one or two markets. However, the drawback is the company may lose economies of scale.

- **Sourcing flexibility**: Having sourcing flexibilities for key inputs makes strategic sense, as exchange rate moves may make inputs too expensive from one region.

- **Diversifying financing**: Having different capital markets gives a company the flexibility to raise capital in the market with the cheapest cost.

Currency risk mitigation strategies

The most common strategies are:

- **Matching currency flows**: Here, foreign currency inflows and outflows are matched. For example, if a U.S. company having inflows in Euros is looking to raise debt, it must borrow in Euros.

- **Currency risk-sharing agreements**: It is a sales or purchase contract of two parties where they agree to share the currency fluctuation risk. Price adjustment is made in this, so that the base price of the transaction is adjusted.

- **Back-to-back loans**: Also called as **credit swap**, in this arrangement, two companies of two nations borrow each other's currency for a defined period. The back-to-back loan stays as both an asset and a liability on their balance sheets.

- **Currency swaps**: It is similar to a back-to-back loan, but it does not appear on the balance sheet. Here, two firms borrow in the markets and currencies so that each can have the best rates, and then they swap the proceeds.

15. FOREIGN CURRENCY FUTURES & OPTIONS

Depending on the selection of buying or selling the numerator or denominator of a currency pair, the derivative contracts are known as **futures** and **options**.

There are various ways to earn a profit from futures and options, but the contract-holder is always obliged to certain rules when they go into a contract.

There are some basic differences between futures and options and these differences are the ways through which investors can make a profit or a loss.

Long and Short Currency Trading

Currency futures and options are derivative contracts. These contracts derive their own values from utilization of the underlying assets, which, in this case, are currency pairs. Currencies are always traded in pairs.

For example, the Euro and U.S. Dollar pair is expressed as EUR/USD. When someone buys this pair, they are said to be going long (buying) with the numerator, or the base, currency, which is the Euro; and thereby selling the denominator (quote) currency, which is the Dollar. When someone sells the pair, it is selling the Euro and buying the Dollar. When the long currency appreciates against the short currency, people make money.

Foreign Currency Futures

Currency futures make the buyer of the contract to buy the long currency (numerator) by paying with the short currency (denominator) for it. The seller of a contract has the reverse obligation. The obligation of the contact is usually due on the expiration date of the future.

The ratio of currencies, bought and sold, is settled in advance between the parties involved. People make a profit or loss depending on the gap between the settled price and the real, effective price on the date of expiration.

Margins are deposited for the futures trades – cash is the important part that serves as the performance bond to make sure that both parties are obliged to fulfil their obligations.

Options on Currency Pairs

The party that purchases a currency pair call option may also decide to settle for an execution or to sell out the option on or before the date of expiration. There is a **strike price** of the option that shows a particular exchange ratio for the given pair of currencies.

When the actual price of the currency pair is more than the strike price, the call holder earns a profit. It is said to execute the option by buying the base and selling the quote at a profitable term. A put buyer always bets on the denominator or quote currency appreciating against the numerator or the base currency.

Options on Currency Futures

Instead of having to buy and sell currency pairs, options in a currency future offers the contract-holders the right, but not an obligation, to purchase a futures contract on the particular currency pair.

The strategy in such a case is that the option buyer can profit from the futures market without having to put down any margin in the contract. When the futures contract appreciate, the call or contract holder can just sell the call for a profit. The call holder does not need to buy the underlying futures contract. A put buyer can easily earn a profit if the futures contract loses value.

Difference between Options and Futures

The basic and most prominent difference between options and futures is related with the obligations they create on part of the buyers and sellers.

- An **option** offers the buyer the basic right, *but not an obligation*, to buy (or sell) a certain kind of asset at a decided or settled price, which is specific at any time while the contract is alive.

- On the other hand, a **futures** contract offers the buyer the *obligation* to buy a specific asset, and the seller the obligation to sell and deliver that asset on a specific future date, provided the holder does not close the position prior to expiration.

- An investor can go in into a futures contract with no upfront cost apart from commissions, whereas purchasing an options position does not need to pay a premium. While comparing the absence of any upfront cost of futures, the premium of the option can be considered as the fee for not being obligated to purchase the underlying asset in the case of an adverse movement in prices. The premium paid on the option is the maximum value a purchaser can lose.

- Another important difference between futures and options is the size of the given or underlying position. Usually, the underlying position is considerably bigger in case of futures contracts. Moreover, the obligation to purchase or sell this given amount at a settled price turns the futures a bit riskier for an inexperienced investor.

- The final and one of the prominent differences between futures and options is the way the gains or earnings are obtained by the parties. In case of an option, the gains can be realized in the following three ways:

    - Exercising the option when it is deep in the money,
    - Going to the market and taking the opposite position, or
    - Waiting until expiry and gaining the gap between the asset and the strike prices.

  On the other hand, gains on the futures positions are naturally 'marked to market' every day. This means that the change in the price of the positions is assigned to the futures accounts of the parties at the end of every trading day. However, a futures call-holder can also realize gains by going to the market and opting for the opposite position.

16. TRANSACTION EXPOSURE

There are various techniques available for managing transactional exposure. The objective here is to shun the transactions from exchange rate risks. In this chapter, we will discuss the four major techniques that can be used to hedge transactional exposure. In addition, we will also discuss some operational techniques to manage transactional exposure.

Financial Techniques to Manage Transaction Exposure

The main feature of a transaction exposure is the ease of identifying its size. Additionally, it has a well-defined time interval associated with it that makes it extremely suitable for hedging with financial instruments.

The most common methods for hedging transaction exposures are:

- **Forward Contracts** – If a firm has to pay (receive) some fixed amount of foreign currency in the future (a date), it can obtain a contract now that denotes a price by which it can buy (sell) the foreign currency in the future (the date). This removes the uncertainty of future home currency value of the liability (asset) into a certain value.

- **Futures Contracts** – These are similar to forward contracts in function. Futures contracts are usually exchange traded and they have standardized and limited contract sizes, maturity dates, initial collateral, and several other features. In general, it is not possible to exactly offset the position to fully eliminate the exposure.

- **Money Market Hedge** – Also called as **synthetic forward contract**, this method uses the fact that the forward price must be equal to the current spot exchange rate multiplied by the ratio of the given currencies' riskless returns. It is also a form of financing the foreign currency transaction. It converts the obligation to a domestic-currency payable and removes all exchange risks.

- **Options** – A foreign currency option is a contract that has an upfront fee, and offers the owner the right, but not an obligation, to trade currencies in a specified quantity, price, and time period.

Note: The major difference between an option and the hedging techniques mentioned above is that an option usually has a nonlinear payoff profile. They permit the removal of downside risk without having to cut off the profit from upside risk.

The decision of choosing one among these different financial techniques should be based on the costs and the penultimate domestic currency cash flows (which is appropriately adjusted for the time value) based upon the prices available to the firm.

Transaction Hedging Under Uncertainty

Uncertainty about either the timing or the existence of an exposure does not provide a valid argument against hedging.

Uncertainty about transaction date

Lots of corporate treasurers promise to engage themselves to an early protection of the foreign-currency cash flow. The key reason is that, even if they are sure that a foreign currency transaction will occur, they are not quite sure what the exact date of the transaction will be. There may be a possible mismatch of maturities of transaction and hedge. Using the mechanism of **rolling** or **early unwinding**, financial contracts create the probability of adjusting the maturity on a future date, when appropriate information becomes available.

Uncertainty about existence of exposure

Uncertainty about existence of exposure arises when there is an uncertainty in submitting bids with prices fixed in foreign currency for future contracts. The firm will pay or receive foreign currency when a bid is accepted, which will have denominated cash flows. It is a kind of contingent transaction exposure. In these cases, an option is ideally suited.

Under this kind of uncertainty, there are four possible outcomes. The following table provides a summary of the effective proceeds to the firm per unit of option contract which is equal to the net cash flows of the assignment.

State	Bid Accepted	Bid Rejected
Spot price better than exercise price : let option expire	Spot Price	0
Spot price worse than exercise price: exercise option	Exercise Price	Exercise Price - Spot Price

Operational Techniques for Managing Transaction Exposure

Operational strategies having the virtue of offsetting existing foreign currency exposure can also mitigate transaction exposure. These strategies include:

- **Risk Shifting** – The most obvious way is to not have any exposure. By invoicing all parts of the transactions in the home currency, the firm can avoid transaction exposure completely. However, it is not possible in all cases.

- **Currency risk sharing** – The two parties can share the transaction risk. As the short-term transaction exposure is nearly a zero sum game, one party loses and the other party gains.

- **Leading and Lagging** – It involves playing with the time of the foreign currency cash flows. When the foreign currency (in which the nominal contract is denominated) is appreciating, pay off the liabilities early and collect the receivables later. The first is known as **leading** and the latter is called **lagging**.

- **Reinvoicing Centers** – A reinvoicing center is a third-party corporate subsidiary that uses to manage one location for all transaction exposure from intra-company trade. In a reinvoicing center, the transactions are carried out in the domestic currency, and hence, the reinvoicing center suffers from all the transaction exposure.

Reinvoicing centers have three main advantages:

- The centralized management gains of transaction exposures remain within company sales.

- Foreign currency prices can be adjusted in advance to assist foreign affiliates budgeting processes and improve intra affiliate cash flows, as intra-company accounts use domestic currency.

- Reinvoicing centers (offshore, third country) qualify for local non-resident status and gain from the offered tax and currency market benefits.

17. TRANSLATION EXPOSURE

Translation exposure, also known **accounting exposure**, refers to a kind of effect occurring for an unanticipated change in exchange rates. It can affect the consolidated financial reports of an MNC.

From a firm's point of view, when exchange rates change, the probable value of a foreign subsidiary's assets and liabilities expressed in a foreign currency will also change.

There are mechanical means for managing the consolidation process for firms that have to deal with exchange rate changes. These are the management techniques for translation exposure.

We have discussed transaction exposure and the ways to manage it. It is interesting to note that some items that create transaction exposure are also responsible for creating translation exposure.

Translation Exposure – An Exhibit

The following exhibit shows the transaction exposure report for Cornellia Corporation and its two affiliates. Items that produce transaction exposure are the **receivables** or **payables**. These items are expressed in a foreign currency.

Affiliate	Amount	Account	Translation Exposure
Parent	CD 200,000	Cash	Yes
Parent	Ps 3,000,000	Accounts receivable	No
Spanish	SF 375,000	Notes payable	Yes

From the exhibit, it can be easily understood that the parent firm has mainly two sources of a probable transaction exposure. One is the Canadian Dollar (CD) 200,000 deposit that the firm has in a Canadian bank. Obviously, when the Canadian dollar depreciates, the deposit's value will go down for Cornellia Corporation when changed to US dollars.

It can be noted that this deposit is also a translation exposure. It is a translation exposure for the same reason for which it is a transaction exposure. The given (Peso) Ps 3,000,000 accounts receivable is not a translation exposure due to the netting of intra-company payables and receivables. The (Swiss Franc) SF 375,000 notes for the Spanish affiliate is both a transaction and a translation exposure.

Cornellia Corporation and its affiliates can follow the steps given below to reduce its transaction exposure and translation exposure.

- Firstly, the parent company can convert its Canadian dollars into U.S. dollar deposits.
- Secondly, the parent organization can also request for payment of the Ps 3,000,000 the Mexican affiliate owes to it.

- Thirdly, the Spanish affiliate can pay off, with cash, the SF 375,000 loan to the Swiss bank.

These three steps can eliminate all transaction exposure. Moreover, translation exposure will be diminished as well.

Translation Exposure Report for Cornellia Corporation and its Mexican and Spanish Affiliates (in 000 Currency Units):

	Canadian Dollar	Mexican Peso	Euro	Swiss Frank
Assets				
Cash	CD0	Ps 3,000	Eu 550	SF0
A/c receivable	0	9,000	1,045	0
Inventory	0	15,000	1,650	0
Net Fixed Assets	0	46,000	4,400	0
Exposed Assets	CD0	Ps 73,000	Eu 7,645	SF0
Liabilities				
A/c payable	CD0	Ps 7,000	Eu 1,364	SF0
Notes payable	0	17,000	935	0
Long term debt	0	27,000	3,520	0
Exposed liabilities	CD0	Ps51,000	Eu 5,819	SF0
Net exposure	CD0	Ps22,000	Eu 1,826	SF0

The report shows that no translation exposure is associated with the Canadian dollar or the Swiss franc.

Hedging Translation Exposure

The above exhibit indicates that there is still enough translation exposure with changes in the exchange rate of the Mexican Peso and the Euro against the U.S. dollar. There are two major methods for controlling this remaining exposure. These methods are: **balance sheet hedge** and **derivatives hedge**.

Balance Sheet Hedge

Translation exposure is not purely entity specific; rather, it is only currency specific. A mismatch of net assets and net liabilities creates it. A balance sheet hedge will eliminate this mismatch.

Using the currency Euro as an example, the above exhibit presents the fact that there are €1,826,000 more net exposed assets than liabilities. Now, if the Spanish affiliate, or more probably, the parent firm or the Mexican affiliate, pays €1,826,000 as more liabilities, or reduced assets, in Euros, there would be no translation exposure with respect to the Euro.

A perfect balance sheet hedge will occur in such a case. After this, a change in the Euro / Dollar (€/$) exchange rate would not have any effect on the consolidated balance sheet, as the change in value of the assets would completely offset the change in value of the liabilities.

Derivatives Hedge

According to the corrected translation exposure report shown above, depreciation from €1.1000/$1.00 to €1.1786/$1.00 in the Euro will result in an equity loss of $110,704, which was more when the transaction exposure was not taken into account.

A derivative product, such as a forward contract, can now be used to attempt to hedge this loss. The word "attempt" is used because using a derivatives hedge, in fact, involves speculation about the forex rate changes.

18. ECONOMIC EXPOSURE

Economic exposure is the toughest to manage because it requires ascertaining future exchange rates. However, economists and investors can take the help of statistical regression equations to hedge against economic exposure. There are various techniques that companies can use to hedge against economic exposure. Five such techniques have been discussed in this chapter.

It is difficult to measure economic exposure. The company must accurately estimate cash flows and the exchange rates, as transaction exposure has the power to alter future cash flows while fluctuation of the currency exchange rates occur. When a foreign subsidiary gets positive cash flows after it corrects for the currency exchange rates, the subsidiary's net transaction exposure is low.

Note: It is easier to estimate economic exposure when currency exchange rates display a trend, and the future cash flows are known.

Regression Equation

Analysts can measure economic exposure by using a simple **regression equation**, shown in Equation 1.

$$P = \alpha + \beta . S + \varepsilon \qquad (1)$$

Suppose, the United States is the home country and Europe is the foreign country. In the equation, the price, **P**, is the price of the foreign asset in dollars while **S** is spot exchange rate, expressed as Dollars per Euro.

The Regression equation estimates the connection between price and the exchange rate. The random error term (ε) equals zero when there is a constant variance while (α) and (β) are the estimated parameters. Now, we can say that this equation will give a straight line between P and S with an intercept of (α) and a slope of (β). The parameter (β) is expressed as the Forex Beta or Exposure Coefficient. β indicates the level of exposure.

We calculate (β) by using Equation 2. Covariance estimates the fluctuation of the asset's price to the exchange rate, while the variance measures the variation of the exchange rate. We see that two factors influence (β): one is the fluctuations in the exchange rate and the second is the sensitivity of the asset's price to changes in the exchange rate.

$$\beta = \frac{\text{Covariance (P,S)}}{\text{Variance (S)}} \qquad (2)$$

Economic Exposure – A Practical Example

Suppose you own and rent out a condominium in Europe. A property manager recruited by you can vary the rent, making sure that someone always rents and occupies the property.

Now, assume you receive € 1,800, € 2,000, or € 2,200 per month in cash for rent, as shown in Table 1. Let's say each rent is a state, and as is obvious, any of the rents have a 1/3 probability. The forecasted exchange rate for each state, which is S has also been estimated. We can now calculate the asset's price, P, in U.S. dollars by multiplying that state's rent by the exchange rate.

Table 1 – Renting out your Condo for Case 1

State	Probability	Rent (Euro)	Exchange Rate (S)	Rent (P)
1	1/3	1,800	$1/1.00 E	$1,800
2	1/3	2,000	$1.25/1.00 E	$2,500
3	1/3	2,200	$1.50/1.00 E	$3,300

In this case, we calculate 800 for (β). Positive (β) shows that your cash rent varies with the fluctuating exchange rate, and there is a potential economic exposure.

A special factor to notice is that as the Euro appreciated, the rent in Dollars also increased. A forward contract for € 800 at a contract price of $1.25 per €1 can be bought to hedge against the exchange rate risk.

In Table 2, (β) is the correct hedge for Case 1. The Forward Price is the exchange rate in the forward contract and it is the spot exchange rate for a state.

Suppose we bought a forward contract with a price of $1.25 per euro.

- If State 1 occurs, the Euro depreciates against the U.S. dollar. By exchanging € 800 into Dollars, we gain $200, and we compute it in the Yield column in Table 2.
- If State 2 occurs, the forward rate equals the spot rate, so we neither gain nor lose anything.
- State 3 shows that the Euro appreciated against the U.S. dollar, so we lose $200 on the forward contract. We know that each state is equally likely to occur, so we, on average, break even by purchasing the forward contract.

Table 2 – The Beta is the Correct Hedge for Case 1

State	Forward Price	Exchange rate	Yield
1	$1.25/1	$1.00/1E	(1.25 – 1.00) × 800 = 200$
2	$1.25/1E	$1.25/1E	(1.25 – 1.25) × 800 = 0
3	$1.25/1E	$1.50/1E	(1.25 – 1.50) × 800 = –200 $
Total			$ 0

The rents have changed in Table 3. In Case 2, you could now get € 1,667.67, € 2,000, or € 2,500 per month in cash, and all rents are equally likely. Although your rent fluctuates greatly, the exchange moves in the opposite direction of the rent.

Table 3 – Renting out your Condo for Case 2

State	Probability	Rent (E)	Exch. Rate	Rent (P)
1	1/3	2,500	$1/1E	$2,500
2	1/3	2,000	$1.25/1E	$2,500
3	1/3	1,666.67	$1.50/1E	$2,500

Now, do you notice that when you calculate the rent in dollars, the rent amounts become $2,500 in all cases, and (β) equals −1,666.66? A negative (β) indicates that the exchange rate fluctuations cancel the fluctuations in rent. Moreover, you do not need a forward contract because you do not have any economic exposure.

We finally examine the last case in Table 4. The same rent, € 2000, is charged for Case 3 without considering the exchange rate changes. As the rent is calculated in U.S. dollars, the exchange rate and the rent amount move in the same direction.

Table 4 – Renting out your Condo for Case 3

State	Probability	Rent (E)	Exch. Rate	Rent (P)
1	1/3	2,000	$1/1E	$2,000
2	1/3	2,000	$1.25/1E	$2,500
3	1/3	2,000	$1.50/1E	$3,000

However, the (β) equals 0 in this case, as rents in Euros do not vary. So, now, it can be hedged against the exchange rate risk by buying a forward for €2000 and not the amount for the (β). By deciding to charge the same rent, you can use a forward to protect this amount.

Techniques to Reduce Economic Exposure

International firms can use five techniques to reduce their economic exposure:

- **Technique 1:** A company can reduce its manufacturing costs by taking its production facilities to low-cost countries. For example, the Honda Motor Company produces automobiles in factories located in many countries. If the Japanese Yen appreciates and raises Honda's production costs, Honda can shift its production to its other facilities, scattered across the world.

- **Technique 2:** A company can outsource its production or apply low-cost labor. Foxconn, a Taiwanese company, is the largest electronics company in the world, and it produces electronic devices for some of the world's largest corporations.

- **Technique 3:** A company can diversify its products and services and sell them to clients from around the world. For example, many U.S. corporations produce and market fast food, snack food, and sodas in many countries. The depreciating U.S. dollar reduces profits inside the United States, but their foreign operations offset this.

- **Technique 4:** A company can continually invest in research and development. Subsequently, it can offer innovative products at a higher price. For instance, Apple

Inc. set the standard for high-quality smartphones. When dollar depreciates, it increases the price.

- **Technique 5:** A company can use derivatives and hedge against exchange rate changes. For example, Porsche completely manufactures its cars within the European Union and exports between 40% to 45% of its cars to the United States. Porsche financial managers hedged or shorted against the U.S. dollar when the U.S. dollar depreciated. Some analysts estimated that about 50% of Porsche's profits arose from hedging activities.

Part 5 – Strategic Decision-Making

19. FOREIGN DIRECT INVESTMENT

Foreign direct investment (FDI) is an important factor in acquiring investments and grow the local market with foreign finances when local investment is unavailable. There are various formats of FDI and companies should do a good research before actually investing in a foreign country.

It has been proved that FDI can be a win-win situation for both the parties involved. The investor can gain cheaper access to products/services and the host country can get valuable investment unattainable locally.

There are various vehicles through which FDI can be acquired and there are some important questions the firms must answer before actually implementing a FDI strategy.

FDI – Definition

FDI, in its classic definition, is termed as a company of one nation putting up a physical investment into building a facility (factory) in another country. The direct investment made to create the buildings, machinery, and equipment is not in sync with making a portfolio investment, an indirect investment.

In recent years, due to fast growth and change in global investment patterns, the definition has been expanded to include all the acquisition activities outside the investing firm's home country.

FDI, therefore, may take many forms, such as direct acquisition of a foreign firm, constructing a facility, or investing in a joint venture or making a strategic alliance with one of the local firms with an input of technology, licensing of intellectual property.

FDI and its Types

Strategically, FDI comes in three types:

- **Horizontal:** In case of horizontal FDI, the company does all the same activities abroad as at home. For example, Toyota assembles motor cars in Japan and the UK.

- **Vertical:** In vertical assignments, different types of activities are carried out abroad. In case of **forward vertical FDI**, the FDI brings the company nearer to a market (for example, Toyota buying a car distributorship in America). In case of **backward Vertical FDI**, the international integration goes back towards raw materials (for example, Toyota getting majority stake in a tyre manufacturer or a rubber plantation).

- **Conglomerate:** In this type of investment, the investment is made to acquire an unrelated business abroad. It is the most surprising form of FDI, as it requires overcoming two barriers simultaneously – one, entering a foreign country and two, working in a new industry.

FDI can take the form of **greenfield entry** or **takeover**.

- **Greenfield** entry refers to activities or assembling all the elements right from scratch as Honda did in the UK.

- **Foreign takeover** means acquiring an existing foreign company – as Tata's acquisition of Jaguar Land Rover. Foreign takeover is often called **mergers and acquisitions** (M&A) but internationally, mergers are absolutely small, which accounts for less than 1% of all foreign acquisitions.

This choice of entry in a market and its mode interacts with the ownership strategy. The choice of wholly owned subsidiaries against joint ventures gives a 2x2 matrix of choices – the options of which are:

- Greenfield wholly owned ventures,
- Greenfield joint ventures,
- Wholly owned takeovers, and
- Joint foreign acquisitions.

These choices offer foreign investors options to match their own interests, capabilities, and foreign conditions.

Why is FDI Important?

FDI is an important source of externally derived finance that offers countries with limited amounts of capital get finance beyond national borders from wealthier countries. For example, exports and FDI are the two key ingredients in China's rapid economic growth.

According to the World Bank, FDI is one of the critical elements in developing the private sector in lower-income economies and thereby, in reducing poverty.

Vehicles of FDI

- **Reciprocal distribution agreements** – This type of strategic alliance is found more in trade-based verticals, but in practical sense, it does represent a type of direct investment. Basically, two companies, usually within the same or affiliated industries, but from different nations, agree to become national distributors for each other's products.

- **Joint venture and other hybrid strategic alliances** – Traditional joint venture is bilateral, involving two parties who are within the same industry, partnering for getting some strategic advantage. Joint ventures and strategic alliances offer access to proprietary technology, gaining access to intellectual capital as human resources, and access to closed channels of distribution in select locations.

- **Portfolio investment** – For most of the 20th century, a company's portfolio investments were not considered a direct investment. However, two or three companies with "soft" investments in a company could try to find some mutual interests and use their shareholding for management control. This is another form of strategic alliance, sometimes called **shadow alliances**.

FDI – Basic Requirements

As a minimum requirement, a firm will have to keep itself abreast of global trends in its industry. From a competitive perspective, it is important to be aware if the competitors are getting into a foreign market and how they do that.

It is also important to see how globalization is currently affecting the domestic clients. Often, it becomes imperative to expand for key clients overseas for an active business relationship.

New market access is also another major reason to invest in a foreign country. At some stage, export of product or service becomes obsolete and foreign production or location becomes more cost effective. Any decision on investing is thus a combination of a number of key factors including:

- assessment of internal resources,
- competitiveness,
- market analysis, and
- market expectations.

A firm should seek answers to the following seven questions before investing abroad:

- From an internal resources standpoint, does the firm have senior management support and the internal management and system capabilities to support the setup time and an ongoing management of a foreign subsidiary?

- Has the company done enough market research in the domains, including industry, product, and local regulations governing foreign investment?

- Is there a realistic judgement in place of what level of resource utilization the investment will offer?

- Has information on local industry and foreign investment regulations, incentives, profit sharing, financing, distribution, etc., completely analyzed to determine the most suitable vehicle for FDI?

- Has an adequate plan been made considering reasonable expectations for expansion into the foreign market via the local vehicle?

- If applicable, have all the relevant government agencies been contacted and concurred?

- Have political risk and foreign exchange risk been judged and considered in the business plan?

20. LONG-TERM AND SHORT-TERM FINANCING

Financing is a very important part of every business. Firms often need financing to pay for their assets, equipment, and other important items. Financing can be either long-term or short-term. As is obvious, long-term financing is more expensive as compared to short-term financing.

There are different vehicles through which long-term and short-term financing is made available. This chapter deals with the major vehicles of both types of financing.

The common sources of financing are capital that is generated by the firm itself and sometimes, it is capital from external funders, which is usually obtained after issuance of new debt and equity.

A firm's management is responsible for matching the long-term or short-term financing mix. This mix is applicable to the assets that are to be financed as closely as possible, regarding timing and cash flows.

Long-Term Financing

Long-term financing is usually needed for acquiring new equipment, R&D, cash flow enhancement, and company expansion. Some of the major methods for long-term financing are discussed below.

Equity Financing

Equity financing includes preferred stocks and common stocks. This method is less risky in respect to cash flow commitments. However, equity financing often results in dissolution of share ownership and it also decreases earnings.

The cost associated with equity is generally higher than the cost associated with debt, which is again a deductible expense. Therefore, equity financing can also result in an enhanced hurdle rate that may cancel any reduction in the cash flow risk.

Corporate Bond

A corporate bond is a special kind of bond issued by any corporation to collect money effectively in an aim to expand its business. This tern is usually used for long-term debt instruments that generally have a maturity date after one year after their issue date at the minimum.

Some corporate bonds may have an associated call option that permits the issuer to redeem it before it reaches the maturity. All other types of bonds that are known as **convertible bonds** that offer investors the option to convert the bond to equity.

Capital Notes

Capital notes are a type of convertible security that are exercisable into shares. They are one type of equity vehicle. Capital notes resemble warrants, except the fact that they usually don't have the expiry date or an exercise price. That is why the entire consideration the company aims to receive, for the future issuance of the shares, is generally paid at the time of issuance of capital notes.

Many times, capital notes are issued with a debt-for-equity swap restructuring. Instead of offering the shares (that replace debt) in the present, the company provides its creditors with convertible securities – the capital notes – and hence the dilution occurs later.

Short-Term Financing

Short-term financing with a time duration of up to one year is used to help corporations increase inventory orders, payrolls, and daily supplies. Short-term financing can be done using the following financial instruments:

Commercial Paper

Commercial Paper is an unsecured promissory note with a pre-noted maturity time of 1 to 364 days in the global money market. Originally, it is issued by large corporations to raise money to meet the short-term debt obligations.

It is backed by the bank that issues it or by the corporation that promises to pay the face value on maturity. Firms with excellent credit ratings can sell their commercial papers at a good price.

Asset-backed commercial paper (ABCP) is collateralized by other financial assets. ABCP is a very short-term instrument with 1 and 180 days' maturity from issuance. ACBCP is typically issued by a bank or other financial institution.

Promissory Note

It is a negotiable instrument where the maker or issuer makes an issue-less promise in writing to pay back a pre-decided sum of money to the payee at a fixed maturity date or on demand of the payee, under specific terms.

Asset-based Loan

It is a type of loan, which is often short term, and is secured by a company's assets. Real estate, accounts receivable (A/R), inventory and equipment are the most common assets used to back the loan. The given loan is either backed by a single category of assets or by a combination of assets.

Repurchase Agreements

Repurchase agreements are extremely short-term loans. They usually have a maturity of less than two weeks and most frequently they have a maturity of just one day! Repurchase agreements are arranged by selling securities with an agreement to purchase them back at a fixed cost on a given date.

Letter of Credit

A financial institution or a similar party issues this document to a seller of goods or services. The seller provides that the issuer will definitely pay the seller for goods or services delivered to a third-party buyer.

The issuer then seeks reimbursement to be met by the buyer or by the buyer's bank. The document is in fact a guarantee offered to the seller that it will be paid on time by the issuer of the letter of credit, even if the buyer fails to pay.

21. WORKING CAPITAL MANAGEMENT

Working capital management is associated with receiving and paying out cash. As is obvious, the companies tend to maximize the benefits of earning by paying as late as possible and getting paid as soon as possible.

This chapter provides various ways to maximize the benefits of working capital management and offers practical examples to understand the concepts.

Why Firms Hold Cash

Economist John Maynard Keynes suggested three main reasons why firms hold cash. The three reasons are for the purpose of speculation, precaution, and transactions. All of these three reasons arise from the necessity of companies to possess liquidity.

Speculation

According to Keynes, speculation for holding cash is seen as creating the ability for a firm to take the benefits of special opportunities. These opportunities, if acted upon quickly, tend to favor the firm. An example of speculation is purchasing extra inventory at a discounted rate. This rate is usually far greater than the carrying costs of holding the inventory.

Precaution

A precaution serves as a protectionist or emergency fund for a company. When the cash inflows are not received according to expectation, cash held on a precautionary basis can be utilized to satisfy the short-term obligations for which cash inflow may have been sought for.

Transaction

Firms either create products or they provide services. The offer of services and creation of products results in the necessity for cash inflows and outflows. Firms may hold enough cash to satisfy their cash inflow and cash outflow needs that arise from time to time.

Float

Float is the existing difference between the given book balance and the actual bank balance of an account. For example, you open a bank account, say, with $500. You do not receive any interest on the $500 and you also do not pay a fee to have the account.

Now, think what you do when you get a utility or water bill. You receive your water bill and say, it is for $100. You can write a check for $100 and then mail it to the particular water company. When you write the $100 check, you also file the transaction or payment in the bank register. The value your bank register reflects is the book value of the account. The check may be "in the mail" for a few days. Then after the water company receives, it may take several more days before it is cashed.

Now, between the moment you initiate or write the check and the moment the bank cashes the check, there will obviously be a difference in the book balance and the balance your bank lists for your checking account. That difference is known as **float**.

It is important to note that the float can be managed. If you already have the info that the bank will not get to know about your check for five days, you could also invest the $100 in a savings account at the bank for the five days. Then at the "just in time" you can replace the $100 in your checking account to cover the $100 check.

Time	Book Balance	Bank Balance
Time 0 (make deposit)	$500	$500
Time 1 (write $100 check)	$400	$500
Time 2 (bank receives check)	$400	$400

Float is calculated by subtracting the book balance from the bank balance.

Float at Time 0: $500 – $500 = $0

Float at Time 1: $500 – $400 = $100

Float at Time 2: $400 – $400 = $0

Ways to Manage Cash

Firms need to manage cash in almost all areas of operations that have anything to do with cash. The goal of the firm is to get cash as soon as possible and at the same time, keep waiting to pay the cash out as long as possible. Some of the examples of how firms do this are discussed below.

Policy for Cash Being Held

A firm holding the cash tries to maximize its benefits and want to pay out the cash until the last possible moment. An example is given here.

In the last bank account example, say, you invest $500 in liquid investments rather than investing that amount in a checking account that pays no interest. Assume that the bank allows you to maintain a balance of $0 in your checking account.

Now, you can write a $100 check to the Water Company and then transfer funds in "just in time" (JIT) fashion. By employing this JIT system, you will get interest on the entire $500 till you need the $100 to pay the water company.

Firms often have such policies to maximize idle cash.

Sales

The goal here is to shorten the time to receive the cash as much as possible. Firms that make sales on credit tend to decrease the amount of time customers wait to pay the firm by offering discounts.

For example, credit sales are often made with terms such as 3/10 net 60. It means that a 3% discount on the sale when the payment is made within 10 days. The "net 60," term means that the bill is due within 60 days.

Inventory

The goal now is to put off the payment of cash for as long as possible and to manage the cash being held. By using a JIT inventory system, a firm can delay paying for inventory until it is needed. The firm also avoids carrying costs on the inventory. The companies buy raw materials in JIT systems.

22. INTERNATIONAL TRADE FINANCE

International trade financing is required especially to get funds to carry out international trade operations. Depending on the types and attributes of financing, there are five major methods of transactions in international trade. In this chapter, we will discuss the methods of transactions and finance normally utilized in international trade and investment operations.

International Trade Payment Methods

The five major processes of transaction in international trade are the following:

Prepayment

Prepayment occurs when the payment of a debt or installment payment is done before the due date. A prepayment can include the entire balance or any upcoming part of the entire payment paid in advance of the due date. In prepayment, the borrower is obligated by a contract to pay for the due amount. Examples of prepayment include rent or loan repayments.

Letter of Credit

A Letter of Credit is a letter from a bank that guarantees that the payment due by the buyer to a seller will be made timely and for the given amount. In case the buyer cannot make payment, the bank will cover the entire or remaining portion of the payment.

Drafts

Sight Draft – It is a kind of bill of exchange, where the exporter owns the title to the transported goods until the importer acknowledges and pays for them. Sight drafts are usually found in case of air shipments and ocean shipments for financing the transactions of goods in case of international trade.

Time Draft – It is a type of foreign check guaranteed by the bank. However, it is not payable in full until the duration of time after it is obtained and accepted. In fact, time drafts are a short-term credit vehicle used for financing goods' transactions in international trade.

Consignment

It is an arrangement to leave the goods in the possession of another party to sell. Typically, the party that sells receives a good percentage of the sale. Consignments are used to sell a variety of products including artwork, clothing, books, etc. Recently, consignment dealers have become quite trendy, such as those offering specialty items, infant clothing, and luxurious fashion items.

Open Account

Open account is a method of making payments for various trade transactions. In this arrangement, the supplier ships the goods to the buyer. After receiving and checking the concerned shipping documents, the buyer credits the supplier's account in their own books with the required invoice amount.

The account is then usually settled periodically; say monthly, by sending bank drafts by the buyer, or arranging through wire transfers and air mails in favor of the exporter.

Trade Finance Methods

The most popular trade financing methods are the following:

Accounts Receivable Financing

It is a special type of asset-financing arrangement. In such an arrangement, a company utilizes the receivables – the money owed by the customers – as a collateral in getting a finance.

In this type of financing, the company gets an amount that is a reduced value of the total receivables owed by customers. The time-frame of the receivables exert a large influence on the amount of financing. For older receivables, the company will get less financing. It is also, sometimes, referred to as "**factoring**".

Letters of Credit

As mentioned earlier, Letters of Credit are one of the oldest methods of trade financing.

Banker's Acceptance

A banker's acceptance (BA) is a short-term debt instrument that is issued by a firm that guarantees payment by a commercial bank. BAs are used by firms as a part of the commercial transaction. These instruments are like **T-Bills** and are often used in case of money market funds.

BAs are also traded at a discount from the actual face value on the secondary market. This is an advantage because the BA is not required to be held until maturity. BAs are regular instruments that are used in international trade.

Working Capital Finance

Working capital finance is a process termed as the capital of a business and is used in its daily trading operations. It is calculated as the current assets minus the current liabilities. For many firms, this is fully made up of trade debtors (bills outstanding) and the trade creditors (the bills the firm needs to pay).

Forfaiting

Forfaiting is the purchase of the amount importers owe the exporter at a discounted value by paying cash. The forfaiter that is the buyer of the receivables then becomes the party the importer is obligated to pay the debt.

Countertrade

It is a form of international trade where goods are exchanged for other goods, in place of hard currency. Countertrade is classified into three major categories – barter, counter-purchase, and offset.

- **Barter** is the oldest countertrade process. It involves the direct receipt and offer of goods and services having an equivalent value.

- In a **counter-purchase**, the foreign seller contractually accepts to buy the goods or services obtained from the buyer's nation for a defined amount.

- In an **offset** arrangement, the seller assists in marketing the products manufactured in the buying country. It may also allow a portion of the assembly of the exported products for the manufacturers to carry out in the buying country. This is often practiced in the aerospace and defense industries.