

LESSON 40

INTEREST RATE RISK & FORWARD RATE AGREEMENTS

Following topics have been considered in this hand out:

- CF – future receipt in FCY
- Forward contract vs. currency futures
- Interest rate risk
- Hedging against interest rate
- Forward rate agreements
- Decision rule

CF – Future Receipt in FCY

When a firm is expecting a FCY receipt in future, the risk, contrary to payment scenario, is the fall in the exchange rate below the current spot rates. A hedge would be to sell the FCY future today and the position will be closed by buying the futures in future – when FCY receipt is expected. However, you must remember that currency futures are settled on specified dates during a year. So the time factor should also be considered.

Once the hedge has been established, if the spot rate moves adversely up to the time the currency is received, the loss from adverse spot rate movement will be off set by gains on future trading.

On the other side, if spot rate moves favorable to the time currency is received, the profit from favorable movement in spot rate will be reduced by the amount of loss on future trading.

Future contracts do not provide perfect or clean hedge normally. The reason is that contract size normally does not equalize the FCY involved.

The first step, in establishing hedge, would be to work out the contracts needed to hedge the currency exposure. This can be computed by dividing currency involved by the contract size. As stated above the number of contracts should be in whole number, which will not result in clean hedge.

Then, once the number of contracts that have been sold (in this scenario) there will be a pause until the time position is closed. If the spot rate has weakened or strengthened, calculation will be made to find out the net gain or loss of the hedge.

It would be much helpful in understanding this concept by looking at the following example:

Note: this example has been especially constructed in foreign currencies – US\$ & GBP, due to the reason that currency future are not available in Pak rupees. This is again being done to aid your understanding of international business environment.

In January, a UK company sold goods to a US customer and later promised to pay after 3 months. The total value of goods is US\$ 1,202,500.00. The current spot rate for GBP/US\$ is \$1.5000 and early April GBP future contract are being traded at \$1.4800 on a contract size of GBP 62,500.

UK supplier is exposed to exchange risk on future income of \$1,202,500.00. If sterling weakens, UK trader will gain but if sterling strengthens, he will lose.

The UK supplier can set up a futures position by hedging the risk of strengthening of sterling or weakening of US\$.

To do this the UK seller will sell US\$ using sterling futures. A sterling future is for GBP 62,500/- and the buyer of the sterling future is buying sterling or selling US\$

Buyer needs to buy sterling future.

At the future price of \$1.4800 the \$ receipt after 3 months will be worth:

$$= \$1,202,500.00 / 1.4800 = \text{GBP } 812,500$$

The UK trader needs to buy:

$$812,500 / 62,500 \text{ per contract} = 13 \text{ contracts}$$

The overall financial position will be:

$$\text{Income from trading} \quad \$ 1,202,500/=$$

Profit on future selling:

$$400 \text{ ticks} \times 6.25 \times 13 \quad = \quad \$ 32,500/=$$

$$\text{Total value} \quad = \quad \$ 1,235,000/=$$

Exchange into sterling at spot rate of \$1.52/GBP:

$$\$1,235,000 / 1.52 = \text{GBP } 812,500$$

Effective ex rate is

$$\$1,202,500 / 812,500 = \$1.48$$

Forward contract vs. Currency future

In currency futures, commodity exchanges are involved and credit risk is eliminated. However, a forward contract is made between parties and each party needs to confirm the credit worthiness of each other.

Reversal of currency future is very simple. Large buyers and sellers exist. Reversing forward contract is difficult. Original parties have to set off the deal. Future currency contract become a “commodity” and reversing does not require original parties.

Size of contract: no size restriction is placed in forward contract and is up to parties to deal or contract in the magnitude they like. However, in future currency contract the size is pre-determined or fixed. In this scenario, perfect hedge is not possible.

In forward contract, no margin is required but in currency future parties have to put an initial margin.

Interest Rate Risk Management:

Apart from exchange rate fluctuations, another source of risk in foreign exchange market is interest rate risk.

It is the risk of incurring losses or gains due to adverse / favorable movements in interest rates.

For example, a firm is expecting FCY receipts / payment and this income/payment will depend on interest rate at that time.

The firm’s assets (some) whose value is sensitive to interest rates.

Firms and companies dealing in money market hedges are the most effected by the interest rate variations.

Most of banks and financial institutions have significant exposure based on short-term floating interest rates.

For example, some large companies have forecasts of receiving handsome amounts of cash, or have forecasted surplus cash in short term. Income from short-term investments will be dependant upon the interest rates and if the short-term interest rates are falling then there will be a loss in terms of lower interest income from investment.

The other side, if a company is planning to borrow at variable rate of interest, the interest amount charged each time varying according to whether short-term interest rates have risen or fallen since the previous payment.

To quote another example how interest rate fluctuations affect the financials of the company, a company may have invested in bonds and any change in interest rate will affect the value of investment in balance sheet.

Examples of interest rate risk – short term investments, investment in bonds, borrowings in short term – variation in short term interest rate.

Interest rate risk is higher when interest rates are extremely sensitive and their future direction is unpredictable.

Hedging against the interest rate risk

- 1) Forward rate agreements
- 2) Interest rate futures
- 3) Interest rate options
- 4) Interest rate swaps

We shall discuss these individually.

Forward Rate Agreements – FRA

This is a contract and a financial instrument that is used has hedge against interest rate adverse fluctuations on deposit or loans starting in near future. This resembles to forward exchange rate agreements to fix the exchange rates.

Features of FRAs:

It is between a bank and a client for fixing future interest rate on notional amount of loan or deposit. The loan or deposit is for a stated period starting on a specified time in future.

The size of the notional loan or deposit is agreed between the bank and the client.

FRAs are cash settled.

At settlement date buyer and seller must settle the contract.

The FRA rate for three months loan/deposit starting in a 6 months time is normally expressed as 6v9 FRA.

The buyer of a FRA agrees to pay fixed interest rate (FRA rate) on notional loan/deposit. At the same buyer will receive interest on notional loan/deposit at benchmark rate of interest.

On the other side, seller of FRA agrees to pay interest on the notional amount at benchmark rate and receives interest at a fixed rate.

Decision Rule:

When a FRA reaches its maturity – the settlement date, both the seller and buyer must settle the contract. If the fixed rate in the agreement is higher than the reference rate (may be KIBOR), the buyer of the FRA makes a cash payment to the seller. The payment is for the amount by which the FRA rate exceeds the reference rate.

If the fixed rate in the agreement is lower than the reference rate, the seller of the FRA makes a cash payment to buyer – exactly the reverse of above. The payment is for the amount by which the FRA rate is less than the reference rate.

FRA offer companies the facility to fix future interest today either on short-term borrowing or deposit for an agreed future period. An effective interest rate can be fixed on future short-term borrowing by buying an FRA. Alternatively, an effective interest rate can be fixed on short-term deposit or investment by selling FRA.

Mechanism:

Step 1: Understand the scenario confronted to the company. This means that weather the company plans to borrow or will have surplus cash to invest. The hedge will depend on that scenario. If the company plans to borrow in future then it will need to buy FRA and if company intends to put some investment in short term deposit, it needs to sell FRA.

Step 2: The bank or some vendor will be identified who trades in FRAs and terms are negotiated. Terms generally include the duration of notional deposit, amount of notional deposit and rate.

Step 3: On the settlement date, there will be cash payment / receipt from/to bank to company based on the prevalent rate. Calculations will return the amount to be paid or received.

LESSON 41

INTEREST RATE FUTURES

We shall cover following topics in this hand out:

- Interest rate future
- Prices in futures
- Hedging – short term interest rate (STIR)
- Scenario – Borrowing in ST and risk of rising interest
- Scenario – deposit and risk of lowering interest rates on deposits
- Options and Swaps
- Features of options
- Option terminology

Interest Rate Future:

Interest rate futures are also contracts, which have following features:

- These contracts are similar to currency futures.
- These are traded in standardized form on future exchanges.
- Settlement dates on future exchanges are calendar quarters.
- Each future contract is for standardized quantity of underlying security.
- Price of the future is expressed in terms of underlying item.
- Interest rate future, like currency futures may be settled before the maturity date.
- Short Term Interest Rate futures – STIRs are cash settled.

Long-term interest rate futures are settled through physical delivery of bonds.

STIRs: is a type of standardized interest rate future on a notional deposit (for 3 months) of standard amount of principal.

Bond futures: these are based on standard quantity of notional bonds. If buyer or seller does not close his position before the final settlement date, then the contract is settled through physical delivery.

Prices of interest rate future are determined as follows:

Bond futures: these are priced exactly the same way as normal bonds.

For example, an interest rate future may be priced at 109.50 per 100 nominal value of underlying notional bonds.

Short-term interest rate futures are price in unusual way: the price is calculated by deducting interest rate from 100. For example, if the interest rate is 6%, price will be 94. If 8%, price is 92. It means that if interest rate rises, the price will fall and vice versa.

Hedging with Short Term Interest Rates:

A company intends to borrow short term in future may be concerned about the rising short-term interest rates.

Or

A company planning to place an amount in a short-term deposit may anticipate drop in deposit interest rates.

The hedge is to establish a notional position to fix the interest rate in short term.

Scenario: a firm plans to borrow in short term and risk of rising short-term interest rates

A notional position is established with future. If the interest rate goes up, it will earn profit.

This profit will be used to offset the higher interest rate on loan when it is taken.

On the other side, if interest rates go down, it will result in loss with stirs, and this will be added to the interest on loan cost when loan will actually be taken out.

The hedge will be to sell short-term interest rate future.

If interest rates go up, it will result in profit. Price of future will fall. The future will be closed by selling at higher prices and then buying at lower price.

If interest rates move down, it will result in loss. Price of future will increase. The future will be closed by buying at higher price and selling at lower price.

Risk of fall in short term interest and firm plans to invest

If the short term interest rates fall the firm will make profit and this profit will be added to the interest earned by deposit to arrive at net return on deposit.

The loss of return on deposit due to fall in short term interest rates is off set by the profit on futures.

If interest rates go up, there will be loss on future contract but the same will be off set by higher interest rate on deposit.

The hedge can be created by buying short-term interest future.

Future position should be closed when actual deposit period begins by selling the same number of interest rate futures.

If interest rate rise, price will fall, loss will incur.

If interest rate fall, price will rise, profit will be generated.

We can now note two important issues while deciding to hedge using STIRs:

A hedge can be created by buying and selling the exact number of contract but in real life this is not the case and the hedge is not perfect. If the number of contracts needed to buy or sell is not a whole number then the company has to buy or sell to the nearest whole number. This hedge is not perfect. For example, a hedge would need 7.6 contracts to be bought or sold, and you cannot trade this number because contracts are available in whole number. The firm will be buying or selling seven or eight contracts.

If the intended loan or deposit period is less than three months or longer than three months, a different situation will arise. In these situations, where STIR contract is less than three months interest rate, the hedge will be created by adjusting the number of futures contracts required by a factor of $X/3$, where X, is the planned borrowing or investment period.

Options:

An option is a contract that confers a right to buy or sell a specific quantity or asset – but not the obligation, at agreed price on or before the specified future date.

Options are available for commodities (like wheat, coffee, sugar, etc) and financial assets like currency or bank deposits.

Features of Options:

It is a contractual agreement.

The holder of option exercises his/her right only if it is in his/her favours.

Option writer is seller and must honor his side of contract. (Sell or buy at agreed price).

Options like futures are standardized transaction in terms of size & duration.

Options are Exchange traded

These agreements are easy to buy & sell

Options either are call options or put options.

The option purchase price is called option premium.

Call option gives its holder a right (not obligation) to buy underlying item at the specified price.

Put option gives its holder a right (not obligation) to sell underlying item at specified price.

Expiry date:

Each option has expiry date and the holder must exercise his/her right before this date otherwise, it will lapse.

Strike or exercise price:

The price mentioned in option at which the holder exercises his right is known as exercise or strike price.

Options pricing

The strike price may be higher, lower or equal to the current market price of underlying item.

For example, a call option gives the right to its holder to buy x number of shares of y company at Rs 10 per share and the current price could be greater than Rs. 10/-, less than Rs. 10/- or exactly Rs 10/- per share. If the strike price is more favorable than the current market price of underlying asset or item, the option is termed as “in-the-money.”

If the strike price is not favorable than the current market price of underlying asset or item, the option is called “out-of-money.”

If the strike price and current market price are equal, then it is known as “at-the-money.”

An option holder will only exercise his option if it is “in-the-money”.

FOREIGN EXCHANGE MARKET'S OPTIONS

- How options work?
- Exercising the option
- Calculating gains on options
- Currency options
- Hedging with currency options

How Options Work?

Options are also used to reduce the risk of unfavorable price movements in stocks or share, or any commodity. In other words, the investor is trying to fix the price of the commodity or stock by trading now. Therefore, the first objective of using options is to eliminate the risk of adverse price movement. However, there may be some gain on this transaction with some chances of loss as well.

In order to understand how option actually works, we take up the following example and see what factors we need to consider when we are going to exercise the option:

An investor buys 20 options on shares of xyz ltd at a price of Rs 500 (per share). Each option consists of 100 shares and premium paid is Rs. 5/- per share. What will happen if, at the expiry of option, the share price is?

- i) 516 or
- ii) 490?

Looking at the example, the investor is trying to hedge the adverse price movement of that particular stock in near future. He may not have the funds right now and expects to receive the same in near future so he is interest in “arresting” the price now by buying an option. However, this is going to cost.

You can see that there is Rs. 5/per share as option cost. If the investor does not exercise the option, he must bear this in mind that “this cost” will represent the loss. In options, the loss is normally the amount that has been paid as option cost.

Now the question is “under what circumstances” the investor will exercise the option. The investor and the option seller have agreed over a price of Rs 500/ per share meaning that the investor will buy the agreed number of shares from the option seller for this per share amount, regardless of what per share cost actually prevail in the market on that date if date is falling within the terms of agreement.

Decision Rule:

If on or before the expiry date, the price of share is greater than the agreed rate of Rs. 500 per share, then the investor will exercise it right to buy stipulated number of shares from the option seller. Nevertheless, the cost factor should also be considered by deducting the cost per share from the prevalent price of the share on the exercising date.

Calculations of gain and loss:

Now if the share price, per first scenario, is Rs. 516, which is significantly above the agreed price of Rs. 500 per share, the option should be exercised. This is because at present this particular stock is being traded at Rs. 516 per share whereas the investor will get the same for Rs. 500 per share – the agreed price. This results in a gain of Rs. 16 per share and the total gain would be Rs 16 per share multiplied by total number of shares. Remember this will be gross gain and we need to subtract the option cost of Rs 5 per share to reach at net gain.

Now consider the other scenario. If the market price of share in question is Rs. 490 per share, the question will be “is there any benefit in exercising the option?”

No is the answer. Why? Look the market price of that stock now is Rs. 490 per share and that means that investor can buy it cheap from the market instead of buying form the option seller for Rs. 500 per share. In this situation, the investor is not going to exercise it and the cost paid as option fee represents the loss to the investor and gain to the option seller.

In both the situations we can easily sum up that loss of one party is the gain of other party. This is called zero sum game. Take the second scenario the investor is confront with the loss in terms of cost of option. The total loss is the cost of Rs. 5 per share multiplied by total number of shares (Rs. 10,000), which is the gain of the option seller.

Currency Options:

Currency option is a contract like equity options that we have covered in previous section. This is a contract, which confers right to the buyer to buy or sell (but not obligation) a fixed amount of underlying currency at a fixed price (strike price) on a fixed date (expiry).

Amount of underlying currency is governed by the contract size as determined in each currency. A buyer of a call option has a right but not the obligation to buy the underlying currency. A buyer of a put option has a right but not the obligation to sell the underlying currency. Premium is charged by option writer from option holder.

Hedging with Currency Option:

To construct a hedge with currency option, one needs to consider the following:

The extent of exposure and the currency involved – future receipt and payment to be determined.

Consider the hedging tool – a call or put option will serve the purpose.

Calculate the most suitable strike price out of several available.

Option will be only exercised if it is in the money and buy or sell the currency at the strike price.

Alternatively, let the option lapse if it is out of money. **Progress**

Interest Rate Options:

An investment tool whose payoff depends on the future level of interest rates. Interest rate options are both exchange traded and over-the-counter instruments.

An interest rate option carries a notional amount of principal, which means that it is not the actual amount to be taken out from an account. It is used to calculate the terminal gain or loss calculation. This aspect of interest rate options is similar to FRAs and short-term interest rate futures. Such options are either over the counter or exchange traded. We shall discuss exchange-traded options only.

If the option is exercised, it is cash settled. The strike rate for the option is compared with an agreed benchmark rate of interest. Benchmark rate may be KIBOR. (Karachi Inter Bank Offered Rate)

For example, a firm buys a borrowers' option in February to borrow a notional amount of Rs. 5 million on May 31 for three months at interest rate of 5% per annum. A premium is charged for the option.

At the expiry of three months, the benchmark rate may be higher than the strike rate of 5%. If so, the borrower's option is in the money and will be exercised. However, the option holder does not receive a three-month loan at 5%. Instead, it will borrow the money it needs at the prevailing market rate. The option seller must make a cash payment to the option holder for the difference between the benchmark and strike rate at the expiry date.

And if at expiry, the three-month benchmark rate is lower than the strike rate of 5% then the borrower's option is out of the money and the option will not be exercised. The company will borrow the money it needs in the market at the prevailing rate.

FOREIGN EXCHANGE MARKET'S SWAPS

We shall cover following topics in this hand out:

- Calculating financial benefit – Interest rate Option
- Interest rate caps and floor
- Swaps
- Interest rate swaps
- Currency swaps

Calculating Financial Benefit – Interest Rate Option

Almost the calculation involved to reach at the gain or loss are the same as we did in equity or stock options. As earlier stated that loss under option is generally limited to the cost of option paid to the option seller. It is of immense importance to understand the scenario to perform calculations.

We take up borrowing scenario. The company or the firm intends to borrow in near future and anticipates that interest rates will be up when it actually will utilize the loan amount. If interest rises then it will be incurring more interest cost than present. Therefore, the firm will set up or buy the option against the rise in interest rates and the option will be profitable or exercisable only if interest rate does increase.

The calculations are as under (assuming that interest rates have gone up):

Compute the interest rate using notional amount @ prevailing interest rate. This will be the rate at the time of exercising the option, which is assumed higher than the agreed rate. **(Interest Expense)**

The second component is the cost of option. **(Cost of Options)**

Third line item in this calculation will be the receipt from the option seller. The notional amount is multiplied with the difference between the prevailing interest rate and agreed rate, adjusted for the period of loan. This is income of the option holder. **(Receipt from Option)**

If we sum

(Interest Expense) + (Cost of Options) - (Receipt from Option) = Net Interest Expense.

The next step will be to calculate the effective interest expense, which can be computed by dividing **Net Interest Expense** by the loan amount. This effective interest rate is less than the rate prevailing in the market.

Interest Rate Caps and Floor

Firms may borrow from a bank or deposit funds at variable rate of interest connected to some benchmark rate like KIBOR in Pakistan or LIBOR (London Inter Bank Offered Rate) in international money markets. When borrowing on variable interest rates, a firm may want to utilize option as hedging tool against the unfavorable interest rate movements **over the full term of loan or deposit.**

Interest Rate Cap is a series of borrower option that sets a maximum interest rate for a medium term loan. The cap holder has the right to exercise the option at each interest fixing date or rollover date for the loan. Whenever an option is exercised within a cap agreement, there is cash payment from the seller of the cap to the cap holder.

Interest rate floor is an option to limit interest rate to a given minimum.

This is a series of option for lenders setting minimum interest rate for medium term deposits. The floor holder can exercise option at the dates given in the option.

Interest rate caps & floor are like normal options with a difference that in case the option is exercised the cash settlement is made at the end of interest period and not in the beginning. Secondly, more than one period is covered and this may be two to five years divided into three or six month periods. However, these are very expensive options due to high premium cost.

Swaps

A swap is a contract between two parties to exchange their cash flows related to specific obligations for an agreed period. A swap may be for interest rate or for currency.

A vanilla interest rate swap is a contract between two parties to exchange interest rates on a notional amount at regular intervals. One party opts for interest payments based on the fixed interest rate and other at variable rate. A swap may have life up to 30 years. Swaps are used to hedge interest rate risk on short term as well as long-term instruments like bonds and loans.

A firm can use swaps to manage the mix of its fixed rate and floating rate debt obligations, without having to change the underlying loans themselves. Swap allows the company to borrow at an effective fix rate when it cannot do directly from the market due to its size.

If a firm anticipates a rise or fall in the short-term interest rates compared to long term interest rate, it may utilize swap to take more floating rate and less fixed rate debt obligations or the other way round.

In short, swap are used to exchange floating rate interest payments to fixed rate payments and fixed rate payment to floating rate payments.

Saving on the interest payment for borrowers arise because of arbitrage gains which are normally related to differential risk spreads on the floating and fixed loan in a single market where the premiums associated with fixed and floating debt are likely to differ because the markets have different characteristics.

Currency Swaps

These are similar to interest rate swaps but the underlying obligations are currencies. In currency swaps, the currencies underlying swap are exchanged at the end of the swap and may be at the beginning of the swap. When currencies are exchanged at the beginning and the end, same exchange rate is used. Putting in other words, amount exchanged at the start and end of swap is the same. Interest payments by each party could be fixed or floating.

With the standpoint of a financial manager or a treasurer, swap offer following benefits:

These provide access to greater markets where the companies have no direct approach. Particularly, large size and high rated companies have access to money market but swaps provide small companies to access this market.

It allows company to change an adverse fixed with favorable floating and vice versa.

Flexibility (not being standardized): swap can be arranged for any sum and period.

Comparatively low cost option

Off balance sheet transaction – shown as contingencies & commitments

However, there are some risks associated with swaps as well.

There may be some probability of default by either party before the swap expiry. This can be reduced by transacting with bank or using financial institution as an intermediary.

There is a market risk as well. This represents the increase in the interest rates unfavorably after the company has agreed to swap.

LESSON 44**EXCHANGE RATE SYSTEM & MULTINATIONAL COMPANIES (MNCs)**

We shall take care of following topics in this hand out:

- Exchange rate determination
- Purchasing power parity theory
- PPP model
- International fisher effect
- Exchange rate system
 - Fixed
 - Floating
- Multinational companies (MNC)
- Reasons of growth in MNCs

Exchange Rate Determination:

There is no established standard or model that could measure the size of change in the exchange rate of two currencies. It is possible for a currency to depreciate relative to the other while appreciating against others. The exchange rate is normally measured against different benchmarks.

Most of our foreign exchange deals in Pak rupees are in exchange for US \$ and some international trade is conducted only in US\$. Pak rupees exchange rate with different currencies weighted according to the pattern of Pak trade will give a useful indication of the exchange rate of Pak rupees with rest of the currencies.

Changes and fluctuations in the exchange rate emerges from the change in the demand and supply of the currency. These fluctuations or changes are due to international trade. If our exports are more than our imports than this means the demand of our currency is rising and our currency will strengthen against the other currencies. Whereas, if our imports are greater than our exports, this means we need more foreign exchange or foreign currencies to pay import bill. Demand for foreign currencies will rise resulting in weakening of our local currency.

The exchange rate changes are also due to capital movements between economies. These transactions are effectively moving bank deposits from one currency to another. These flows are now more important than the volume of trade in goods and services. Thus, supply and demand for a currency may reflect events on the capital account.

Purchasing Power Parity Theory:

Purchasing power parity (PPP) is a theory, which states that exchange rates between currencies are in equilibrium when their purchasing power is the same in each of the two countries. This means that the exchange rate between two countries should equal the ratio of the two countries' price level of a fixed basket of goods and services. When a country's domestic price level is increasing (i.e., a country experiences inflation), that country's exchange rate must depreciated in order to return to PPP.

The basis for PPP is the "law of one price". In the absence of transportation and other transaction costs, competitive markets will equalize the price of an identical good in two countries when the prices are expressed in the same currency. For example, a particular TV set that sells for 750 Canadian Dollars [CAD] in Vancouver should cost 500 US Dollars [USD] in Seattle when the exchange rate between Canada and the US is 1.50 CAD/USD. If the price of the TV in Vancouver was only 700 CAD, consumers in Seattle would prefer buying the TV set in Vancouver. If this process (called "arbitrage") is carried out at a large scale, the US consumers buying Canadian goods will bid up the value of the Canadian Dollar, thus making Canadian goods more costly to them. This process continues until the goods have again the same price. There are three caveats with this law of one price. (1) As mentioned above, transportation costs, barriers to trade, and other transaction costs, can be significant. (2) There must be competitive markets for the goods and services in both countries. (3) The law of one price only applies to tradable goods; immobile goods such as houses, and many services that are local, are of course not traded between countries.

Purchasing power parity is an economic technique used when attempting to determine the relative values of two currencies. It is useful because often the amount of goods a currency can purchase within two nations varies drastically; based on availability of goods, demand for the goods, and a number of other, difficult to determine factors.

Purchasing power parity solves this problem by taking some international measure and determining the cost for that measure in each of the two currencies, then comparing that amount.

Purchasing power parity (PPP) is in economics the method of using the long-run equilibrium exchange rate of two currencies to equalize the currencies' purchasing power. It is based on the law of one price, the idea that, in an efficient market, identical goods must have only one price.

Purchasing power parity is often called absolute purchasing power parity to distinguish it from a related theory relative purchasing power parity, which predicts the relationship between the two countries' relative inflation rates and the change in the exchange rate of their currencies.

A purchasing power parity exchange rate equalizes the purchasing power of different currencies in their home countries for a given basket of goods. These special exchange rates are often used to compare the standards of living of two or more countries. The adjustments are meant to give a better picture than comparing gross domestic products (GDP) using market exchange rates. This type of adjustment to an exchange rate is controversial because of the difficulties of finding comparable baskets of goods to compare purchasing power across countries.

International Fisher Effect:

Nominal interest rates consists of two parts

- Return required by lenders
- Return to cover inflation

If real interest rates are same in all places due to free capital movement and because of law of one price, then any difference in interest rates will be due to inflation level at difference places. If the real interest rates in countries have not properly affected inflation rate, the capital will move from low to high interest country. Countries with high interest rate will register capital inflow and will result in appreciation in exchange rate.

Countries with low interest rate will experience capital outflow and will result in depreciation in exchange rate. This is known as interest rate parity model. Interest rate parity model shows that exchange rate can be predicted by taking into account the differences in nominal exchange rates.

If the forward rates for PKR against US \$ is the same as spot rate between the two currencies but the nominal interest rates are higher in US then following would be the situation:

Pak investor will shift funds to US to earn higher return. There will be outflow of capital from PAK to US. Pak interest rate will increase and spot \$ rate will move up.

Exchange Rate System:

An exchange rate is the rate at which one currency can be exchanged for another. In other words, it is the value of another country's currency compared to that of your own. If you are traveling to another country, you need to "buy" the local currency. Just like the price of any asset, the exchange rate is the price at which you can buy that currency. Theoretically, identical assets should sell at the same price in different countries, because the exchange rate must maintain the inherent value of one currency against the other.

Fixed

There are two ways the price of a currency can be determined against another. A fixed, or pegged, rate is a rate the government (central bank) sets and maintains as the official exchange rate. A set price will be determined against a major world currency (usually the U.S. dollar, but also other major currencies such as the euro, the yen, or a basket of currencies). In order to maintain the local exchange rate, the central bank buys and sells its own currency on the foreign exchange market in return for the currency to which it is pegged.

If, for example, it is determined that the value of a single unit of local currency is equal to USD 3.00, the central bank will have to ensure that it can supply the market with those dollars. In order to maintain the rate, the central bank must keep a high level of foreign reserves. This is a reserved amount of foreign currency held by the central bank which it can use to release (or absorb) extra funds into (or out of) the market. This ensures an appropriate money supply, appropriate fluctuations in the market (inflation/deflation), and ultimately, the exchange rate. The central bank can also adjust the official exchange rate when necessary.

Floating

Unlike the fixed rate, a floating exchange rate is determined by the private market through supply and demand. A floating rate is often termed "self-correcting", as any differences in supply and demand will automatically be corrected in the market. Take a look at this simplified model: if demand for a currency is low, its value will decrease, thus making imported goods more expensive and thus stimulating demand for local goods and services. This in turn will generate more jobs, and hence an auto-correction would occur in the market. A floating exchange rate is constantly changing.

In reality, no currency is wholly fixed or floating. In a fixed regime, market pressures can also influence changes in the exchange rate. Sometimes, when a local currency does not reflect its true value against its pegged currency, a "black market" which is more reflective of actual supply and demand may develop. A central bank will often then be forced to revalue or devalue the official rate so that the rate is in line with the unofficial one, thereby halting the activity of the black market.

In a floating regime, the central bank may also intervene when it is necessary to ensure stability and to avoid inflation; however, it is less often that the central bank of a floating regime will interfere.

Between 1870 and 1914, there was a global fixed exchange rate. Currencies were linked to gold, meaning that the value of a local currency was fixed at a set exchange rate to gold ounces. This was known as the gold standard. This allowed for unrestricted capital mobility as well as global stability in currencies and trade; however, with the start of World War I, the gold standard was abandoned.

At the end of World War II, the conference at Bretton Woods, in an effort to generate global economic stability and increased volumes of global trade, established the basic rules and regulations governing international exchange. As such, an international monetary system, embodied in the International Monetary Fund (IMF), was established to promote foreign trade and to maintain the monetary stability of countries and therefore that of the global economy.

It was agreed that currencies would once again be fixed, or pegged, but this time to the U.S. dollar, which in turn was pegged to gold at USD 35/ounce. What this meant was that the value of a currency was directly linked with the value of the U.S. dollar. So if you needed to buy Japanese yen, the value of the yen would be expressed in U.S. dollars, whose value in turn was determined in the value of gold. If a country needed to readjust the value of its currency, it could approach the IMF to adjust the pegged value of its currency. The peg was maintained until 1971, when the U.S. dollar could no longer hold the value of the pegged rate of USD 35/ounce of gold.

From then on, major governments adopted a floating system, and all attempts to move back to a global peg were eventually abandoned in 1985. Since then, no major economies have gone back to a peg, and the use of gold as a peg has been completely abandoned.

Why Peg?

The reasons to peg a currency are linked to stability. Especially in today's developing nations, a country may decide to peg its currency to create a stable atmosphere for foreign investment. With a peg, the investor will always know what his/her investment value is, and therefore will not have to worry about daily fluctuations. A pegged currency can also help to lower inflation rates and generate demand, which results from greater confidence in the stability of the currency.

Fixed regimes, however, can often lead to severe financial crises since a peg is difficult to maintain in the long run. This was seen in the Mexican (1995), Asian and Russian (1997) financial crises: an attempt to maintain a high value of the local currency to the peg resulted in the currencies eventually becoming overvalued. This meant that the governments could no longer meet the demands to convert the local currency into the foreign currency at the pegged rate. With speculation and panic, investors scrambled to get out their money and convert it into foreign currency before the local currency was devalued against the peg; foreign reserve supplies eventually became depleted.

Countries with pegs are often associated with having unsophisticated capital markets and weak regulating institutions. The peg is therefore there to help create stability in such an environment. It takes a stronger system as well as a mature market to maintain a float. When a country is forced to devalue its currency, it is also required to proceed with some form of economic reform, like implementing greater transparency, in an effort to strengthen its financial institutions.

Some governments may choose to have a "floating," or "crawling" peg, whereby the government reassesses the value of the peg periodically and then changes the peg rate accordingly. Usually the change is devaluation, but one that is controlled so that market panic is avoided. This method is often used in the transition from a peg to a floating regime, and it allows the government to "save face" by not being forced to devalue in an uncontrollable crisis.

Although the peg has worked in creating global trade and monetary stability, it was used only at a time when

all the major economies were a part of it. In addition, while a floating regime is not without its flaws, it has proven to be a more efficient means of determining the long-term value of a currency and creating equilibrium in the international market.

Multinational companies (MNC):

Economists are not in agreement, as to how multinational or transnational corporations should be defined. Multinational corporations have many dimensions and can be viewed from several perspectives.

Ownership criterion: some argue that ownership is a key criterion. A firm becomes multinational only when headquarter or parent company is effectively owned by nationals of two or more countries. For example, Shell and Unilever, controlled by British and Dutch interests, are good examples. However, by ownership test, very few multinationals are multinational. The ownership of most MNCs is uni-national. Depending on the case, each is considered an American multinational company in one case, and each is considered a foreign multinational in another case. Thus, ownership does not really matter.

Nationality Mix of Headquarter Managers: An international company is multinational if the managers of the parent company are nationals of several countries. Usually, managers of the headquarters are nationals of the home country. This may be a transitional phenomenon. Very few companies pass this test currently.

In other word, a MNC is a parent company that

1. engages in foreign production through its affiliates located in several countries,
2. exercises direct control over the policies of its affiliates,
3. Implements business strategies in production, marketing, finance and staffing that transcend national boundaries.

In other words, MNCs exhibit no loyalty to the country in which they are incorporated.

A MNC is a company that generates at least 25% of its total sales from foreign countries.

A MNC has offices / production facilities/ branches / subsidiaries spread across more than one country (home country). May have capital raised in billion in more than one location, using tax heavens, employing cheap labor.

the activities of several MNCs are of prime importance because of their size and the role they play in world economy. Some of the large MNCs are operating in more than 100 countries around the globe.

MNCs have received special attention in developing and less developed countries. This is a twin face issue. On one side, they bring necessary capital need to developing countries, contributing to their growth and reducing unemployment. On the other side, these MNCs exploit cheap labor and tax heavens in these developing countries.

Reason for MNC Growth:

Analysis has focused on those factors, which need to be present if the transformation of a national company into MNC is to be successful and these will be looked at in some depth. Of course, from one point of view one could say that the MNC results from a natural expansion from one country to another. The process has been greatly facilitated by the advancement in communication, both by physical and electronic and by the international mobility of capital.

With the restriction on capital mobility were reduces the companies in US and Europe found it beneficial to move their capital to the countries, who offered protection to their investments and also provided some incentives, in order to increase the return on their investments. By reducing the payroll cost and by paying far less taxes in developing countries, MNCs made filthy profits and significant portion of these were repatriated to their home country.

During the past two decades, the developing countries have eased many of the formalities for set up new business by designing business-friendly policies and removing barriers to make their country attractive to the foreign investors. In addition, these countries have reduced the tariffs to maximum extent in order to facilitate international trade between the countries.

FOREIGN INVESTMENT

We shall take care of following topics in this hand out:

- Motives for foreign investment
- Economic and other motives
- International operations
- Different forms
 - Export
 - Branch
 - Subsidiary
 - Joint venture
 - Licensing agreements
- Political risk
 - Risk of confiscation
 - Commercial risk
 - Financial risk

Motives for Foreign Investment

We can divide the motives of MNCs into two broad categories. These are:

- Strategic motives
- Economic motives

Strategic Motives:

Market Development: A MNC may invest in foreign country in order to expand to new markets. Such companies have very strong product line and have expertise in the field of sales and marketing. Car assembly plants in Pakistan are a good example of market development.

Backward Integration: companies may be stretching to other countries in search and import to the home country cheap raw materials.

Cheap inputs: labor and raw materials in developing countries provide MNCs an opportunity to reduce the cost of sales, as labor is expensive in developed countries. This results in larger profit margin.

Political safety: Political stability and non-interference is what a MNC is looking for. Above all every company will ensure the safety of its investment.

Economic motives:

MNCs have competitive edge over the local companies due to their strengths.

Financial Strength: MNCs have much liquidity and funds available to invest internationally. Further, they have the ability to raise the money internationally at cheap rates compared to local companies. This is because of their ability to generate future cash flow. They have strong products, huge marketing network and efficient human resources to influence the money market. They can also raise capital by issuing shares and debt instruments because they have expertise with them.

Technological strength: MNCs are using latest and state of the art technology in the business. The ability to use technology to achieve the business efficiencies manifest cost control and profit enhancement.

Economies of scale: As the MNCs are operating all over the world having strong distribution network, the economies of scale is achieved by efficient utilization of fixed cost. This is the greatest advantage over the local companies.

Human resources: MNCs can hire and do have the best managerial and marketing capabilities. The human resources they employ are the world's best having diverse and inter-culture experience, which a local company cannot afford to have.

International Operations:

A company can kick start international operation in many ways. The option that a company would select is primarily dependent upon the surrounding circumstances. Most important factor would be the tax position of the entity because a company may be exposed to double taxation – in its home country and in the country of operation.

Different Ways to Commence International Operations:**Export**

A company can feel its presence in the other country by exporting its products. This is probably a cheapest and in-expensive way to begin international operation because the company does not even set up any office in that country. It can tap the customers by approaching them online or through an agent. Although is cost effective way but this may not prolong because customers normally do not attach value to such a company who is “not” present physically in their country. They may feel the company will be able to meet its after sales commitments and warranty issues. Further, the company is not in a position to seek market related knowledge required to develop and improve markets and products. A company making export to other countries is always at risk of being exposed to protective tariffs that may result in loosing the competitiveness of the products in terms of price.

Branch

A company can commence it overseas operations swiftly by setting up a branch in other country. This will result in corporate presence in the country and will remove the issues we discussed in the above paragraph. A branch may have some staff members but a distribution network must exist. Even with the establishment of branch, the customers show less loyalty to the company’s product because it is not very time taking issue to wind up the branch. Companies can close their branch with out any long proceedings. So starting operations through branch is a short-term option. As stated earlier, there are some tax consequences in running an overseas branch – it is likely that the profit of the branch would be treated as profit s of the parent company.

Subsidiary

A subsidiary is a legal entity in other country like the parent company. This represents long-term commitment to foreign country and increases the business reputation. There is a tax advantage, as the home country tax will only be levied until profits are repatriated to home. However, this is very expensive option in terms of upfront cost and working capital.

Joint venture

A jointly controlled entity by two or more venturer having a joint motive. Normally one venturer comes of local market or country of JV operations. Local venturer is considered expert and knowledgeable person as far as local market is concerned. This will help managing the business like obtaining loans, statutory regulation compliance, local laws, taxes etc.

Less risky as compared to subsidiary options.

A joint venture is a legal organization that takes the form of a short-term partnership in which the persons jointly undertake a transaction for mutual profit. Generally each person contributes assets and share risks. Like a partnership, joint ventures can involve any type of business transaction and the "persons" involved can be individuals, groups of individuals, companies, or corporations.

Joint ventures are also widely used by companies to gain entrance into foreign markets. Foreign companies form joint ventures with domestic companies already present in markets the foreign companies would like to enter. The foreign companies generally bring new technologies and business practices into the joint venture, while the domestic companies already have the relationships and requisite governmental documents within the country along with being entrenched in the domestic industry.

Licensing agreements

Such agreements are cheap, as these do not require any capital expenditure to expand to foreign lands. In other words, these are less risky. The license issuer receive fixed amount as a percentage of sales for granting license to the licensee. However, the licensor has little control over the licensee as far as the quality of goods is concerned. The licensor cannot exercise control over the licensee.

The licensee may transfer industrial secrets to another independent firm, thereby creating a rival.

Political risk:

Political risk can be divided into following categories:

1) Confiscation risk

The risk of loss of control, business may be taken over by the local govt. or intervention and interference by the local authorities. This risk can be reduced by insurance policies.

A JV would be preferable in less or developing country. A subsidiary would be preferable in stabled and developed countries. Even then, this risk is present and can be reduced by:

- High gearing
- High local loans/finances
- Share in equity from local resources

2) Commercial risk

- There may be discriminative laws for foreign companies – wages level or lower prices for products, repatriation of profits and more emphasis to use local resources.

3) Financial risk

- Restricted access to local resources – loans etc
- Terms of maximum foreign equity
- Restrictions on repatriation of capital and dividend
- Exchange and currency risk
- Measurement & management of political risk
- Comparative techniques like rating mapping
- Analytical techniques – special reports, expert opinion

*****THE END*****