CHAPTER - 1	FOREX

Question 61:
"Operations in foreign exchange are exposed to a number of risks." Discuss.

Solution:
"An Exposure can be defined as a Contracted, Projected or Contingent Cash Flow whose magnitude is not certain at the moment. The magnitude depends on the value of variables such as Foreign Exchange rates and Interest rates."
Accordingly Foreign Exchange exposure refers to those parts of a company's business that would be affected if exchange rate changes. Foreign exchange exposures arise from many different activities.
For example, travellers going to visit another country have the risk that if that country's currency appreciates against their own their trip will be more expensive.
An exporter who sells his product in foreign currency has the risk that if the value of that foreign currency falls then the revenues in the exporter's home currency will be lower.
An importer who buys goods priced in foreign currency has the risk that the foreign currency will appreciate thereby making the local currency cost greater than expected.
Fund Managers and companies who own foreign assets are exposed to fall in the currencies where they own the assets. This is because if they were to sell those assets their exchange rate would have a negative effect on the home currency value.
Other foreign exchange exposures are less obvious and relate to the exporting and importing in ones local currency but where exchange rate movements are affecting the negotiated price.
The foreign exchange exposure may be classified under three broad categories:

Moment in time when exchange rate changes

Translation exposure

Accounting-based changes in consolidated financial statements caused by a change in exchange rates

Operating exposure

change in expected cash flows arising because of an unexpected change in exchange rates

Transaction exposure

Impact of setting outstanding obligations entered into before change in exchange rates but to be settled after the change in exchange rates

Time →

Question 62:
What do you mean by Nostro, Vostro and Loro Accounts?

Solution:
NOSTRO, VOSTRO AND LORO ACCOUNTS:
In interbank transactions, foreign exchange is transferred from one account to another account and from one centre to another centre. Therefore, the banks maintain three types of current

accounts in order to facilitate quick transfer of funds in different currencies. These accounts are Nostro, Vostro and Loro accounts meaning "our", "your" and "their". A bank's foreign currency account maintained by the bank in a foreign country and in the home currency of that country is known as Nostro Account or "our account with you". For example, An Indian bank's Swiss franc account with a bank in Switzerland.

Vostro account is the account which is held by a foreign bank with a local bank, so if Citibank maintains an account with State bank of India it will be a Vostro account for State bank of India. The account which is Nostro for one bank is Vostro for another.

When domestic banks use the account of third party banks which holds a Nostro account to settle foreign exchange transactions these type of transactions are included under the Loro Account e.g. HDFC Bank has an account with Citi Bank but IDBI Bank doesn't have any Nostro account with Citi Bank. IDBI Bank has to pay the bill of imported machinery from the USA on behalf of its customers IDBI Bank approaches to HDFC Bank and ask to settle the invoice on its own behalf. HDFC bank worked as an intermediary between Citi Bank and IDBI Bank.

Question 17(RTP/MTP/PP)

The SWIFT plays an important role in Foreign Exchange dealings. Explain.

Solution

The SWIFT plays an important role in Foreign Exchange dealings because of the following reasons:

- In addition to validation statements and documentation it is a form of quick settlement as messaging takes place within seconds.
- Because of security and reliability helps to reduce Operational Risk.
- Since it enables its customers to standardise transaction it brings operational efficiencies and reduced costs.
- It also ensures full backup and recovery system.
- Acts as a catalyst that brings financial agencies to work together in a collaborative manner for mutual interest.

Question 18(RTP/MTP/PP)

Explain the characteristics of Global Depository Receipts (GDRs).

Solution

The characteristics of GDRs are as follows:

(i) Holders of GDRs participate in the economic benefits of being ordinary shareholders, though they do not have voting rights.

(ii) GDRs are settled through CEDEL & Euro-clear international book entry systems.

(iii) GDRs are listed on the Luxemburg stock exchange.

(iv) Trading takes place between professional market makers on an OTC (over the counter) basis.

(v) The instruments are freely traded.

(vi) They are marketed globally without being confined to borders of any market or country as it can be traded in more than one currency.

(vii) Investors earn fixed income by way of dividends which are paid in issuer currency converted into dollars by depository and paid to investors and hence exchange risk is with investor.

(viii) As far as the case of liquidation of GDRs is concerned, an investor may get the GDR cancelled any time after a cooling period of 45 days. A non-resident holder of GDRs may ask the overseas bank (depository) to redeem (cancel) the GDRs. In that case overseas depository bank shall request the domestic custodians bank to cancel the GDR and to get the corresponding underlying shares released in favour of non-resident investor. The price of the ordinary shares of the issuing company prevailing in the Bombay Stock Exchange or the National Stock Exchange on the date of advice of redemption shall be taken as the cost of acquisition of the underlying ordinary share.

Question 21(RTP/MTP/PP)

List out the four methods for Identification and Management of Financial Risk. What are the parameters to identify the currency risk?

Solution

Following are the four methods for identification and management of financial risk:

- Counter Party risk
- Political risk
- Interest Rate Risk
- Currency Risk

Parameters to identity the currency risk are as follows:

1. Government Action: The Government action of any country has visual impact in its currency.
2. Nominal Interest Rate: As per interest rate parity (IRP) the currency exchange rate depends on the nominal interest of that country.
3. Inflation Rate: Purchasing power parity theory discussed in later chapters impact the value of currency.
4. Natural Calamities: Any natural calamity can have negative impact.
5. War, Coup, Rebellion etc.: All these actions can have far reaching impact on
6. currency's exchange rates.
7. Change of Government: The change of government and its attitude towards foreign investment also helps to identify the currency risk.

Question 23 (RTP/MTP/PP)

Describe the salient features of Foreign Currency Convertible Bonds.

Solution:

The salient features of FCCBs are as follows:

1. FCCB is a bond denominated in a foreign currency issued by an Indian company which can be converted into shares of the Indian Company denominated in Indian Rupees.
2. Prior permission of the Department of Economic Affairs, Government of India, Ministry of Finance is required for their issue
3. There will be a domestic and a foreign custodian bank involved in the issue
4. FCCB shall be issued subject to all applicable Laws relating to issue of capital by a company.
5. Tax on FCCB shall be as per provisions of Indian Taxation Laws and Tax will be deducted at source.
6. Conversion of bond to FCCB will not give rise to any capital gains tax in India.

Question 25(RTP/MTP/PP)
All dealings in Foreign Exchange effect the Exchange Position whether delivery has taken place or not, but Cash Position is effected only when actual delivery has taken place. Explain.

Solution:
Yes, this statement is correct because while Exchange Position is referred to total of purchases or sale of commitment of a bank to purchase or sale foreign exchange whether actual delivery has taken place or not. In other words, all transactions for which bank has agreed with counter party are entered into exchange position on the date of the contract.

While Cash Position is outstanding balance (debit or credit) in bank's Nostro account. Since all foreign exchange dealings of bank are routed through Nostro account it is credited for all purchases and debited for sale by bank.
Therefore, all transactions effecting Cash position will affect Exchange Position not vice versa.

CHAPTER – 2A	Derivatives Analysis and Valuation

Question 39:
What are the reasons for stock index futures becoming more popular financial derivatives over stock futures segment in India?

Solution:
Stock index futures is most popular financial derivatives over stock futures due to following reasons:

1. It adds flexibility to one's investment portfolio. Institutional investors and other large equity holders prefer this instrument the most in terms of portfolio hedging purpose. The stock systems do not provide this flexibility and hedging.
2. It creates the possibility of speculative gains using leverage. Because a relatively small amount of margin money controls a large amount of capital represented in a stock index contract, a small change in the index level might produce a profitable return on one's investment if one is right about the direction of the market. Speculative gains in stock futures are limited but liabilities are greater.
3. Stock index futures are the most cost-efficient hedging device whereas hedging through individual stock futures is costlier.
4. Stock index futures cannot be easily manipulated whereas individual stock price can be exploited more easily.
5. Since, stock index futures consists of many securities, so being an average stock, is much less volatile than individual stock price. Further, it implies much lower capital adequacy and margin requirements in comparison of individual stock futures. Risk diversification is possible under stock index future than in stock futures.
6. One can sell contracts as readily as one buys them and the amount of margin required is the same.
7. In case of individual stocks the outstanding positions are settled normally against physical delivery of shares. In case of stock index futures they are settled in cash all over the world on the premise that index value is safely accepted as the settlement price.

8. It is also seen that regulatory complexity is much less in the case of stock index futures in comparison to stock futures.
9. It provides hedging or insurance protection for a stock portfolio in a falling market.

Question 40:
Write short note on Marking to market.

Solution:
It implies the process of recording the investments in traded securities (shares, debt-instruments, etc.) at a value, which reflects the market value of securities on the reporting date. In the context of derivatives trading, the futures contracts are marked to market on periodic (or daily) basis. Marking to market essentially means that at the end of a trading session, all outstanding contracts are repriced at the settlement price of that session. Unlike the forward contracts, the future contracts are repriced every day. Any loss or profit resulting from repricing would be debited or credited to the margin account of the broker. It, therefore, provides an opportunity to calculate the extent of liability on the basis of repricing. Thus, the futures contracts provide better risk management measure as compared to forward contracts.
Suppose on 1st day we take a long position, say at a price of ₹ 100 to be matured on 7th day. Now on 2nd day if the price goes up to ₹ 105, the contract will be repriced at ₹ 105 at the end of the trading session and profit of ₹ 5 will be credited to the account of the buyer. This profit of ₹ 5 may be drawn and thus cash flow also increases. This marking to market will result in three things – one,
you will get a cash profit of ₹ 5; second, the existing contract at a price of ₹ 100 would stand cancelled; and third you will receive a new futures contract at ₹ 105. In essence, the marking to market feature implies that the value of the futures contract is set to zero at the end of each trading day.

Question 41:
State any four assumptions of Black Scholes Model.

Solution:
The following assumptions accompany the model:
1. European Options are considered,
2. No transaction costs,
3. Short term interest rates are known and are constant,
4. Stocks do not pay dividend,
5. Stock price movement is similar to a random walk,
6. Stock returns are normally distributed over a period of time, and
7. The variance of the return is constant over the life of an Option.

Question 42:
Define the term Greeks with respect to options.

Solution:
The Greeks are a collection of statistical values (expressed as percentages) that give the investor a better overall view of how a stock has been performing. These statistical values can be helpful in deciding what options strategies are best to use. The investor should remember that statistics show trends based on past performance. It is not guaranteed that the future

performance of the stock will behave according to the historical numbers. These trends can change drastically based on new stock performance.
Before we discuss these statistical measures let us discuss the factors that affects the value of option as these statistical measures are related to changes in the in these factors.

Question 20 (RTP/MTP/PP)
Explain briefly the various factors that affect the value of an Option.

Solution
Factors affecting the value of an option are:

(a) **Price Movement of the Underlying:** The value of calls and puts are affected by changes in the underlying stock price in a relatively straightforward manner. When the stock price goes up, calls should gain in value and puts should decrease. Put options should increase in value and calls should drop as the stock price falls.

(b) **Time till expiry:** The option's future expiry, at which time it may become worthless, is an important and key factor of every option strategy. Ultimately, time can determine whether your option trading decisions are profitable. To make money in options over the long term, you need to understand the impact of time on stock and option positions.

With stocks, time is a trader's ally as the stocks of quality companies tend to rise over long periods of time. But time is the enemy of the options buyer. If days pass without any significant change in the stock price, there is a decline in the value of the option. Also, the value of an option declines more rapidly as the option approaches the expiration day. That is good news for the option seller, who tries to benefit from time decay, especially during that final month when it occurs most rapidly.

(c) **Volatility in Stock Prices:** Volatility can be understood via a measure called Statistical (sometimes called historical) Volatility, or SV for short. SV is a statistical measure of the past price movements of the stock; it tells you how volatile the stock has actually been over a given period of time.

But to give you an accurate fair value for an option, option pricing models require you to put in what the future volatility of the stock will be during the life of the option. Naturally, option traders don't know what that will be, so they have to try to guess. To do this, they work the options pricing model "backwards" (to put it in simple terms). After all, you already know the price at which the option is trading; you can also find the other variables (stock price, interest rates, dividends, and the time left in the option) with just a bit of research. So, the only missing number is future volatility, which you can calculate from the equation.

(d) **Interest Rate:** Another feature which affects the value of an Option is the time value of money. The greater the interest rates, the present value of the future exercise price are less.

Question 21 (RTP/MTP/PP)
"Investors can use Stock Index Futures to perform myriad tasks". Explain.

Solution
Investors can use stock index futures to perform myriad tasks. Some common uses are:

1. Investors commonly use stock index futures to change the weightings or risk exposures of their investment portfolios.
2. Stock index futures also allow investors to separate market timing from market selection decisions.
3. Investors can also make money from stock index futures through index arbitrage, also referred to as program trading as it is carried out through use of computers.
4. Investors often use stock index futures to hedge the value of their portfolios. Provide hedging or insurance protection for a stock portfolio in a falling market. To implement a hedge, the instruments in the cash and futures markets should have similar price movements. Also, the amount of money invested in the cash and futures markets should be the same.
5. Stock index futures add flexibility to his or her portfolio as a hedging and trading instrument.
6. Create the possibility of speculative gains using leverage. Because a relatively small amount of margin money controls a large amount of capital represented in a stock index contract, a small change in the index level might produce a profitable return on one's investment if he or she is right about the market's direction.
7. Maintain one's stock portfolio during stock market corrections. One may not need "insurance" for all the time, but there are certain times when one would like less exposure to stocks. Yet, one doesn't want to sell off part of a stock portfolio that has taken him or her a long time to put together and looks like a sound, long-term investment program.
8. One of the major advantages of futures markets, in general, is that one can sell contracts as readily as he or she can buy them and the amount of margin required is the same. Mutual funds do not specialize in bear market approaches by short selling stocks but, and also it is not possible for individuals to short sell stocks in a falling market to make money.

Question 23 (RTP/MTP/PP)
Explain briefly the various factors that Affects the value of option.

Solution

There are a number of different mathematical formulae, or models, that are designed to compute the fair value of an option. You simply input all the variables (stock price, time, interest rates, dividends and future volatility), and you get an answer that tells you what an option should be worth. Here are the general effects the variables have on an option's price:

i. Price Movement of the Underlying: The value of calls and puts are affected by changes in the underlying stock price in a relatively straightforward manner. When the stock price goes up, calls should gain in value and puts should decrease. Put options should increase in value and calls should drop as the stock price falls.
ii. Time till expiry: The option's future expiry, at which time it may become worthless, is an important and key factor of every option strategy. Ultimately, time can determine whether your option trading decisions are profitable. To make money in options over the long term, you need to understand the impact of time on stock and option positions. With stocks, time is a trader's ally as the stocks of quality companies tend to rise over long periods of time. But time is the enemy of the options buyer. If days pass without any significant change in the stock price, there is a decline in the value of the option. Also, the value of an option declines more rapidly as the option approaches the expiration day. That is good news for the option seller,

who tries to benefit from time decay, especially during that final month when it occurs most rapidly.

iii. Volatility in Stock Prices: Volatility can be understood via a measure called Statistical (sometimes called historical) Volatility, or SV for short. SV is a statistical measure of the past price movements of the stock; it tells you how volatile the stock has actually been over a given period of time.

iv. Interest Rate- Another feature which affects the value of an Option is the time value of money. The greater the interest rates, the present value of the future exercise price are less.

Question 27 (RTP/MTP/PP)

"The commodity characteristic approach defines feasible commodities for derivatives trading based on an extensive list of required commodity attributes." What are the required attributes?

OR

Index Funds is one of the Special Funds. What are other funds in Special Funds category?

Solution

The following attributes are considered crucial for qualifying for the derivatives trade:

(1) A commodity should be durable and it should be possible to store it;

(2) Units must be homogeneous;

(3) The commodity must be subject to frequent price fluctuations with wide amplitude; supply and demand must be large;

(4) Supply must flow naturally to market and there must be breakdowns in an existing pattern of forward contracting.

OR

The other funds in Special Fund category are as follows:

a. **International Funds:** A mutual fund located in India to raise money in India for investing globally.

b. **Offshore Funds:** A mutual fund located in India to raise money globally for investing in India.

c. **Sector Funds:** They invest their entire fund in a particular industry e.g. utility fund for utility industry like power, gas, public works.

d. **Money Market Funds:** These are predominantly debt-oriented schemes, whose main objective is preservation of capital, easy liquidity and moderate income. To achieve this objective, liquid funds invest predominantly in safer short-term instruments like Commercial Papers, Certificate of Deposits, Treasury Bills, G-Secs etc.

e. **Fund of Funds:** Fund of Funds (FoF) as the name suggests are schemes which invest in other mutual fund schemes. The concept is popular in markets where there are number of mutual fund offerings and choosing a suitable scheme according to one's objective is tough. Just as a mutual fund scheme invests in a portfolio of securities such as equity, debt etc., the underlying investments for a FoF is the units of other mutual fund schemes, either from the same fund family or from other fund houses.

f. **<u>Capital Protection Oriented Fund</u>:** The term 'capital protection oriented scheme' means a mutual fund scheme which is designated as such and which endeavours to protect the capital invested therein through suitable orientation of its portfolio structure. The orientation towards protection of capital originates from the portfolio structure of the scheme and not from any bank guarantee, insurance cover etc.

g. **<u>Gold Funds</u>:** The objective of these funds is to track the performance of Gold. The units represent the value of gold or gold related instruments held in the scheme. Gold Funds which are generally in the form of an Exchange Traded Fund (ETF) are listed on the stock exchange and offers investors an opportunity to participate in the bullion market without having to take physical delivery of gold.

h. **<u>Quant Funds</u>:** Quant Fund works on a data-driven approach for stock selection and investment decisions based on a pre-determined rules or parameters using statistics or mathematics-based models.

<u>Question 29 (RTP/MTP/PP)</u>
Explain in brief the following:
(i) Conversion factor in Interest Rate Futures.
(ii) VEGA and RHO in OPTION VALUE.

<u>Solution</u>

(i) Conversion factor: All the deliverable bonds have different maturities and coupon rates. To make them comparable to each other, and also with the notional bond, RBI introduced Conversion Factor. Conversion factor for each deliverable bond and for each expiry at the time of introduction of the contract is being published by NSE.
(Conversion Factor) x (futures price) = actual delivery price for a given deliverable bond.

Vega: Sensitivity of option value to change in volatility. Vega indicates an absolute change in option value for a one percent change in volatility.
For example, a Vega of 0.09 indicates an absolute change in the option's theoretical value will increase by 0.09 if the volatility percentage is increased by 1.0 or decreased by 0.09 if the volatility percentage is decreased by 1.0. Results may not be exact due to rounding. It can also be stated as the change in option price given a one percentage point change in volatility. Like delta and gamma, Vega is also used for hedging.

Rho: Rho is the change in option price given a one percentage point change in the risk free interest rate. It is the sensitivity of the option value to change in interest rate. Rho indicates an absolute change in option value for a one percentage change in the interest rate.
For example, a Rho of 0.06 indicates the option's theoretical value will increase by 0.06 if the interest rate is decreased by 1.0.

CHAPTER – 2B	Interest Rate Risk Management

Question 17:
Write a short note on Forward Rate Agreements.

Solution:
A Forward Rate Agreement (FRA) is an agreement between two parties through which a borrower/ lender protects itself from the unfavourable changes to the interest rate. Unlike futures FRAs are not traded on an exchange thus are called OTC product. Following are main features of FRA.

- Normally it is used by banks to fix interest costs on anticipated future deposits or interest revenues on variable-rate loans indexed to Benchmark Interest Rate e.g. SOFR, ESTER, MIBOR etc.
- It is an off-Balance Sheet instrument.
- It does not involve any transfer of principal. The principal amount of the agreement is termed "notional" because, while it determines the amount of the payment, actual exchange of the principal never takes place.
- It is settled at maturity in cash representing the profit or loss. A bank that sells an FRA agrees to pay the buyer the increased interest cost on some "notional" principal amount if Reference Rate of some specified maturity is above a stipulated "Forward Interest Rate" on the contract maturity or settlement date. Conversely, the buyer agrees to pay the seller any decrease in interest cost if Reference Rate fall below the forward rate.
- Final settlement of the amounts owed by the parties to an FRA is determined by the formula

$$= \frac{(N)(RR-FR)(dtm/DY)}{\left[1+RR\left(\frac{dtm}{DY}\right)\right]} \times 100$$

Where,

N = the notional principal amount of the agreement;

RR = Reference Rate for the maturity specified by the contract prevailing on the contract settlement date; typically SOFR, ESTER or MIBOR

FR = Agreed-upon Forward Rate; and

dtm = maturity of the forward rate, specified in days (FRA Days)

DY = Day count basis applicable to money market transactions which could be 360 or 365 days.

If Reference Rate > FR then the seller owes the payment to the buyer, and if Reference Rate < FR then the buyer owes the seller the absolute value of the payment amount determined by the above formula.

- The differential amount is discounted at post change (actual) interest rate as it is settled in the beginning of the period not at the end.

Question 18:
What do you know about swaptions and their uses?

Solution:
An interest rate swaption is simply an option on an interest rate swap. It gives the holder the right but not the obligation to enter into an interest rate swap at a specific date in the future, at a particular fixed rate and for a specified term.

There are two types of swaption contracts: -

- **A fixed rate payer swaption** (also called Call Swaption) gives the owner of the swaption the right but not the obligation to enter into a swap where they pay the fixed leg and receive the floating leg.
- **A fixed rate receiver swaption** (also called Put Swaption) gives the owner of the swaption the right but not the obligation to enter into a swap in which they will receive the fixed leg, and pay the floating leg.

Question 6 (MTP Sep'24)
Explain various types of Swaps.

Solution

The various types of Swaps are as follows:

i. Plain Vanilla Swap: Also called Generic Swap or Coupon Swap and it involves the exchange of a fixed rate loan to a floating rate loan over a period of time and that too on notional principal. Floating rate basis can be LIBOR, MIBOR, Prime Lending Rate etc
For example, Fixed interest payments on a generic swap are calculated assuming each month has 30 days and the quoted interest rate is based on a 360-day year. Given an All-In-Cost of the swap, the semi-annual fixed-rate payment would be:
(N)(AIC)(180/360),

Where.
N denotes the notional principal amount of the agreement.
AIC denotes the fixed rate

Then, the floating-rate receipt is determined by the formula:
(N)(R)(dt/360)
Where,
dt denotes the number of days since the last settlement date
R denotes the reference rate such as LIBOR, MIBOR etc.

ii. **Basis Rate Swap**: Also, called Non-Generic Swap. Similar to plain vanilla swap with the difference that payments are based on the difference between two different variable rates. For example, one rate may be 1 month LIBOR and other may be 3- month LIBOR. In other words, two legs of swap are floating but measured against different benchmarks.

iii. **Asset Swap**: Like plain vanilla swaps with the difference that it is the exchange fixed rate investments such as bonds which pay a guaranteed coupon rate with floating rate investments such as an index.

iv. **Amortising Swap**: An interest rate swap in which the notional principal for the interest payments declines during the life of the swap. They are particularly useful for borrowers who have issued redeemable bonds or debentures. It enables them to do interest rate risk hedging attached with redemption profile of bonds or debentures.

Question 7 (Oct'24)
Explain briefly various types of interest rate risk faced by companies/ banks.

Solution

Various types of Interest rate risk faced by companies/ banks are as follows:

1. **Gap Exposure**: A gap or mismatch risk arises from holding assets and liabilities and off-balance sheet items with different principal amounts, maturity dates or re-pricing dates, thereby creating exposure to unexpected changes in the level of market interest rates. This exposure is more important in relation to banking business.

2. **Basis Risk**: Market interest rates of various instruments seldom change by the same degree during a given period of time. The risk that the interest rate of different assets, liabilities and off- balance sheet items may change in different magnitude is termed as basis risk. For example, while assets may be benchmarked to Fixed Rate of Interest, liabilities may be benchmarked to floating rate of interest. The degree of basis risk is fairly high in respect of banks that create composite assets out of composite liabilities.
3. **Embedded Option Risk**: Significant changes in market interest rates create another source of risk to banks' profitability by encouraging prepayment of cash credit/demand loans/term loans and exercise of call/put options on bonds/debentures and/or premature withdrawal of term deposits before their stated maturities.

4. **Yield Curve Risk**: The movements in yield curve are rather frequent when the economy moves through business cycles. Thus, banks should evaluate the movement in yield curves and its impact on the portfolio values and income.

5. **Price Risk:** Price risk occurs when assets are sold before their stated maturities. In the financial market, bond prices and yields are inversely related. The price risk is closely associated with the trading book, which is created for making profit out of short-term movements in interest rates.

   Banks which have an active trading book should, therefore, formulate policies to limit the portfolio size, holding period, duration, defeasance period, stop loss limits, marking to market, etc.

6. **Reinvestment Risk:** Uncertainty with regard to interest rate at which the future cash flows could be reinvested is called reinvestment risk. Any mismatches in cash flows would expose the banks to variations in NII as the market interest rates move in different directions.

Question 8 (PP Nov 23)
Explain in brief the following:
(i) Conversion factor in Interest Rate Futures.
(ii) VEGA and RHO in OPTION VALUE.

Solution:

(i) **Conversion factor**: All the deliverable bonds have different maturities and coupon rates. To make them comparable to each other, and also with the notional bond, RBI introduced

Conversion Factor. Conversion factor for each deliverable bond and for each expiry at the time of introduction of the contract is being published by NSE.
(Conversion Factor) x (futures price) = actual delivery price for a given deliverable bond.

(ii) **Vega**: Sensitivity of option value to change in volatility. Vega indicates an absolute change in option value for a one percent change in volatility.
For example, a Vega of 0.09 indicates an absolute change in the option's theoretical value will increase by 0.09 if the volatility percentage is increased by 1.0 or decreased by 0.09 if the volatility percentage is decreased by 1.0. Results may not be exact due to rounding. It can also be stated as the change in option price given a one percentage point change in volatility. Like delta and gamma, Vega is also used for hedging.
Rho: Rho is the change in option price given a one percentage point change in the risk free interest rate. It is the sensitivity of the option value to change in interest rate. Rho indicates an absolute change in option value for a one percentage change in the interest rate.
For example, a Rho of 0.06 indicates the option's theoretical value will increase by 0.06 if the interest rate is decreased by 1.0.

Question 9 (MTP Mar'22)
"Commodity swaps are characterized by some peculiarities". EXPLAIN.

Solution:
Yes, commodity swaps are characterized by some peculiarities as following are some factors that we must account for:
(i) The cost of hedging;
(ii) The institutional structure of the particular commodity market in question;
(iii) The liquidity of the underlying commodity market;
(iv) Seasonality and its effects on the underlying commodity market;
(v) The variability of the futures bid/offer spread;
(vi) Brokerage fees; and
(vii) Credit risk, capital costs and administrative costs.
Some of these factors must be extended to the pricing and hedging of interest rate swaps, currency swaps and equity swaps as well. The idiosyncratic nature of the commodity markets refers more to the often limited number of participants in these markets (naturally begging questions of liquidity and market information), the unique factors driving these markets, the inter - relations with cognate markets and the individual participants in these markets.

Question 10 (PP July'21)
Define Interest Rate Swaption. State its principal features.

Solution
An interest rate swaption is simply an option on an interest rate swap. It gives the holder the right but not the obligation to enter into an interest rate swap at a specific date in the future, at a particular fixed rate and for a specified term.
There are two types of swaption contracts :
- A fixed rate payer swaption (also called Call Swaption).
- A fixed rate receiver swaption (also called Put Swaption).

Principal Features of Swaptions

1. A swaption is effectively an option on a forward-start IRS, where exact terms such as the fixed rate of interest, the floating reference interest rate and the tenor of the IRS are established upon conclusion of the swaption contract.
2. A 3-month into 5-year swaption would therefore be seen as an option to enter into a 5-year IRS, 3 months from now.
3. The 'option period' refers to the time which elapses between the transaction date and the expiry date.
4. The swaption premium is expressed as basis points.
5. Swaptions can be cash-settled; therefore, at expiry they are marked to market off the applicable forward curve at that time and the difference is settled in cash.

Question 11 (PP Nov'22)

Explain various methods of hedging of interest rate risk.

Solution

Methods of Hedging of Interest Rate Risk can be broadly divided into following two categories:

a) **Traditional Methods:** These methods can further be classified in following categories:

   i. **Asset and Liability Management (ALM):** ALM is a comprehensive and dynamic framework for measuring, monitoring and managing the market risk of a bank. It is the management of structure of Balance Sheet (liabilities and assets) in such a way that the net earnings from interest are maximized within the overall risk preference (present and future) of the institutions.

   ii. **Forward Rate Agreement (FRA):** Normally it is used by banks to fix interest costs on anticipated future deposits or interest revenues on variable-rate loans indexed to Benchmark Interest Rate e.g. LIBOR, MIBOR etc. A bank that sells an FRA agrees to pay the buyer the increased interest cost on some "notional" principal amount if Reference Rate of some specified maturity is above a stipulated "Forward Interest Rate" on the contract maturity or settlement date. Conversely, the buyer agrees to pay the seller any decrease in interest cost if Reference Rate fall below the forward rate.

b) **Modern Methods:** These methods can further be classified in following categories:

   i. **Interest Rate Futures (IRF):** An interest rate future is a contract between the buyer and seller agreeing to the future delivery of any interest-bearing asset. The interest rate future allows the buyer and seller to lock in the price of the interest-bearing asset for a future date.

   ii. **Interest Rate Options (IRO):** Also known as Interest Rate Guarantee (IRG) as option is a right not an obligation and acts as insurance by allowing businesses to protect themselves against adverse interest rate movements while allowing them to benefit from favourable movements.
   It should be noted that the IRO is basically a series of FRAs which are exercisable at predetermined bench marked interest rates on each period say 3 months, 6 months etc.

iii. **Interest Rate Swaps:** In an interest rate swap, the parties to the agreement, termed the swap counterparties, agree to exchange payments indexed to two different interest rates. Total payments are determined by the specified notional principal amount of the swap, which is never actually exchanged.

iv. **Swaptions:** An interest rate swaption is simply an option on an interest rate swap. It gives the holder the right but not the obligation to enter into an interest rate swap at a specific date in the future, at a particular fixed rate and for a specified term.

CHAPTER – 4	Security Valuation: Bonds

Question 73:
Why should the duration of a coupon carrying bond always be less than the time to its maturity?

Solution:
Duration is the weighted average time within which an investor gets back the promised principal and the promised YTM. Investment coupon bearing bond always has a duration which is lesser than its maturity. Higher the coupon rate, lesser would be the duration and higher the yield-to-maturity, lower will be the duration of a bond.
It measures how quickly a bond will repay its true cost. The longer the time it takes the greater exposure the bond has to changes in the interest rate environment and hence, higher interest rate risk. Duration is also a measure of interest rate risk – higher duration implies higher interest rate risk and lower duration means lower interest rate risk. Following are some of factors that affect bond's duration:

(i) Time to maturity: The shorter-maturity bond would have a lower duration and less interest rate risk and vice versa.

(ii) Coupon rate: Coupon payment is a key factor in calculation of duration of bonds. The higher the coupon rate, the lower is the duration and vice versa.

(iii) Yield-to-Maturity (YTM): Higher yield-to-maturity means lower duration and hence, lower interest rate risk and vice versa.

Although there are many formulae to calculate the duration. However, following are commonly used methods:

(a) Macaulay Duration: This formula measures the number of years required to recover the true cost of a bond, considering the present value of all coupon and principal payments received in the future.

(b) Modified Duration: This is a modified version of Macaulay duration which takes into account the interest rate changes because the changes in interest rates affect duration as the yield gets affected each time the interest rate varies.

Question 74:
Write short notes on Zero Coupon Bonds.

Solution:
As name indicates these bonds do not pay any coupon during the life of the bonds. Instead, Zero Coupon Bonds (ZCBs) are issued at discounted price to their face value, which is the amount a bond will be worth when it matures or comes due. When a ZCB matures, the investor will receive

one lump sum (face value) equal to the initial investment plus interest that has been accrued on the investment made. The maturity dates on ZCBs are usually long term. These maturity dates allow an investor for a long-range planning. ZCBs issued by banks, government and private sector companies. However, bonds issued by corporate sector carry a potentially higher degree of risk, depending on the financial strength of the issuer and longer maturity period, but they also provide an opportunity to achieve a higher return.

Question 27(RTP/MTP/PP)
Write a short note on Money Market Hedging.

Solution

At its simplest, a money market hedge is an agreement to exchange a certain amount of one currency for a fixed amount of another currency, at a particular date. For example, suppose a business owner in India expects to receive 1 Million USD in six months. This Owner could create an agreement now (today) to exchange 1Million USD for INR at roughly the current exchange rate. Thus, if the USD dropped in value by the time the business owner got the payment, he would still be able to exchange the payment for the original quantity of U.S. dollars specified.

Advantages of Money Market Hedging

(i) Fixes the future rate, thus eliminating downside risk exposure.
(ii) Flexibility with regard to the amount to be covered.
(iii) Money market hedges may be feasible as a way of hedging for currencies where forward contracts are not available.

Disadvantages of Money Market Hedging

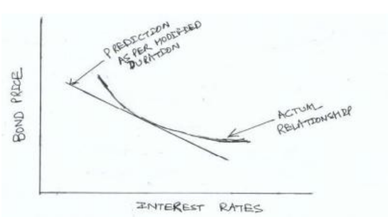
(i) More complicated to organize than a forward contract.
(ii) Fixes the future rate - no opportunity to benefit from favorable movements in exchange rates.

Question 29(RTP/MTP/PP)
Modified Duration is a proxy not an accurate measure of change in price of a Bond due to change interest rate. Discuss.

Solution:

Although Modified Duration is a measure of volatility or change in the price of a Bond consequent upon change in the yield or interest rates as it assumes a linear relationship between the Modified Duration and the price of a Bond but is not accurate measure because of Convexity.

Accordingly the relationship between change in the interest rate and bond value is non-linear i.e. convex curve to the origin as shown below:



From the above diagram it is clear that the actual effect of change in interest rate on Bond Price is different from the predicted linear relationship.

CHAPTER – 5	Business Valuation

Question 15:
Differentiate between EVA and MVA.

Solution:
The 'MVA' (Market Value Added) simply means the Current Market Value of the firm minus the Invested Capital that we obtained above. Let the current MV of the firm be 1000. Hence MVA will be –
1000 – 920 = 80.
MVA is an attempt to resolve some of the issues involved in EVA e.g., ignoring Value Drivers, Book Value etc. Though MVA itself does not give any basis of share valuation but an alternative way to gauge performance efficiencies of an enterprise, albeit from a market capitalization point of view, the logic being that the market will discount the efforts taken by the management fairly. Hence, the MVA of 80 arrived in example above is the true value added that is perceived by the market. In contrast, EVA is a derived value added that is for the more discerning investor.
Since MVA represents market views regarding company's future value generation companies with a higher MVA will naturally become the darlings of the share market and would eventually become 'pricey' from a pure pricing perspective. In such cases, the EVA may also sometimes have a slightly negative correlation as compared to MVA. But this will be a short term phenomenon as eventually the gap will get closed by investors themselves. A stock going ex-dividend will exhibit such propensities.
We can conclude that the main objective of EVA is thus to show management efficiency in generating returns over and above the hurdle rate of invested capital.

Question 16:
Relative Valuation is the method to arrive at a 'relative' value using a 'comparative' analysis to its peers or similar enterprises. Elaborate this statement.

Solution:
Relative valuation is a method of determining the value of a company by comparing it with similar enterprises or peers in the market. It involves using valuation multiples such as Price-to Earnings (P/E), Price-to-Book (P/B), or EV/EBITDA, derived from comparable companies, and applying them to the target company's financial metrics.

Steps in Relative Valuation:
1. Identify comparable companies operating in the same industry with similar size, growth, and risk profiles.
2. Select relevant valuation multiples.
3. Apply the multiples to estimate the target company's value.

Advantages:
- Market-based, reflecting real-time data.
- Simple and easy to implement.
- Practical for industries with ample comparable companies.

Limitations:
- Subjective in selecting comparables.
- Relies on the assumption of efficient market pricing.

• Differences in accounting policies can distort results.

As per ICAI study material, relative valuation is widely used due to its simplicity and reliance on market trends but requires careful selection of comparables for accurate results.

CHAPTER – 6	Mergers, Acquisitions and Corporate Restructuring

Question 40:
Explain synergy in the context of Mergers and Acquisitions.

Solution:
The most common reasons for Mergers and Acquisition (M&A) are:

- **Synergistic operating economics:** Synergy may be defined as follows:
  V (AB) >V(A) + V (B).
  In other words, the combined value of two firms or companies shall be more than their individual value. Synergy is the increase in performance of the combined firm over what the two firms are already expected or required to accomplish as independent firms (Mark L Sirower of Boston Consulting Group, in his book "The Synergy Trap"). This may be the result of complimentary services or economies of scale or both.
  A good example of complimentary activities can be a company having a good network of branches and other company having an efficient production system. Thus, the merged companies will be more efficient than individual companies.
  On similar lines, economies of large scale is also one of the reasons for synergy benefits. The main reason is that, the large scale production results in lower average cost of production e.g. reduction in overhead costs on account of sharing of central services such as accounting and finances, office executives, top level management, legal, sales promotion and advertisement etc.
  These economies can be "real" arising out of reduction in factor input per unit of output, whereas pecuniary economics are realized from paying lower prices for factor inputs for bulk transactions. Other factors for Synergies are as follows:
- **Diversification**: Merger between two unrelated companies would lead to reduction in business risk, which in turn will increase the market value consequent upon the reduction in discount rate/ required rate of return. Normally, greater the combination of statistically independent or negatively correlated income streams of merged companies, higher will be the reduction in business risk in comparison to companies having income streams which are positively correlated to each other.
- **Taxation**: The provisions of set off and carry forward of losses as per Income Tax Act may be another strong reason for the merger and acquisition. Thus, there will be Tax saving or reduction in tax liability of the merged firm. Similarly, in the case of acquisition the losses of the target company will be allowed to be set off against the profits of the acquiring company.
- **Growth**: Merger and acquisition mode enables the firm to grow at a rate faster than the other mode viz., organic growth. The reason being the shortening of 'Time to Market'. The acquiring company avoids delays associated with purchasing of building, site, setting up of the plant and hiring personnel etc.
- **Consolidation of Production Capacities and increasing market power**: Due to reduced competition, marketing power increases. Further, production capacity is increased by the

combination of two or more plants. The following table shows the key rationale for some of the well-known transactions which took place in India in the recent past.

Rationale for M & A

Instantaneous growth, Snuffing out competition, Increased market share.	• Airtel – Loop Mobile (2014) (Airtel bags top spot in Mumbai Telecom Circle)
Acquisition of a competence or a capability	• Google – Motorola (2011) (Google got access to Motorola's 17,000 issued patents and 7500 applications)
Entry into new markets/product segments	• Airtel – Zain Telecom (2010) (Airtel enters 15 nations of African Continent in one shot)
Access to funds	• Ranbaxy – Sun Pharma (2014) (Daiichi Sankyo sold Ranbaxy to generate funds)
Tax benefits	• Burger King (US) – Tim Hortons (Canada) (2014) (Burger King could save taxes in future)
Instantaneous growth, Snuffing out competition, Increased market share.	• Facebook – Whatsapp (2014) (Facebook acquired its biggest threat in chat space)
Acquisition of a competence or a capability	• Flipkart – Myntra (2014) (Flipkart poised to strengthen its competency in apparel e-commerce market)
Entry into new markets/product segments	• Cargill – Wipro (2013) (Cargill acquired Sunflower Vanaspati oil business to enter Western India Market)
Access to funds	• Jaypee – Ultratech (2014) (Jaypee sold its cement unit to raise funds for cutting off its debt)
Tax benefits	• Durga Projects Limited (DPL) – WBPDCL (2014) (DPL's loss could be carry forward and setoff)

Question 41:
What is take over by reverse bid or Reverse Merger.

Solution:
In ordinary cases, the company taken over is the smaller company; in a 'reverse takeover', a smaller company gains control of a larger one. The concept of takeover by reverse bid, or of reverse merger, is thus not the usual case of amalgamation of a sick unit which is non-viable with

a healthy or prosperous unit but is a case whereby the entire undertaking of the healthy and prosperous company is to be merged and vested in the sick company which is non-viable. A company becomes a sick industrial company when there is erosion in its net worth. This alternative is also known as taking over by reverse bid.
The three tests to be fulfilled before an arrangement can be termed as a reverse takeover are specified as follows:
(i) the assets of the transferor company are greater than the transferee company,
(ii) equity capital to be issued by the transferee company pursuant to the acquisition exceeds its original issued capital, and
(iii) the change of control in the transferee company through the introduction of a minority holder or group of holders.

This type of merger is also known as 'back door listing'. This kind of merger has been started as an alternative to go for public issue without incurring huge expenses and passing through the cumbersome process. Thus, it can be said that reverse merger leads to the following benefits for the acquiring company:

- Easy access to capital market.
- Increase in visibility of the company in corporate world.
- Tax benefits on carry forward losses acquired (public) company.
- Cheaper and easier route to become a public company.

Question 42:
What is an equity curve out? How does it differ from a spin off.

Solution:

Spin-off:

In this case, a part of the business is separated and created as a separate firm. The existing shareholders of the firm get proportionate ownership. So, there is no change in ownership and the same shareholders continue to own the newly created entity in the same proportion as previously in the original firm. The management of spin-off division is however, parted with. Spin-off does not bring fresh cash. The reasons for spin off may be:
(i) To give separate identity to a part/division.
(ii) To avoid the takeover attempt by a predator by making the firm unattractive to him since a valuable division is spun-off.
(iii) To create separate Regulated and unregulated lines of business.

Example: Kishore Biyani led Future Group spin off its consumer durables business, Ezone, into a separate entity in order to maximise value from it.

Split-up:

This involves breaking up of the entire firm into a series of spin off (by creating separate legal entities). The parent firm no longer legally exists and only the newly created entities survive. For instance, a corporate firm has 4 divisions namely A, B, C, D. All these 4 divisions shall be split-up to create 4 new corporate firms with full autonomy and legal status. The original corporate firm is to be wound up. Since de-merged units are relatively smaller in size, they are logistically more convenient and manageable. Therefore, it is understood that spin-off and split-up are likely to enhance shareholders value and bring efficiency and effectiveness.

Question 43:
Write a short note on Horizontal Merger and Vertical Merger.

Solution:

A merger is generally understood to be a fusion of two companies. The term "merger" means the dissolution of one or more companies or firms or proprietorships to form or get absorbed into another company. By concept, merger increases the size of the undertakings. Following are the major types of mergers:

(i) **Horizontal Merger**: The two companies which have merged are in the same industry, normally the market share of the new consolidated company would be larger and it is possible that it may move closer to being a monopoly or a near monopoly to avoid competition.

(ii) **Vertical Merger**: This merger happens when two companies that have 'buyer-seller' relationship (or potential buyer-seller relationship) come together.

(iii) **Conglomerate Mergers**: Such mergers involve firms engaged in unrelated type of business operations. In other words, the business activities of acquirer and the target are neither related to each other horizontally (i.e., producing the same or competing products) nor vertically (having relationship of buyer and supplier).In a pure conglomerate merger, there are no important common factors between the companies in production, marketing, research and development and technology. There may however be some degree of overlapping in one or more of these common factors. Such mergers are in fact, unification of different kinds of businesses under one flagship company. The purpose of merger remains utilization of financial resources, enlarged debt capacity and also synergy of managerial functions.

(iv) **Congeneric Merger**: In these mergers, the acquirer and the target companies are related through basic technologies, production processes or markets. The acquired company represents an extension of product-line, market participants or technologies of the acquirer. These mergers represent an outward movement by the acquirer from its current business scenario to other related business activities within the overarching industry structure.

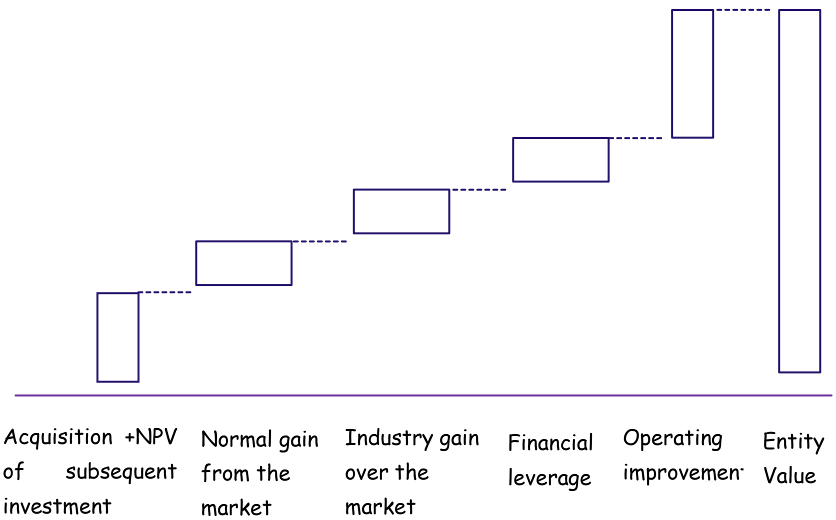
(v) **Reverse Merger**: Such mergers involve acquisition of a public (Shell Company) by a private company, as it helps the same private company to by-pass lengthy and complex process required to be followed in case it is interested in going public.

(vi) **Acquisition**: This refers to the purchase of controlling interest by one company in the share capital of an existing company. This may be by:
   (i) an agreement with majority holder of Interest.
   (ii) Purchase of new shares by private agreement.
   (iii) Purchase of shares in open market (open offer)

(iv) Acquisition of share capital of a company by means of cash, issuance of shares.

(v) Making a buyout offer to general body of shareholders.

When a company is acquired by another company, the acquiring company has two choices, one, to merge both the companies into one and function as a single entity or two, to operate the taken-over company as an independent entity with changed management and policies. 'Merger' is the fusion of two independent firms on co-equal terms. 'Acquisition' is buying out of a company by another company and the acquired company usually loses its identity. Normally, this process is friendly.



Source: Patricial Anslinger and Thomas E Copeland, "Growth through Acquisitions : A Fresh look, Harvard Business Review Jan. – Feb -1996.

Acquisition of one of the businesses of a company, as a going concern by an agreement need not necessarily be routed through court, if the transfer of business is to be accomplished without allotting shares in the transferee company to the shareholders of the transferor company. This would tantamount to a simple acquisition. In this case the transferor company continues to exist and no change in shareholding is expected. If the sale takes place for a lumpsum consideration without attributing any individual values to any class of assets, such sales are called slump sales. The capital gains arising on slump sales were being exempt from income tax based on a decision of the Supreme Court of India.

CHAPTER – 7	Portfolio Management

Question 54:

Write short note on factors affecting decision of investment in fixed income securities.

Solution:

Bonds are fixed income avenues. The following factors have to be evaluated in selecting fixed income avenues:

(a) Yield to maturity: The yield to maturity for a fixed income avenues represent the rate of return earned by the investor, if he invests in the fixed income avenues and holds it till its maturity.

(b) Risk of Default: To assess such risk on a bond, one has to look at the credit rating of the bond. If no credit rating is available relevant financial ratios of the firm have to be examined such as debt equity, interest coverage, earning power etc and the general prospect of the industry to which the firm belongs have to be assessed.

(c) Tax Shield: In the past, several fixed income avenues offers tax shields but at present only a few of them do so.

(d) Liquidity: If the fixed income avenues can be converted wholly or substantially into cash at a fairly short notice it possesses a liquidity of a high order.

Question 55:
Briefly explain the objectives of "Portfolio Management".

Solution:
Some of the important objectives of portfolio management are:
Security/Safety of Principal Amount: Security not only involves keeping the principal sum intact but also its purchasing power.

Stability of Income: To facilitate planning more accurately and systematically the reinvestment or consumption of income.

Capital Growth: It can be attained by reinvesting in growth securities or through purchase of growth securities.

Marketability i.e. the case with which a security can be bought or sold: This is essential for providing flexibility to investment portfolio.

Liquidity i.e. nearness to money: It is desirable for the investor so as to take advantage of attractive opportunities upcoming in the market.

Diversification: The basic objective of building a portfolio is to reduce the risk of loss of capital and/or income by investing in various types of securities and over a wide range of industries.

Favourable Tax Status: The effective yield an investor gets from his investment depends on tax to which it is subjected to. By minimising the tax burden, yield can be effectively improved.

Question 56:
Discuss the Capital Asset Pricing Model (CAPM) and its relevant assumptions.

Solution:
The CAPM distinguishes between risk of holding a single asset and holding a portfolio of assets. There is a trade-off between risk and return. Modern portfolio theory concentrates on risk and stresses on risk management rather than on return management. Risk may be security risk involving danger of loss of return from an investment in a single financial or capital asset. Security risk differs from portfolio risk, which is the probability of loss from investment in a portfolio of assets. Portfolio risk is comprised of unsystematic risk and systematic risk. Unsystematic risks can be averted through diversification and is related to random variables.

Systematic risk is market related component of portfolio risk. It is commonly measured by regression coefficient Beta or the Beta coefficient. Low Beta reflects low risk and high Beta reflects high risk.
CAPM provides a conceptual framework for evaluating any investment decision where capital is committed with a goal of producing future returns. CAPM is based on certain assumptions to provide conceptual framework for evaluating risk and return. Some of the important assumptions are discussed below:

(i) **Efficient market**: It is the first assumption of CAPM. Efficient market refers to the existence of competitive market where financial securities and capital assets are bought and sold with full information of risk and return available to all participants. In an efficient market, the price of individual assets will reflect a real or intrinsic value of a share as the market prices will adjust quickly to any new situation, John J. Hampton has remarked in "Financial decision making" that although efficient capital market is not much relevant to capital budgeting decisions, but CAPM would be useful to evaluate capital budgeting proposal because the company can compare risk and return to be obtained by investment in machinery with risk and return from investment in securities.

(ii) **Rational investment goals**: Investors desire higher return for any acceptable level of risk or the lowest risk for any desired level of return. Such a rational choice is made on logical and consistent ranking of proposals in order of preference for higher good to lower good and this is the scale of the marginal efficiency of capital. Beside, transactive preferences and certainty equivalents are other parameters of rational choice.

(iii) Risk aversion in efficient market is adhered to although at times risk seeking behaviour is adopted for gains.

(iv) CAPM assumes that all assets are divisible and liquid assets.

(v) Investors are able to borrow freely at a risk less rate of interest i.e. borrowings can fetch equal return by investing in safe Government securities.

(vi) Securities can be exchanged without payment of brokerage, commissions or taxes and without any transaction cost.

(vii) Securities or capital assets face no bankruptcy or insolvency.

(viii) CAPM assumes that the Capital Market is in equilibrium.

Question 14(RTP/MTP/PP)
Write any four differences between 'Systematic risk' and 'Unsystematic risk'.

Solution

Differences between Systematic Risk and Unsystematic Risk

S. No.	Systematic Risk	Unsystematic Risk
1.	Refers to the variability of return on stocks or portfolio associated with changes in return on the market as a whole.	Refers to risk unique to a particular company or industry.
2.	It arises due to risk factors that affect the overall market such as changes in the nation's economy, tax reform by the Government or a change in the world energy situation.	It arises due to risk factors that are particular to any company or industry.
3.	Since this affects securities overall and consequently, cannot be diversified away.	This risk can be virtually eliminated from

		a portfolio through diversification.

Question 16(RTP/MTP/PP)
Explain briefly principles of an Active Portfolio Strategy (APS).

Solution

There are four principles of an Active Portfolio Strategy (APS). These are:

i. Market Timing: This involves departing from the normal i.e., strategy for long run asset mix to reflect assessment of the prospect of various assets in the near future. Market timing is based on an explicit or implicit forecast of general market movement. In most cases investors may go largely by their market sense. Those who reveal the fluctuation in the market may be tempted to play the game of market timing but few will succeed in this game. Further an investment manager has to forecast the market correctly and 75% of the time he is only able to break even after taking into account the cost of errors and cost of transactions.

ii. Sector Rotation: Sector or group rotation may apply to both stock and bond component of the portfolio. It is used more compulsorily with respect to strategy. The components of the portfolio are used when it involves shifting. The weighting for various industry sectors is based on their asset outlook.
With respect to bond portfolio sector rotation it implies a shift in the composition of the bond portfolio in terms of quality as reflected in credit rating, coupon rate, term of maturity etc.

iii. Security Selection: Security selection involves a search for under- priced security. If one has to resort to active stock selection he may employ fundamental / technical analysis to identify stocks which seems to promise superior return and concentrate the stock components of portfolio on them. As far as bonds are concerned security selection calls for choosing bonds which offer the highest yields to maturity and at a given level of risk.

iv. Use of Specialised Investment Concept: To achieve superior return, one has to employ a specialised concept/philosophy particularly with respect to investment in stocks. The concept which have been exploited successfully are growth stock, neglected or out of favour stocks, asset stocks, technology stocks and cyclical stocks.

Question 21(RTP/MTP/PP)
Buy and hold is one of the policies of portfolio rebalancing. Briefly explain other policies of portfolio rebalancing.

Solution:

While one policy of rebalancing portfolio is Buy and Hold the two policies are as follows:

(i) Constant Mix Policy: Contrary to above policy this policy is a 'Do Something Policy'. Under this policy investor maintains an exposure to stock at a constant percentage of total portfolio. This strategy involves periodic rebalancing to required (desired) proportion by purchasing and selling stocks as and when their prices goes down and up respectively. In other words this plan specifies that value of aggressive portfolio to the value of conservative portfolio will be held constant at a pre determined ratio. However, it is important to this action is taken only there is change in the prices of share at a predetermined percentage.

(ii) Constant Proportion Insurance Policy: Under this strategy investor sets a floor below which he does not wish his asset to fall called floor, which is invested in some non-fluctuating assets such as Treasury Bills, Bonds etc. The value of portfolio under this strategy shall not fall below this specified floor under normal market conditions. This strategy performs well especially in bull market as the value of shares purchased as cushion increases. In contrast in bearish market losses are avoided by sale of shares. It should however be noted that this strategy performs very poorly in the market hurt by sharp reversals. The following equation is used to determine equity

(iii) allocation: Target Investment in Shares = Multiplier (Portfolio Value – Floor Value) Multiplier is a fixed constant whose value shall be more than 1.

Question 24(RTP/MTP/PP)

Explain the strategy of Portfolio rebalancing under which the value of a portfolio shall not below a specified value in normal market conditions.

Solution:

Under Constant Proportion Portfolio Insurance (CPPI) strategy investor sets a floor below which he does not wish his asset to fall called floor, which is invested in some non-fluctuating assets such as Treasury Bills, Bonds etc. The value of portfolio under this strategy shall not fall below this specified floor under normal market conditions. This strategy performs well especially in bull market as the value of shares purchased as cushion increases. In contrast in bearish market losses are avoided by sale of shares. It should however be noted that this strategy performs very poorly in the market hurt by sharp reversals.

The following equation is used to determine equity allocation :
Target Investment in Shares = multiplier (Portfolio Value – Floor Value)
Multiplier is a fixed constant whose value shall be more than 1.

CHAPTER – 8	Mutual Fund

Question 31:

Explain how to establish a Mutual Fund

Solution:

Establishment of a Mutual Fund: A mutual fund is required to be registered with the Securities and Exchange Board of India (SEBI) before it can collect funds from the public. All mutual funds are governed by the same set of regulations and are subject to monitoring and inspections by the SEBI. The Mutual Fund has to be established through the medium of a sponsor. A sponsor means anybody corporate which, acting alone or in combination with another body corporate, establishes a mutual fund after completing the formalities prescribed in the SEBI's Mutual Fund Regulations. The role of sponsor is akin to that of a promoter of a company, who provides the initial capital and appoints the trustees. The sponsor should be a body corporate in the business of financial services for a period not less than 5 years, be financially sound and be a fit party to act as sponsor in the eyes of SEBI.

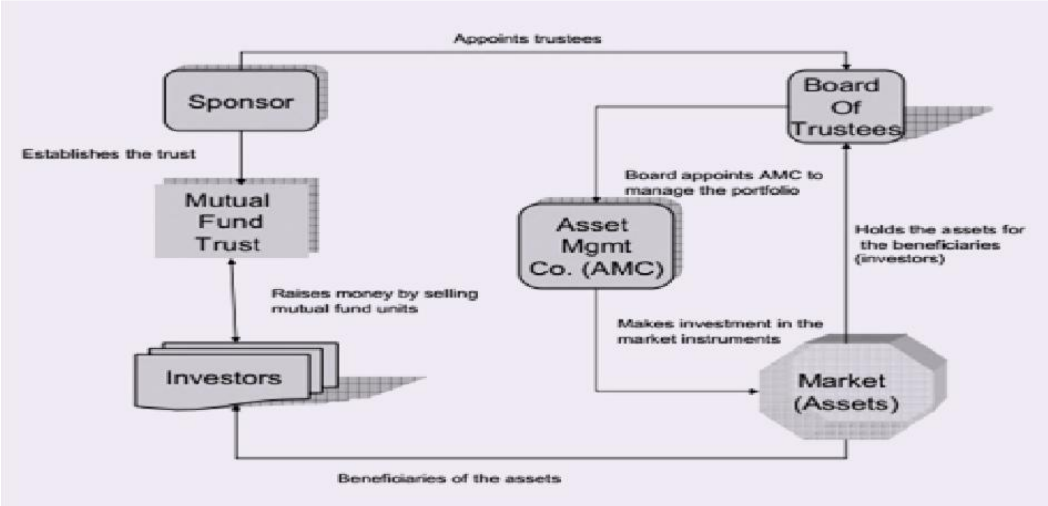
The Mutual Fund has to be established as either a trustee company or a Trust, under the Indian Trust Act and the instrument of trust shall be in the form of a deed. The deed shall be executed by the sponsor in favour of the trustees named in the instrument of trust. The trust deed shall be duly registered under the provisions of the Indian Registration Act, 1908. The trust deed shall contain clauses specified in the Third Schedule of the Regulations.

An Asset Management Company, who holds an approval from SEBI, is to be appointed to manage the affairs of the Mutual Fund and it should operate the schemes of such fund. The Asset Management Company is set up as a limited liability company, with a minimum net worth of 100 crores.

The sponsor should contribute at least 40% to the net worth of the Asset Management Company. The Trustee should hold the property of the Mutual Fund in trust for the benefit of the unit holders.

SEBI regulations require that at least two-thirds of the directors of the Trustee Company or board of trustees must be independent, that is, they should not be associated with the sponsors. Also, 50 per cent of the directors of AMC must be independent. The appointment of the AMC can be terminated by majority of the trustees or by 75% of the unit holders of the concerned scheme.

The AMC may charge the mutual fund with Investment Management and Advisory fees subject to prescribed ceiling. Additionally, the AMC may get the expenses on operation of the mutual fund reimbursed from the concerned scheme.The Mutual fund also appoints a custodian, holding valid certificate of registration issued by SEBI, to have custody of securities held by the mutual fund under different schemes. In case of dematerialized securities, this is done by Depository Participant. The custodian must be independent of the sponsor and the AMC.



Question 32: What are the advantages of investing in Mutual Funds?

Solution:

(a) **Professional Management**: The funds are managed by skilled and professionally experienced managers backed by a team of Research Analysts.

(b) **Diversification**: Mutual Funds invest into many securities and offer diversification which reduces the concentration risk.

(c) **Convenient Administration**: There are no administrative risks of share transfer, as many of the Mutual Funds offer services in a demat form which saves investor's time and prevents delay.

(d) **Higher Returns**: Over a medium to long-term investment horizon, investors get higher returns in Mutual Funds as compared to other avenues of investment. However, investors are cautioned that such very high returns during the exceptional bull phase of the market like IT boom or Infrastructure boom should not be considered as regular returns and therefore one should look at the average returns provided by the Mutual Funds particularly in the equity schemes over a long period of time.

(e) **Low Cost of Management**: SEBI has prescribed maximum limit of charging 2.50% for Equity Mutual Funds. No Mutual Fund can increase the cost beyond prescribed limits of 2.5% maximum and any extra cost of management is to be borne by the AMC.

(f) **Liquidity**: In all the open ended funds, liquidity is provided by direct sales / repurchase by the Mutual Fund and in case of close ended funds, the liquidity is provided by listing the units on the Stock Exchange.

(g) **Transparency**: The SEBI Regulations now compel all the Mutual Funds to disclose their portfolios on a half-yearly basis. However, many Mutual Funds disclose their Scheme Portfolio on a quarterly or monthly basis to their investors. The NAVs are calculated on a daily basis in case of open ended funds and are published through AMFI in the newspapers.

(h) **Other Benefits**: Mutual Funds provide systematic withdrawal and systematic investment plans according to the need of the investors. The investors can also switch from one scheme to another without any restrictions except in case of Tax Savings Fund which restricts switch out for first 3 years of its investments.

(i) **Highly Regulated**: Mutual Funds all over the world are highly regulated and in India all Mutual Funds are registered with SEBI and are strictly regulated as per the Mutual Fund Regulations which provide high level of investor protection.

(j) **Economies of scale**: The way mutual funds are structured gives it a natural advantage. The "pooled" money from numerous investors ensures that mutual funds enjoy economies of scale; it is cheaper compared to investing directly in the capital markets which involves higher charges. This also allows retail investors access to participation in the Capital Market which otherwise is difficult for them go directly.

(k) **Flexibility**: One of the biggest advantages of a Mutual Fund Scheme is its flexibility. An investor can opt for Systematic Investment Plan (SIP), Systematic Withdrawal Plan etc. to plan his cash flow requirements as per his convenience. The wide range of schemes being launched in India by different mutual funds also provides an added flexibility to the investor to plan his portfolio accordingly.

(l) **Convenience**: It is very convenient & easy to invest & disinvest from Mutual Fund Schemes specially through digital transaction portals.

Question 10(RTP/MTP/PP)

Explain briefly the financial measures that help in evaluation of performance of any Mutual Fund.

Solution:

Financial Measures : There are some financial measures that help in evaluation of performance of any Mutual Fund which are as follows:

(a) **Expense Ratio**: Discussed in earlier section, it ultimately impacts the return of a Mutual Fund Scheme.

(b) **Sharpe Ratio**: As discussed in the chapter on Portfolio Management, this ratio measures the Mutual Fund's performance measured against the total risk (both systematic and unsystematic) taken.

(c) **Treynor Ratio**: As discussed in the chapter on Portfolio Management, beta measures the volatility of return of a security vis-à-vis to the market, in mutual funds the Beta of a mutual fund measures volatility of a fund's return to return from its Benchmark. Treynor Ratio measures performance of a mutual fund against the systematic risk it has taken.

(d) **Sortino Ratio**: A variation of Sharpe Ratio that considers and uses downside deviation instead of total standard deviation in denominator.

Question 11(RTP/MTP/PP)

Explain the various Qualitative factors that need to be taken into account in addition to Quantitative Factors to evaluate the performance of any Mutual Fund.

Solution:

Some of the Qualitative factors that need to be taken into account in addition to Quantitative Factors are as follows: -

(1) **Quality of Portfolio**: - Quality of stocks and securities in the portfolio of the Mutual Funds is an important qualitative parameter. The reason is that the quality of the portfolio plays a big role in achieving superior returns. The qualitative characteristic of portfolio of Equity Mutual Fund involves allocation of funds in top Blue-chip companies, large companies and how diversified is the portfolio. The style followed can be growth, value or blend of the same. In Debt Funds, the quality of portfolio is measured on the basis of credit quality, average maturity and modified duration of the fixed asset securities.

Not only that it is necessary that Mutual Fund should hold good quality stocks or securities, but it is also necessary the investment should be as per the objective of the Fund. Under normal circumstances, the fund having lower Portfolio Turnover ratio is considered to be better.

(2) **Track record and competence of Fund Manager**: - Since Fund Manager decides about the selection of securities and takes investment decisions, his/her competence and conviction plays a very big role. The competence of a Fund Manager is assessed from his/her knowledge and ability to manage in addition to past performance.

(3) **Credibility of Fund House Team**: - Team of Fund House also plays a big role towards the investors' interest. In addition to investment decisions, there are some other administrative tasks also such as redemption of units, crediting of dividend, providing adequate information

etc. which play a crucial role in qualitative assessment of any mutual fund house.

Question 17(RTP/MTP/PP)
Describe Tracking error. List the reasons for it.

Or

EXPLAIN how to measure divergence or deviation of return of a Mutual Fund Scheme that replicates any benchmark Index.

Solution

Tracking error

Can be defined as the divergence or deviation of a fund's return from the benchmarks return it is following.

The passive fund managers closely follow or track the benchmark index. Although they design their investment strategy on the same index but often it may not exactly replicate the index return. In such situation, there is possibility of deviation between the returns.

The tracking error can be calculated on the basis of corresponding benchmark return vis a vis quarterly or monthly average NAVs.

Reasons of Tracking Error:

Higher the tracking error higher is the risk profile of the fund. Whether the fun outperform or underperform their benchmark indices; it clearly indicates that fund managers are not following the benchmark indices properly. In addition to the same other reasons for tracking error are as follows:

- Transaction cost
- Fees charged by AMCs
- Fund expenses
- Cash holdings
- Sampling biasness

Thus, from above it can be said that to replicate the return to any benchmark index the tracking error should be near to zero.

The Tracking Error is calculated as follows:

$$TE = \sqrt{\frac{\sum(d-\overline{d})^2}{n-1}}$$

d = Differential return

$\overline{d}$ = Average differential return

n = No. of observation

Question 19(RTP/MTP/PP)
Explain the different methods for evaluating the performance of a mutual fund.

Or

Explain the different methods for evaluating the performance of a mutual fund.

Solution:

Methods for Evaluating the Performance

1. **Sharpe Ratio**

   The excess return earned over the risk free return on portfolio to the portfolio's total risk measured by the standard deviation. This formula uses the volatility of portfolio return. The

Sharpe ratio is often used to rank the risk-adjusted performance of various portfolios over the same time. The higher a Sharpe ratio, the better a portfolio's returns have been relative to the amount of investment risk the investor has taken.

$$S = \frac{\text{Return of portfolio} - \text{Return of risk free investment}}{\text{standard Deviation Portfolio}}$$

2. **Treynor Ratio**

This ratio is similar to the Sharpe Ratio except it uses Beta of portfolio instead of standard deviation. Treynor ratio evaluates the performance of a portfolio based on the systematic risk of a fund. Treynor ratio is based on the premise that unsystematic or specific risk can be diversified and hence, only incorporates the systematic risk (beta) to gauge the portfolio's performance.

$$T = \frac{\text{Return of portfolio} - \text{Return of risk free investment}}{\text{Beta of Portfolio}}$$

3. **Jensen's Alpha**

The comparison of actual return of the fund with the benchmark portfolio of the same risk. Normally, for the comparison of portfolios of mutual funds this ratio is applied and compared with market return. It shows the comparative risk and reward from the said portfolio. Alpha is the excess of actual return compared with expected return.

CHAPTER - 9	International Financial Management

Question 11:

Write a short note on Instruments of International Finance.

Solution:

INTERNATIONAL SOURCES OF FINANCE

Indian companies have been able to tap global markets to raise foreign currency funds by issuing various types of financial instruments which are discussed as follows:

Foreign Currency Convertible Bonds (FCCBs)

A type of convertible bond issued in a currency different than the issuer's domestic currency. In other words, the money being raised by the issuing company is in the form of a foreign currency. A convertible bond is a mix between a debt and equity instrument. It acts like a bond by making regular coupon and principal payments, but these bonds also give the bondholder the option to convert the bond into stock.

American Depository Receipts (ADRs)

Depository receipts issued by a company in the United States of America (USA) is known as American Depository Receipts (ADRs). Such receipts must be issued in accordance with the provisions stipulated by the Securities and Exchange Commission of USA (SEC) which are very stringent.

Global Depository Receipts (GDRs)

A depository receipt is basically a negotiable certificate, denominated in a currency not native to the issuer, that represents the company's publicly - traded local currency equity shares. Most GDRs are denominated in USD, while a few are denominated in Euro and Pound Sterling. The Depository Receipts issued in the US are called American Depository Receipts (ADRs), which anyway are denominated in USD and outside of USA, these are called GDRs In theory, though a depository receipt can also represent a debt instrument, in practice it rarely does.

Characteristics

i) Holders of GDRs participate in the economic benefits of being ordinary shareholders, though they do not have voting rights.
ii) GDRs are settled through CEDEL & Euro-clear international book entry systems.
iii) GDRs are listed on the Luxemburg stock exchange.
iv) Trading takes place between professional market makers on an OTC (over the counter) basis.
v) The instruments are freely traded.
vi) They are marketed globally without being confined to borders of any market or country as it can be traded in more than one currency.
vii) Investors earn fixed income by way of dividends which are paid in issuer currency converted into dollars by depository and paid to investors and hence exchange risk is with investor.
viii) As far as the case of liquidation of GDRs is concerned, an investor may get the GDR cancelled any time after a cooling period of 45 days. A non-resident holder of GDRs may ask the overseas bank (depository) to redeem (cancel) the GDRs. In that case overseas depository bank shall request the domestic custodians bank to cancel the GDR and to get the corresponding underlying shares released in favour of non-resident investor. The price of the ordinary shares of the issuing company prevailing in the Bombay Stock Exchange or the National Stock Exchange on the date of advice of redemption shall be taken as the cost of acquisition of the underlying ordinary share.

Euro-Convertible Bonds (ECBs)

A convertible bond is a debt instrument which gives the holders of the bond an option to convert the bond into a predetermined number of equity shares of the company. Usually, the price of the equity shares at the time of conversion will have a premium element. The bonds carry a fixed rate of interest. If the issuer company desires, the issue of such bonds may carry two options viz.

(i) **Call Options**: (Issuer's option) - where the terms of issue of the bonds contain a provision for call option, the issuer company has the option of calling (buying) the bonds for redemption before the date of maturity of the bonds. Where the issuer's share price has appreciated substantially, i.e. far in excess of the redemption value of the bonds, the issuer company can exercise the option. This call option forces the investors to convert the bonds into equity. Usually, such a case arises when the share prices reach a stage near 130% to 150% of the conversion price.

(ii) **Put options**: (Holder's option) - A provision of put option gives the holder of the bonds a right to put (sell)his bonds back to the issuer company at a pre-determined price and date. In case of Euro-convertible bonds, the payment of interest on and the redemption of the bonds will be made by the issuer company in US dollars.

Question 12:
What is the impact of GDRs on Indian Capital Market?

Solution:

Impact of GDRs on Indian Capital Market

Since the inception of GDRs a remarkable change in Indian capital market has been observed as follows:

(i) Indian stock market to some extent is shifting from Bombay to Luxemburg.
(ii) There is arbitrage possibility in GDR issues.
(iii) Indian stock market is no longer independent from the rest of the world. This puts additional strain on the investors as they now need to keep updated with world wide economic events.
(iv) Indian retail investors are completely sidelined. GDRs/Foreign Institutional Investors' placements + free pricing implies that retail investors can no longer expect to make easy money on heavily discounted rights/public issues.

As a result of introduction of GDRs a considerable foreign investment has flown into India.

Question 14(RTP/MTP/PP)
What do you mean by International Financial Centre (Gift City)? What are the benefits of IFC ?

Solution:

International Financial Centre (IFC) is the financial center that caters to the needs of the customers outside their own jurisdiction. Broadly, speaking IFC is a hub that deals with flow of funds, financial products and financial services even though in own land but with different set of regulations and laws.

Thus, these centers provide flexibility in currency trading, insurance, banking and other financial services. This flexible regime attracts foreign investors which is of potential benefit not only to the stakeholders but as well as for the country hosting IFC itself.

There are numberless direct and indirect benefits of setting up IFC but some major benefits emanating from establishing IFC are as follows:

(i) Opportunity for qualified professionals working outside India come here and practice their profession.
(ii) A platform for qualified and talented professionals to pursue global opportunities without leaving their homeland.
(iii) Stops Brain Drain from India.
(iv) Bringing back those financial services transactions presently carried out abroad by overseas financial institutions/entities or branches or subsidiaries of Indian Financial Market.
(v) Trading of complicated financial derivative can sbe started from India.

CHAPTER - 10	Startup Finance

Question 17
Peer—to—Peer Lending and Crowd funding are same and traditional methods of funding. Do you agree? Justify your stand.

Solution

No, I do not agree with the given statement because while peer-to-peer lending is in existence for many years the crowd funding is contemporary source of finance for Startup finance.

Further in peer-to-peer lending a group of people come together and lend money to each other. Many small and ethnic business groups having similar faith or interest generally support each other in their start up endeavors.

On the other hand, Crowdfunding is the use of small amounts of capital from a large number of individuals to finance a new business initiative. Crowdfunding makes use of the easy accessibility of vast networks of people through social media and crowdfunding websites to bring investors and entrepreneurs together.

Question 18

What do you mean by the term Unicorn? State the features a Start-up should possess to be referred as a Unicorn?

OR

Explain the concept of Unicorn.

Solution

A Unicorn is a privately held start-up company which has achieved a valuation US$ 1 billion. This term was coined by venture capitalist Aileen Lee, first time in 2013. Unicorn, a mythical animal represents the statistical rarity of successful ventures.

A start-up is referred as a Unicorn if it has following features:

(i) A privately held start-up.

(ii) Valuation of start-up reaches US$ 1 Billion.

(iii) Emphasis is on the rarity of success of such start-up.

(iv) Other common features are new ideas, disruptive innovation, consumer focus, high on technology etc.

However, it is important to note that in case the valuation of any start-up slips below US$ 1 billion it can lose its status of 'Unicorn'. Hence a start-up may be Unicorn at one point of time and may not be at another point of time.

In September 2011, InMobi, an ad-tech startup, became the first Unicorn of India. SoftBank invested US$ 200 million in InMobi valuing the mobile advertising company at over US$ 1 billion, making it India's first unicorn. InMobi was founded in 2007 and took four years to achieve the Unicorn status in 2011 In 2018, Udaan, a B2B e-commerce marketplace, became the fastest growing startup by becoming a Unicorn in just over two years' time.

Question 19

Why is there a need for succession planning in business? Explain.

Solution

Need for succession planning in business is explained below: -

- Risk mitigation – If existing leader quits, then searches can take six-nine months for suitable candidate to close. Keeping an organization without leader can invite disruption, uncertainty, conflict and endangers future competitiveness.
- Cause removal – If the existing leader is culpable of gross negligence, fraud, willful misconduct, or material breach while discharging duties and has been barred from undertaking further activities by court, arbitral tribunal, management, stakeholders or

any other agency.

- ❖ Talent pipeline – Succession planning keep employees motivated and determined as it can help them obtaining more visibility around career paths expected, which would help in retaining the knowledge bank created by company over a period of time and leverage upon the same.
- ❖ Conflict Resolution Mechanism – This planning is very helpful in promoting open and transparent communication and settlement of conflicts.

Aligning – In family owned business succession planning helps to align with the culture, vision, direction and values of the business.

Question 20

Briefly explain Blockchain transaction. List the risks associated with Blockchain.

Solution

Blockchain, sometimes referred to as Distributed Ledger Technology (DLT) is a shared, peer-to-peer, and decentralized open ledger of transactions system with no trusted third parties in between. This ledger database has every entry as permanent as it is an append-only database which cannot be changed or altered. All transactions are fully irreversible with any change in the transaction being recorded as a new transaction.

Some of the risk associated with the use blockchain technology are as follows:

- **(i)** With the use of blockchain, organizations need to consider risks with a wider perspective as different members of a particular blockchain may have different risk appetite/risk tolerances that may further lead to conflict when monitoring controls are designed for a blockchain. There may be questions about who is responsible for managing risks if no one party is in-charge, and how proper accountability is to be achieved in a blockchain.
- **(ii)** The reliability of financial transactions is dependent on the underlying technology and if this underlying consensus mechanism has been tampered with, it could render the financial information stored in the ledger to be inaccurate and unreliable.
- **(iii)** In the absence of any central authority to administer and enforce protocol amendments, there could be a challenge in the development and maintenance of process control activities and in such case, users of public blockchains find difficult to obtain an understanding of the general IT controls implemented and the effectiveness of these controls.
- **(iv)** As blockchain involves humongous data getting updated frequently, risk related to information overload could potentially challenge the level of monitoring required. Furthermore, to find competent people to design and perform effective monitoring controls may again prove to be difficult.

Question 21

Explain Venture Capital Method of valuing Startups.

Solution

As the name suggests, venture capital firms have made this famous. Such investors seek a return equal to some multiple of their initial investment or will strive to achieve a specific internal rate of return based on the level of risk they perceive in the venture.

The method incorporates this understanding and uses the relevant time frame in discounting a future value attributable to the firm.
The post-money value is calculated by discounting the rate representing an investor's expected or required rate of return.
The investor seeks a return based on some multiple of their initial investment. For example, the investor may seek a return of 10x, 20x, 30x, etc., their original investment at the time of exit.
New-age startups are disruptors in their own right and a necessary tool for global innovation and progress. By their very nature, startups disrupt set processes and industries to add value. In that process, they transcend traditional indicators of success like revenues, profitability, asset size, etc. Accordingly, it is no mean feat to uncover the actual value of a startup.
While the traditional methods fall short, there is no shortage of new innovative methods used to value startups based on their value drivers. However, the valuation of a startup is much more than the application of ways – it is about understanding the story of the future trajectory and communicating that narrative using substantial numbers.

Question 22
Explain the various areas where Blockchain can be applied.

Solution
Some of the areas where the Blockchain can be applied are as follows:

(i) **Financial Services**: Blockchain can be used to provide an automated trade lifecycle in terms of the transaction log of any transaction of asset or property - whether physical or digital such as laptops, smartphones, automobiles, real estate, etc. from one person to another.

(ii) **Healthcare**: Blockchain provides secure sharing of data in healthcare industry by increasing the privacy, security, and interoperability of the data by eliminating the interference of third party and avoiding the overhead costs.

(iii) **Government**: At the government front, there are instances where the technical decentralization is necessary but politically should be governed by governments like land registration, vehicle registration and management, e-voting etc. Blockchain improves the transparency and provides a better way to monitor and audit the transactions in these systems.

(iv) **Travel Industry**: Blockchain can be applied in money transactions and in storing important documents like passports/other identification cards, reservations and managing travel insurance, loyalty, and rewards thus, changing the working of travel and hospitality industry.

(v) **Economic Forecasts**: Blockchain makes possible the financial and economic forecasts based on decentralized prediction markets, decentralized voting, and stock trading, thus enabling the organizations to plan and shape their businesses.

Question 23
Succession planning is a good way for companies to ensure that businesses are fully prepared to promote and advance all employees— not just those who are at the management or executive levels. Explain the above statement.

Solution

Succession planning is the process of identifying the critical positions within an organization and developing action plans for individuals to assume those positions. A succession plan identifies future need of people with the skills and potential to perform leadership roles.

Taking a holistic view of current and future goals, this type of preparation ensures that the right people are available for the right jobs today and in the years to come. It can also provide a liquidity event, which enables the transfer of ownership in a going concern to rising employees.

Need for succession planning can be explained below:

- **Risk mitigation** – If existing leader quits, then searches can take six-nine months for suitable candidate to close. Keeping an organization without leader can invite disruption, uncertainty, conflict and endangers future competitiveness.
- **Cause removal** – If the existing leader is culpable of gross negligence, fraud, wilful misconduct, or material breach while discharging duties and has been barred from undertaking further activities by court, arbitral tribunal, management, stakeholders or any other agency
- **Talent pipeline** – Succession planning keep employees motivated and determined as it can help them obtaining more visibility around career paths expected, which would help in retaining the knowledge bank created by company over a period of time and leverage upon the same.
- **Conflict Resolution Mechanism** – This planning is very helpful in promoting open and transparent communication and settlement of conflicts
- **Aligning** – In family owned business succession planning helps to align with the culture, vision, direction and values of the business.

Question 24

In the current scenario of globalization and growth in information and communication technologies etc. the responsibilities of CFOs have been drastically expanded. Explain.

Solution

Traditionally, the main role of CFO was concentrated to wealth maximisation for shareholders by taking care of financial health of an organization and overseeing and implementing adequate financial controls.

However, in recent time because of globalization, growth in information and communications, pandemic situation etc. their range of responsibilities has been drastically expanded, driven by complexity, and changing expectations.

Now a days in addition to fulfilling traditional role relating to governance, compliances and controls, and business ethics as a part of the leadership of role CFOs are also expected to contribute their support in strategic and operational decision making.

In post-pandemic time their role has been advanced in the following areas in addition to traditional role:

(a) **Risk Management**: Now a days the CFOs are expected to look after the overall functioning of the framework of Risk Management system of an organisation.

(b) **Supply Chain**: Post pandemic supply chain management system has been posing the challenge for the company to maintain the sustainable growth. Since CFOs are care takers of finance of the company, considering the financial viability of the Supply Chain

Management their role has now become more critical.

(c) **Mergers, acquisitions, and Corporate Restructuring**: Since in recent period to maintain the growth and capture the market share there has been a spate of Mergers and Acquisitions and hence the role of CFOs has become more crucial because these are strategic decision and any error in them can lead to collapse of the whole business.

(d) **Environmental, Social and Governance (ESG) Financing**: With the evolving of the concept of ESG their role has been shifted from traditional financing to sustainability financing.

Thus, from above discussion it can be concluded that in today's time CFOs are taking a leadership role in Value Creation for the organisation and that too on sustainable basis for a longer period.

Question 25

"A Limited Partnership Entity, in India, is not recognized for the purpose of Venture Capital Fund." Do you agree? Briefly explain the structure of Venture Capital Fund in India.

Solution:

Yes, agree with the statement.

Three main types of fund structure exist: one for domestic funds and two for offshore ones:

(a) **Domestic Funds**: Domestic Funds (i.e. one which raises funds domestically) are usually structured as:

(i) A domestic vehicle for the pooling of funds from the investor, and

(ii) A separate investment adviser that carries those duties of asset manager.

The choice of entity for the pooling vehicle falls between a trust and a company, (India, unlike most developed countries does not recognize a limited partnership), with the trust form prevailing due to its operational flexibility.

(b) **Offshore Funds**: Two common alternatives available to offshore investors are: the "offshore structure" and the "unified structure".

Offshore structure

Under this structure, an investment vehicle (an LLC or an LP organized in a jurisdiction outside India) makes investments directly into Indian portfolio companies. Typically, the assets are managed by an offshore manager, while the investment advisor in India carries out the due diligence and identifies deals.

Unified Structure

When domestic investors are expected to participate in the fund, a unified structure is used. Overseas investors pool their assets in an offshore vehicle that invests in a locally managed trust, whereas domestic investors directly contribute to the trust. This is later device used to make the local portfolio investments.

Question 26

In a rational, well ordered and efficient market, technical analysis may not work very well". Is it true? List out the reasons for this statement regarding Technical Analysis.

OR

"In Deal Structuring, in many structures to facilitate the exit, the Venture Capital may put a tag-along clause". What do you mean by that clause? Explain Deal Structuring and Exit Plan to Venture Capital Investment Process.

Solution:

The reasons for the statement "In a rational, well ordered and efficient market, technical analysis may not work very well" are as follows:

(i) Most technical analysts are not able to offer a convincing explanation for the tools employed by them.

(ii) Empirical evidence in support of random walk hypothesis cast its shadow over the usefulness of technical analysis.

(iii) By the time an uptrend and down trend may have been signalled by technical analysis it may already have taken place.

(iv) Ultimately technical analysis must be a self-defeating proposition. With more and more people employing it, the value of such analysis tends to decline.

OR

Tag-alone clause means VC is put by condition that promoter must sell a part of his/ her stake along with the VC.

Deal Structuring: Once the case passes through the due diligence it would now go through the deal structuring. The deal is structured in such a way that both parties win. In many cases, the convertible structure is brought in to ensure that the promoter retains the right to buy back the share.

Exit plan: At the time of investing, the VC would ask the promoter or company to spell out in detail the exit plan. Mainly, exit happens in two ways:

(a) One way is 'sell to third party(ies)'. This sale can be in the form of IPO or Private Placement to other VCs.

(b) The second way to exit is that promoter would give a buy back commitment at a pre agreed rate (generally between IRR of 18% to 25%). In case the exit is not happening in the form of IPO or third-party sell, the promoter would buy back. In many deals, the promoter buyback is the first refusal method adopted i.e. the promoter would get the first right of buyback.

Question 27

What do you mean by International Financial Centre (Gift City)? What are the benefits of IFC?

Solution:

International Financial Centre (IFC) is the financial center that caters to the needs of the customers outside their own jurisdiction. Broadly, speaking IFC is a hub that deals with flow of funds, financial products and financial services even though in own land but with different set of regulations and laws.

Thus, these centers provide flexibility in currency trading, insurance, banking and other financial services. This flexible regime attracts foreign investors which is of potential benefit not only to the stakeholders but as well as for the country hosting IFC itself.

There are numberless direct and indirect benefits of setting up IFC but some major benefits emanating from establishing IFC are as follows:

(i) Opportunity for qualified professionals working outside India come here and practice their profession.

(ii) A platform for qualified and talented professionals to pursue global opportunities without leaving their homeland.
(iii) Stops Brain Drain from India.
(iv) Bringing back those financial services transactions presently carried out abroad by overseas financial institutions/entities or branches or subsidiaries of Indian Financial Market.
(v) Trading of complicated financial derivative can be started from India.

Question 28
Reconcile differences between Carve-out and Spin Off.

Solution:
Equity Curve out can be defined as partial spin off in which a company creates its own new subsidiary and subsequently bring out its IPO. It should be however noted that parent company retains its control and only a part of new shares are issued to public.

On the other hand in Spin off parent company does not receive any cash as shares of subsidiary company are issued to existing shareholder in the form of dividend. Thus, shareholders in new company remain the same but not in case of Equity curve out.

Question 29
Write a short note on Venture Capital Fund.

Solution
Venture Capital Fund means investment vehicle that manage funds of investors seeking to invest in startup firms and small businesses with exceptional growth potential. Venture capital is money provided by professionals who alongside management invest in young, rapidly growing companies that have the potential to develop into significant economic contributors.

Venture Capitalists generally

- Finance new and rapidly growing companies
- Purchase equity securities
- Assist in the development of new products or services
- Add value to the company through active participation.

CHAPTER - 11	Securitisation

Question 16
Different participants are required for the success of the securitisation process. Discuss their roles.

Solution
Role of various participants in the process of securitization is as follows:

a) **Originator**: It is the initiator of deal or can be termed as securitizer. It is an entity which sells the assets lying in its books and receives the funds generated through the sale of such assets.
b) **Special Purpose Vehicle**: Since issuer originator transfers all rights in assets to SPV, it holds the legal title of these assets. It is created especially for the purpose of securitization only and normally could be in form of a company, a firm, a society or a trust.

c) **The Investors:** Investors are the buyers of securitized papers which may be an individual, an institutional investor such as mutual funds, provident funds, insurance companies, mutual funds, Financial Institutions etc.
d) **Obligors:** The amount due from the obligor is transferred to SPV and hence they form the basis of securitization process and their credit standing is of paramount importance in the whole process.
e) **Rating Agency:** Since the securitization is based on the pools of assets rather than the originators, the assets have to be assessed in terms of its credit quality and credit support available.
f) **Receiving and Paying agent (RPA):** Also, called Servicer or Administrator, it collects the payment due from obligor(s) and passes it to SPV. It also follow up with defaulting borrower and if required initiate appropriate legal action against them. Generally, an originator or its affiliates acts as servicer.
g) **Agent or Trustee**: Trustees are appointed to oversee that all parties to the deal perform in the true spirit of terms of agreement. Normally, it takes care of interest of investors who acquires the securities.
h) **Credit Enhancer**: Since investors in securitized instruments are directly exposed to performance of the underlying and sometime may have limited or no recourse to the originator, they seek additional comfort in the form of credit enhancement.
i) **Structurer:** It brings together the originator, investors, credit enhancers and other parties to the deal of securitization. Normally, these are investment bankers also called arranger of the deal. It ensures that deal meets all legal, regulatory, accounting and tax laws requirements.

Question 17

"Securitisation is beneficial from the angle of various parties involved in it". Explain.

Solution

The benefits of securitization can be viewed from the angle of various parties involved as follows:

1. **From the angle of originator**

   Originator (entity which sells assets collectively to Special Purpose Vehicle) achieves the following benefits from securitization.

   i. Off — Balance Sheet Financing: When loan/receivables are securitized it releases a portion of capital tied up in these assets resulting in off Balance Sheet financing leading to improved liquidity position which helps in expanding the business of the company.
   ii. More specialization in main business: By transferring the assets the entity could concentrate more on core business as servicing of loan is transferred to SPV. Further, in case of non - recourse arrangement even the burden of default is shifted.
   iii. Helps to improve financial ratios: Especially in case of Financial Institutions and Banks, it helps to manage Capital —To-Weighted Asset Ratio effectively.
   iv. Reduced borrowing Cost: Since securitized papers are rated due to credit enhancement even they can also be issued at reduced rate as of debts and hence the originator earns a spread, resulting in reduced cost of borrowings.

2. **From the angle of investor**

   Following benefits accrues to the investors of securitized securities.

   i. Diversification of Risk: Purchase of securities backed by different types of assets provides the diversification of portfolio resulting in reduction of risk.
   ii. Regulatory requirement: Acquisition of asset backed belonging to a particular industry say micro industry helps banks to meet regulatory requirement of investment of fund in industry specific.
   iii. Protection against default: In case of recourse arrangement if there is any default by any third party then originator shall make good the least amount. Moreover, there can be insurance arrangement for compensation for any such default.

Question 18

Explain the various features of Securitization.

Solution

The securitization has the following features:

i. Creation of Financial Instruments – The process of securities can be viewed as process of creation of additional financial product of securities in market backed by collaterals.
ii. Bundling and Unbundling – When all the assets are combined in one pool it is bundling and when these are broken into instruments of fixed denomination it is unbundling.
iii. Tool of Risk Management – In case of assets are securitized on non-recourse basis, then securitization process acts as risk management as the risk of default is shifted.
iv. Structured Finance – In the process of securitization, financial instruments are tailor structured to meet the risk return trade of profile of investor, and hence, these securitized instruments are considered as best examples of structured finance.
v. Trenching – Portfolio of different receivable or loan or asset are split into several parts based on risk and return they carry called 'Tranche'. Each Trench carries a different level of risk and return.
vi. Homogeneity – Under each tranche the securities issued are of homogenous nature and even meant for small investors who can afford to invest in small amounts.

Question 19

Explain various benefits that accrues to an investor by investing money in the Securitized Instruments.

Solution

Following benefits accrues to an investor of securitized securities.

i. Diversification of Risk: Purchase of securities backed by different types of assets provides the diversification of portfolio resulting in reduction of risk.
ii. Regulatory requirement: Acquisition of asset backed belonging to a particular industry say micro industry helps banks to meet regulatory requirement of investment of fund in industry specific.
iii. Protection against default: In case of recourse arrangement if there is any default by any third party then originator shall make good the least amount. Moreover, there can be insurance arrangement for compensation for any such default.

Question 20
Tokenization to some extent resembles the process of Securitization. Explain the term "Tokenization " and also illustrate the similarities between Tokenization and Securitization.

OR

While in securitization the securities issued by SPV are backed by the loans and receivables the CDOs are backed by pool of bonds, asset backed securities, REITs, and other CDOs. Describe the main types of risk associated with investment in CDOs.

Solution
Tokenization is a process of converting tangible and intangible assets into blockchain tokens. Digitally representing anything has recently acquired a lot of traction. It can be effective in conventional industries like real estate, artwork etc.

Tokenization and Securitization

Since tokenization of illiquid assets attempts to convert illiquid assets into a product that is liquid and tradable and hence to some extent it resembles the process of Securitization. Hence, following are some similarities between Tokenization and Securitization:

i. **Liquidity**: - First and foremost both Securitization and Tokenization inject liquidity in the market for the assets which are otherwise illiquid assets.
ii. **Diversification**: - Both help investors to diversify their portfolio thus managing risk and optimizing returns.
iii. **Trading**: - Both are tradable hence helps to generate wealth.
iv. **New Opportunities**: - Both provide opportunities for financial institutions and related agencies to earn income through collection of fees.

Or

The main types of risk associated with investment in CDOs are as follows:

i. **Default Risk**: - Also called 'credit risk', it emanates from the default of underlying party to the instruments. The prime sufferers of these types of risks are equity or junior tranche in the waterfall.
ii. **Interest Rate Risk**: - Also called Basis risk and mainly arises due to different basis of interest rates. For example, asset may be based on floating interest rate but the liability may be based on fixed interest rates. Though this type of risk is quite difficult to manage fully but commonly used techniques such as swaps, caps, floors, collars etc. can be used to mitigate the interest rate risk.
iii. **Liquidity Risk**: - Another major type of risk by which CDOs are affected is liquidity risks as there may be mismatch in coupon receipts and payments.
iv. **Prepayment Risk**: - This risk results from unscheduled or unexpected repayment of principal amount underlying the security. Generally, this risk arises in case assets are subject to fixed rate of interest and the debtors have a call option. Since, in case of falling interest rates they may pay back the money.
v. **Reinvestment Risk:** - This risk is generic in nature as the CDO manager may not find adequate opportunity to reinvest the proceeds when allowed for substitutions.
vi. **Foreign Exchange Risk**: - Sometimes CDOs are comprised of debts and loans from countries other than the country of issue. In such a case, in addition to above mentioned risks, CDOs are also subject to the foreign exchange rate risk.

Question 21
Although rating agency is secondary to the process of securitization but it plays a vital role. Explain.

Solution
Yes, this statement is correct since the securitization is based on the pools of assets rather than the originators, the assets must be assessed in terms of its credit quality and credit support available. Rating agency assesses the following:

- Strength of the Cash Flow.
- Mechanism to ensure timely payment of interest and principle repayment.
- Credit quality of obligors.
- Liquidity support.
- Strength of legal framework.

Question 22
'Pay through securities' are in the nature of participation certificates that enable the investors to take a direct exposure on the performance of the securitized assets. 'Pass Through Certificates', on the other hand, gives investors only a charge against the securitized assets. Do you agree with the statement? Justify your stand.

Solution
Not agreed with the statement.
In Pass Through Certificate originator (seller of the assets) transfers the entire receipt of cash in the form of interest or principal repayment from the assets sold. Thus, these securities represent direct claim of the investors on all the assets that has been securitized through SPV.
Since all cash flows are transferred the investors carry proportional beneficial interest in the asset held in the trust by SPV.

It should be noted that since it is a direct route any prepayment of principal is also proportionately distributed among the securities holders.

In contrast to Pass Through Certificate in Pay Through Security, SPV debt securities are backed by the assets and hence it can restructure different tranches from varying maturities of receivables. In other words, this structure permits de-synchronization of servicing of securities issued from cash flow generating from the asset. Further, this structure also permits the SPV to reinvest surplus funds for short term as per their requirement.

Question 23
"Lack of existence of a well-developed debt market in India, is an obstacle that hinders the growth of the Secondary Market of securitized or asset backed Securities". Is it true? What are the other problems in Securitization Process? (Any three).

Solution
Yes.
Following are main problems faced in growth of Securitization of instruments especially in Indian context:

(1) Stamp Duty: Stamp Duty is one of the obstacle in India. Under Transfer of Property Act, 1882, a mortgage debt stamp duty which even goes upto 12% in some states of India and

hence impedes the growth of securitization in India. It should be noted that since pass through certificate does not evidence any debt only able to receivable, they are exempted from stamp duty.

Moreover, in India, recognizing the special nature of securitized instruments in some states has reduced the stamp duty on them.

(2) Taxation: Taxation is another area of concern in India. In the absence of any specific provision relating to securitized instruments in Income Tax Act, experts' opinion differ a lot. Some are of the opinion that SPV as a trustee is liable to be taxed in a representative capacity whereas others are of view that instead of SPV, investors will be taxed on their share of income. Clarity is also required on the issues of capital gain implications on passing payments to the investors.

(3) Accounting: Accounting and reporting of securitized assets in the books of originator is another area of concern. Although securitization is slated to be an off-balance sheet instrument but in true sense receivables are removed from originator's balance sheet. Problem arises especially when assets are transferred without recourse.

(4) Lack of standardization: Every originator follows his own format for documentation and administration and hence lack of standardization is another obstacle in the growth of securitization.

(5) Ineffective Foreclosure laws: For many years efforts are on for effective foreclosure but still foreclosure laws are not supportive to lending institutions and this makes securitized instruments especially mortgaged backed securities less attractive as lenders face difficulty in transfer of property in event of default by the borrower.

Note: Students need to mention any three points.

Question 24

"Tokenization, to some extent resembles the process of Securitization." Is it True? What are the similarities of Tokenization and Securitization?

Solution

Yes, to some extent Tokenization resembles the process of Securitization as it is a process of converting tangible and intangible assets into blockchain tokens. Digitally representing anything has recently acquired a lot of traction. It can be effective in conventional industries like real estate, artwork etc.

Following are some similarities between Tokenization and Securitization:

i. **Liquidity**: First and foremost both Securitization and Tokenization inject liquidity in the market for the assets which are otherwise illiquid assets.

ii. **Diversification:** Both help investors to diversify their portfolio thus managing risk and optimizing returns.

iii. **Trading**: Both are tradable hence helps to generate wealth.

iv. **New Opportunities**: Both provide opportunities for financial institutions and related agencies to earn income through collection of fees.

CHAPTER - 12	Risk Management

Question 15
Describe the main features of Value-at-Risk (VAR).

Solution:
Following are main features of VAR:
(i) Components of Calculations: VAR calculation is based on following three components:
  a) Time Period
  b) Confidence Level — Generally 95% and 99%
  c) Loss in percentage or in amounts
(ii) Statistical Method: It is a type of statistical tool based on Standard Deviation.
(iii) Time Horizon: VAR can be applied for different time horizons say one day, one week, one month and so on.
(iv) Probability: Assuming the values are normally attributed, probability of maximum loss can be predicted.
(v) Risk Control: Risk can be controlled by setting limits for maximum loss.
(vi) Z Score: Z Score indicates how many Standard Deviations is away from Mean value of a population. When it is multiplied with Standard Deviation it provides VAR.

Question 16
What are the applications of Value At Risk (VAR) ?

Solution
VAR can be applied
a. to measure the maximum possible loss on any portfolio or a trading position.
b. as a benchmark for performance measurement of any operation or trading.
c. to fix limits for individuals dealing in front office of a treasury department.
d. to enable the management to decide the trading strategies.
e. as a tool for Asset and Liability Management especially in banks.

CHAPTER - 13	Security Analysis

Question 17 (PP Nov'23)
In a rational, well ordered and efficient market, technical analysis may not work very well". Is it true? List out the reasons for this statement regarding Technical Analysis.
OR
"In Deal Structuring, in many structures to facilitate the exit, the Venture Capital may put a tag-along clause". What do you mean by that clause? Explain Deal Structuring and Exit Plan to Venture Capital Investment Process.

Solution:
The reasons for the statement "In a rational, well ordered and efficient market, technical analysis may not work very well" are as follows:
(i) Most technical analysts are not able to offer a convincing explanation for the tools employed by them.

(ii) Empirical evidence in support of random walk hypothesis cast its shadow over the usefulness of technical analysis.
(iii) By the time an uptrend and down trend may have been signalled by technical analysis it may already have taken place.
(iv) Ultimately technical analysis must be a self-defeating proposition. With more and more people employing it, the value of such analysis tends to decline.

OR

Tag-alone clause means VC is put by condition that promoter must sell a part of his/ her stake along with the VC.

Deal Structuring: Once the case passes through the due diligence it would now go through the deal structuring. The deal is structured in such a way that both parties win. In many cases, the convertible structure is brought in to ensure that the promoter retains the right to buy back the share.

Exit plan: At the time of investing, the VC would ask the promoter or company to spell out in detail the exit plan. Mainly, exit happens in two ways:
(a) One way is 'sell to third party(ies)'. This sale can be in the form of IPO or Private Placement to other VCs.
(b) The second way to exit is that promoter would give a buy back commitment at a pre agreed rate (generally between IRR of 18% to 25%). In case the exit is not happening in the form of IPO or third-party sell, the promoter would buy back. In many deals, the promoter buyback is the first refusal method adopted i.e. the promoter would get the first right of buyback.

Question 18 (MTP April'21)
The idea of Quant Fund is stock-picking free from human intervention. Discuss.

Solution:
The given statement is true to a certain extent in reference to Mutual Funds where the concept of Quant Fund is becoming popular day by day.
Quant Fund follows a data-driven approach for stock selection or investment decisions based on a pre-determined rules or parameters using statistics or mathematics based models. Contrary to an active fund Manager who selects the quantum and timing of investments i.e. entry or exit, this fund completely rely on an automated programme for making decision for quantum of investment as well as its timings.
It does not mean that there is no human intervention at all, the Fund Manager usually focuses on the robustness of the Models in use and also monitors their performance or some modification is required.
Sometime a Quant Fund manager is confused with Index Fund Manager but it is not so as the Index Fund Manager may entirely hands off the investment decision purely based on Index, while Quant Fund Manager often designs and monitors models that throw up the choices.
The main advantage of Quant Fund is that it eliminates the human biasness and subjectivity.
Further using model based approach also ensures consistency in strategy across the market conditions.
Also since the Quant Fund normally follows passive strategy, the exposure ratio tends to be lower.

Since Quant Fund uses highly sophisticated strategies investors who well understand Stock Valuation methods, different stock picking styles, the market sentiments and derivatives etc. should invest in the same. Further since Quant Fund are tested on the basis of historical data and past trends though cannot altogether be ignore but also cannot be used blindly as good indicators.

Thus, overall it can be said that whether it is human or a machine it is not easy to beat the market.

Question 19(PP Dec'21)

Describe briefly on which principles Technical Analysis is based.

Solution:

Technical analysis is based on the following three principals:

(1) **The Market Discounts Everything**: Although many experts criticize technical analysis because it only considers price movements and ignores fundamental factors but the Efficient Market Hypothesis (discussed later in detail) contradicts it according to which a company's share price already reflects everything that has or could affect a company and it includes fundamental factors. So, technical analysts generally have the view that a company's share price includes everything including the fundamentals of a company.

(2) **Price Moves in Trends**: Technical analysts believe that prices move in trends. In other words, a stock price is more likely to continue a past trend than move in a different direction.

(3) **History Tends to Repeat Itself**: Technical analysts believe that history tends to repeat itself. Technical analysis uses chart patterns to analyze subsequent market movements to understand trends. While many form of technical analysis have been used for many years, they are still considered to be significant because they illustrate patterns in price movements that often repeat themselves.

CHAPTER - 14	Financial Policy and Corporate Strategy

Question 11

Explain the various requirements that makes an organisation sustainable.

Solution

In order to be sustainable, an organisation must:

- have a clear strategic direction;
- be able to scan its environment or context to identify opportunities for its work;
- be able to attract, manage and retain competent staff;
- have an adequate administrative and financial infrastructure;
- be able to demonstrate its effectiveness and impact in order to leverage further resources; and
- get community support for, and involvement in its work.

Question 13

Describe the main function of corporate level strategy and state which three basic questions it should be able to answer.

Solution:

Corporate level strategy fundamentally is concerned with selection of businesses in which a company should compete and with the development and coordination of that portfolio of businesses.

Corporate level strategy should be able to answer three basic questions:

(i) **Suitability:** Whether the strategy would work for the accomplishment of common objective of the company.

(ii) **Feasibility:** Determines the kind and number of resources required to formulate and implement the strategy.

(iii) **Acceptability:** It is concerned with the stakeholders' satisfaction and can be financial and non-financial.

Question 14

"The starting point of an organisation is money and the end point of that organization is also money". Explain the statement to clearly understand this interface of strategic management and financial policy.

Solution:

No organization can run an existing business and promote a new expansion project without a suitable internally mobilized financial base or both i.e. internally and externally mobilized financial base.

Sources of finance and capital structure are the most important dimensions of a strategic plan. The need for fund mobilization to support the expansion activity of firm is very vital for any organization. The generation of funds may arise out of ownership capital and or borrowed capital.

Along with the mobilization of funds, policy makers should decide on the capital structure to indicate the desired mix of equity capital and debt capital.

Another important dimension of strategic management and financial policy interface is the investment and fund allocation decisions. A planner has to frame policies for regulating investments in fixed assets and for restraining of current assets. In fact, project evaluation and project selection are the two most important jobs under fund allocation. Planner's task is to make the best possible allocation under resource constraints.

Dividend policy is yet another area for making financial policy decisions affecting the strategic performance of the company. A close interface is needed to frame the policy to be beneficial for all. Dividend policy decision deals with the extent of earnings to be distributed as dividend and the extent of earnings to be retained for future expansion scheme of the firm. Stability of the dividend payment is a desirable consideration that can have a positive impact on share prices.

Thus, the financial policy of a company cannot be worked out in isolation of other functional policies. It has a wider appeal and closer link with the overall organizational performance and direction of growth. These policies being related to external awareness about the firm, especially the awareness of the investors about the firm, in respect of its internal performance. There is always a process of evaluation active in the minds of the current and future stake holders of the company.

Question 16

Explain how Cash flow-based approach of valuation is different from Income based approach and also explain briefly the steps involved in this approach.

Solution:

As opposed to the asset based and income based approaches, the cash flow approach takes into account the quantum of free cash that is available in future periods, and discounting the same appropriately to match to the flow's risk.

Simply speaking, if the present value arrived post application of the discount rate is more than the current cost of investment, the valuation of the enterprise is attractive to both stakeholders as well as externally interested parties (like stock analysts). It attempts to overcome the problem of over-reliance on historical data.

There are essentially five steps in performing DCF based valuation:

(i) Arriving at the 'Free Cash Flows'
(ii) Forecasting of future cash flows (also called projected future cash flows)
(iii) Determining the discount rate based on the cost of capital
(iv) Finding out the Terminal Value (TV) of the enterprise
(v) Finding out the present values of both the free cash flows and the TV, and interpretation of the results.

Question 17

Explain the term Business Model with help of an example.

Solution:

The term business model is a wide term denoting core aspects of a business including purpose, business process, target customers, offerings, strategies, infrastructure, organizational structures, sourcing, trading practices, and operational processes and policies inc luding culture.

Further, as per Investopedia, a business model is the way in which a company generates revenue and makes a profit from company operations. Analysts use the term gross profit as a way to compare the efficiency and effectiveness of a firm's business model. Gross profit is calculated by subtracting the cost of goods sold from revenues.

A business model can be illustrated with the help of an example. There are two companies company A and company B. Both the companies are engaged in the business of renting movies. Prior to the advent of internet both the companies rent movies physically. Both the companies made Rs. 5 crore as revenues. Cost of goods sold was Rs. 400000. So, the companies made Rs. 100000 as gross profit. After the introduction of internet, company A started to offer movies online instead of renting or selling it physically. This change affected the business model of company A positively. Revenue is still Rs. 500000. But the significant part is that cost of goods sold is now Rs. 200000 only. This is because online sales lead to significant reduction of storage and distribution costs. So, the gross profit increases from 20% to 60%.

Therefore, Company A isn't making more in sales, but it figured out a way to revolutionize its business model, which greatly reduces costs. Managers at company A have an additional 40% more in margin to play with than managers at company A. Managers at company A have little room for error and they have to tread carefully.

Hence, every investor wants to get his money back, so it's important to tell them in a pitch presentation as to how they should plan on generating revenue. It is better to show the investors a list of the various revenue streams for a business model and the timeline for each of them. Further, how to price the product and what does the competitor charge for the same or similar product shall also be highlighted. It is also beneficial to discuss the lifetime value of the customer and what should be the strategy to keep him glued to their product.

Question 18
"Market Vale Added is an attempt to resolve some of the issues involved in Economic Value Added". Explain this statement.

Solution:
To some extent it can be said that MVA is an attempt to resolve some of the issues involved in EVA e.g. ignoring Value Drivers, Book Value etc. Though MVA itself does not give any basis of share valuation but an alternative way to gauge performance efficiencies of an enterprise, albeit from a market capitalization point of view, the logic being that the market will discount the efforts taken by the management fairly. Hence, the MVA can be perceived as true value added by the market. In contrast, EVA is a derived value added that is for the more discerning investor.
Since MVA represents market views regarding company's future value generation companies with a higher MVA will naturally become the darlings of the share market and would eventually become 'pricey' from a pure pricing perspective. In such cases, the EVA may also sometimes have a slightly negative correlation as compared to MVA. But this will be a short term phenomenon as eventually the gap will get closed by investors themselves. A stock going ex-dividend will exhibit such propensities.
Thus we can conclude that the main objective of EVA is thus to show management efficiency in generating returns over and above the hurdle rate of invested capital.

Question 19
Relative Valuation approach is a significant departure from Intrinsic Value approach. Explain

Solution:
To some extent this statement is correct as in practical implementation of fair value within the valuation context it would be better to identify assets that are similar to the ones held by the acquiree company so that the values can be compared. Trying to get a value that would be the nearest to the market price would mean that the valuation of a particular portfolio, or a divestiture in an entity, would happen at an agreeable price that fits into the normal distribution.
In one sense, we are indeed using the relative valuation in a limited approach when we speak about expected market returns, or when we are adopting an index-based comparative. The more the asset pricing gets correlated to the similar assets in the market, the more inclusive it gets. Thus, when we are comparing bonds, the closer the YTM of the bond to the government index of return, the more credible it gets when it comes to pricing.
The Relative valuation, also referred to as 'Valuation by multiples,' uses financial ratios to derive at the desired metric (referred to as the 'multiple') and then compares the same to that of comparable firms. Comparable firms would mean the ones having similar asset and risk dispositions and assumed to continue to do so over the comparison period. In the process, there may be extrapolations set to the desired range to achieve the target set.

Question 23
EXPLAIN various Asset Allocation Strategies.

Solution:
There are four asset allocation strategies:
(1) Integrated Asset Allocation: Under this strategy, capital market conditions and investor objectives and constraints are examined and the allocation that best serves the investor's needs while incorporating the capital market forecast is determined.

(2) Strategic Asset Allocation: Under this strategy, optimal portfolio mixes based on returns, risk and co-variances is generated using historical information and adjusted periodically to restore target allocation within the context of the investor's objectives and constraints.
(3) Tactical Asset Allocation: Under this strategy, investor's risk tolerance is assumed constant and the asset allocation is changed based on expectations about capital market conditions.
(4) Insured Asset Allocation: Under this strategy, risk exposure for changing portfolio values (wealth) is adjusted; more value means more ability to take risk.

CHAPTER - 15	Advanced Capital Budgeting Decisions

Question 28:
Write short note on Certainty Equivalent Approach.

Solution:
This approach recognizes risk in capital budgeting analysis by adjusting estimated cash flows and employs risk free rate to discount the adjusted cash-flows. Under this method, the expected cash flows of the project are converted to equivalent riskless amounts. The greater the risk of an expected cash flow, the smaller the certainty equivalent values for receipts and longer the CE value for payment. This approach is superior to the risk adjusted discounted approach as it can measure risk more accurately.
This is yet another approach for dealing with risk in capital budgeting to reduce the forecasts of cash flows to some conservative levels. In certainty Equivalent approach we incorporate risk to adjust the cash flows of a proposal so as to reflect the risk element. The certainty Equivalent approach adjusts future cash flows rather than discount rates. This approach explicitly recognizes risk, but the procedure for reducing the forecasts of cash flows is implicit and likely to be inconsistent from one investment to another.

Question 29:
What is the sensitivity analysis in Capital Budgeting?

Solution:
Sensitivity analysis is used in Capital budgeting for more precisely measuring the risk. It helps in assessing information as to how sensitive are the estimated parameters of the project such as cash flows, discount rate, and the project life to the estimation errors. Future being always uncertain and estimations are always subject to error, sensitivity analysis takes care of estimation errors by using a number of possible outcomes in evaluating a project. The methodology adopted in sensitivity analysis is to evaluate a project by using a number of estimated cash flows so as to provide to the decision maker an insight into the variability of outcome. Thus, it is a technique of risk analysis which studies the responsiveness of a criterion of merit like NPV or IRR to variation in underlying factors like selling price, quantity sold, returns from an investment etc.
Sensitivity analysis answers questions like,
(i) What happens to the present value (or some other criterion of merit) if flows are, say ₹ 50,000 than the expected ₹ 80,000?
(ii) What will happen to NPV if the economic life of the project is only 3 years rather than expected 5 years?
Therefore, wherever there is an uncertainty, of whatever type, the sensitivity analysis plays a

crucial role. However, it should not be viewed as the method to remove the risk or uncertainty, it is only a tool to analyse and measure the risk and uncertainty. In terms of capital budgeting the possible cash flows are based on three assumptions:
(a) Cash flows may be worst (pessimistic)
(b) Cash flows may be most likely.
(c) Cash flows may be most optimistic.
Sensitivity analysis involves three steps
(1) Identification of all those variables having an influence on the project's NPV or IRR.
(2) Definition of the underlying quantitative relationship among the variables.
(3) Analysis of the impact of the changes in each of the variables on the NPV of the project.
The decision maker, in sensitivity analysis always asks himself the question – what if?

Question 30:
Write a note on project appraisal under inflationary conditions.

Solution:
Project Appraisal normally involves feasibility evaluation from technical, commercial, economic and financial aspects. It is generally an exercise in measurement and analysis of cash flows expected to occur over the life of the project. The project cash outflows usually occur initially and inflows come in the future.
During inflationary conditions, the project cost increases on all heads viz. labour, raw material, fixed assets such as equipments, plant and machinery, building material, remuneration of technicians and managerial personnel etc. Beside this, inflationary conditions erode purchasing power of consumers and affect the demand pattern. Thus, not only cost of production but also the projected statement of profitability and cash flows are affected by the change in demand pattern. Even financial institutions and banks may revise their lending rates resulting in escalation in financing cost during inflationary conditions. Under such circumstances, project appraisal has to be done generally keeping in view the following guidelines which are usually followed by government agencies, banks and financial institutions.
(i) It is always advisable to make provisions for cost escalation on all heads of cost, keeping in view the rate of inflation during likely period of delay in project implementation.
(ii) The various sources of finance should be carefully scrutinized with reference to probable revision in the rate of interest by the lenders and the revision which could be affected in the interest-bearing securities to be issued. All these factors will push up the cost of funds for the organization.
(iii) Adjustments should be made in profitability and cash flow projections to take care of the inflationary pressures affecting future projections.
(iv) It is also advisable to examine the financial viability of the project at the revised rates and assess the same with reference to economic justification of the project. The appropriate measure for this aspect is the economic rate of return for the project which will equate the present value of capital expenditures to net cash flows over the life of the projects. The rate of return should be acceptable which also accommodates the rate of inflation per annum.
(v) In an inflationary situation, projects having early payback periods should be preferred because projects with long payback period are riskier.
Under conditions of inflation, the project cost estimates that are relevant for a future date will suffer escalation. Inflationary conditions will tend to initiate the measurement of future cash

flows. Either of the following two approaches may be used while appraising projects under such conditions:

(a) Adjust each year's cash flows to an inflation index, recognizing selling price increases and cost increases annually; or

(b) Adjust the 'Acceptance Rate' (cut-off) suitably retaining cash flow projections at current price levels.

An example of approach (ii) above can be as follows:

Normal Acceptance Rate	:	15.0%
Expected Annual Inflation	:	5.0%
Adjusted Discount Rate	:	15.0 × 1.05 or 15.75%

It must be noted that measurement of inflation has no standard approach nor is easy. This makes the job of appraisal a difficult one under such conditions.

Question 31:

Explain the steps involved in Simulation Analysis.

Solution:

Simulation is the exact replica of the actual situation. To simulate an actual situation, a model shall be prepared. The simulation Analysis is a technique, in which infinite calculations are made to obtain the possible outcomes and probabilities for any given action.

Monte Carlo simulation ties together sensitivities and probability distributions. The method came out of the work of first nuclear bomb and was so named because it was based on mathematics of Casino gambling. Fundamental appeal of this analysis is that it provides decision makers with a probability distribution of NPVs rather than a single point estimates of the expected NPV.

This analysis starts with carrying out a simulation exercise to model the investment project. It involves identifying the key factors affecting the project and their inter relationships. It involves modelling of cash flows to reveal the key factors influencing both cash receipt and payments and their inter relationship.

This analysis specifies a range for a probability distribution of potential outcomes for each of model's assumptions.

Steps for Simulation Analysis:

1. Modelling the project: The model shows the relationship of NPV with parameters and exogenous variables. (Parameters are input variables specified by decision maker and held constant over all simulation runs. Exogenous variables are input variables, which are stochastic in nature and outside the control of the decision maker).
2. Specify values of parameters and probability distributions of exogenous variables.
3. Select a value at random from probability distribution of each of the exogenous variables.
4. Determine NPV corresponding to the randomly generated value of exogenous variables and pre-specified parameter variables.
5. Repeat steps (3) & (4) a large number of times to get a large number of simulated NPVs.
6. Plot probability distribution of NPVs and compute a mean and Standard Deviation of returns to gauge the project's level of risk.