Risk Management

Types

Strategic Risk

A risk in which a company's strategy becomes less effective and it struggles to achieve its goal.
It could be due to
1. technological changes,
2. a new competitor entering the market,
3. shifts in customer demand,
4. increase in the costs of raw materials.

Example: In case of Nokia when it failed to upgrade its technology to develop touch screen mobile phones. That delay enables Samsung to become a market leader in touch screen mobile phones.

Compliance Risk

Every business needs to comply with rules and regulations. For example with the advent of Companies Act, 2013, and continuous updating of SEBI guidelines, each business organization has to comply with plethora of rules, regulations and guidelines. Noncompliance leads to penalties in the form of fine and imprisonment.

Example: India's securities regulator SEBI has banned the global accountancy firm PwC from auditing listed companies in the country for two years, after it failed to spot a $1.7bn fraud at the now defunct Satyam Computer Services. PwC however said it will fight against the ban in court.

Operational Risk

This type of risk relates to internal risk.
It also relates to failure on the part of the company to cope with day to day operational problems.
Operational risk relates to 'people' as well as 'process'.

Example: An employee paying out Rs.1,00,000 from the account of the company instead of Rs.10,000. This is a people as well as a process risk. An organization can employ another person to check the work of that person who has mistakenly paid Rs.1,00,000 or it can install an electronic system that can flag off an unusual amount.

Financial Risk

Financial Risk is referred as the unexpected changes in financial conditions such as prices, exchange rate, Credit rating, and interest rate etc.
Also people who borrowed money and who are unable to pay for the money they borrowed is a type of Financial Risk.

Example: Liquor baron Vijay Mallya, wanted in India for defaulting on over Rs 8,000 crore in bank loans, was arrested in London. Within hours, a court granted him bail. Mallya's wanted in India on charges of financial irregularities and loan default related to his Kingfisher Airlines

Types – Evaluation

Stakeholder's Angle

1. Major stakeholders of a business are equity shareholders and they view financial gearing i.e. ratio of debt in capital structure of company as risk since in event of winding up of a company they will be least prioritized.
2. Even for a lender, existing gearing is also a risk since company having high gearing faces more risk in default of payment of interest and principal repayment.

Company's Angle

From company's point of view if a company borrows excessively or lend to someone who defaults, then it can be forced to go into liquidation.

Government's Angle

From Government's point of view, the financial risk can be viewed as failure of any bank or (like Lehman Brothers) down grading of any financial institution leading to spread of distrust among society at large. Even this risk also includes willful defaulters. This can also be extended to sovereign debt crisis.

Counterparty Risk

This risk occurs due to non-honoring of obligations by the counter party

How to Identify Counterparty Risk?
1. Failure to obtain necessary resources to complete the project or transaction undertaken.
2. Any regulatory restrictions from the Government.
3. Hostile action of foreign government.
4. Let down by third party.
5. Have become insolvent.

How to mitigate/manage/reduce this risk?
1. Carrying out Due Diligence before dealing with any third party.
2. Do not over commit to a single entity or group or connected entities.
3. Review the limits and procedure for credit approval regularly.
4. Rapid action in the event of any likelihood of defaults.
5. Use of performance guarantee, insurance or other instruments.

Political Risk

This type of risk is faced by and overseas investors, as the adverse action by the government of host country may lead to huge losses.

How to Identify Political Risk?
1. Insistence on resident investors or labour
2. Restriction on conversion of currency
3. Repatriation of foreign assets of the local govt
4. Price fixation of the products

How to mitigate/manage/reduce this risk?

1. Local sourcing of raw materials and labour

2. Entering into joint ventures

3. Local financing

4. Prior negotiations

Interest Rate Risk

This risk occurs due to change in interest rate resulting in change in asset and liabilities.
This risk is more important for banking companies.

How to Identify Interest Rate Risk?
1. Monetary Policy of the Government.
2. Any action by Government such as demonetization etc.
3. Economic Growth
4. Release of Industrial Data
5. Investment by foreign investors
6. Stock market changes

How to mitigate/manage/reduce this risk?

1. Using Forward Rate Agreement
2. Using Swaps
3. Using Interest Rate Futures
4. Using Caps, Collars, & Floors

Currency Risk

This risk mainly affects the organization dealing with foreign exchange as their cash flows changes with the movement in the currency exchange rates.

How to Identify Currency Risk?
1. Government Action
2. Nominal Interest Rate
3. Inflation Rate: Purchasing power parity theory discussed in later chapters impact the value of currency.
4. The change of government and its attitude towards foreign investment also helps to identify the currency risk.

How to mitigate/manage/reduce this risk?

1. Using Home Currency Invoicing
2. Using Forward Contracts
3. Using Futures Contracts
4. Using Options Contract
5. Using Swaps
6. Leading or Lagging the foreign currency receivables or payables

Liquidity Risk

1. Broadly liquidity risk can be defined as inability of organization to meet it liabilities whenever they become due.
2. This risk mainly arises when organization is unable to generate adequate cash or there may be some mismatch in period of cash flow generation.
3. This type of risk is more prevalent in banking business where there may be mismatch in maturities and receiving fresh deposits pattern.

VaR

Meaning

1. VAR is a measure of risk of investment given the normal market condition in a set of period, say, one day it estimates how much an investment might lose
2. VAR answers two basic questions
   1. What is worst case scenario?
   2. What will be loss?
3. VAR answers the question, "What is my worst-case scenario?" or "How much could I lose in a really bad month?"
4. For example,
   1. If a portfolio of stocks has a one-day 5% VaR of Rs. 1 million, that means that there is a 0.05 probability that the portfolio will fall in value by more than Rs.1 million over a one-day period if there is no trading. Informally, a loss of Rs.1 million or more on this portfolio is expected on 1 day out of 20 days (because of 5% probability). A loss which exceeds the VaR threshold is termed a "VaR breach.
   2. If a daily VaR is stated as £100,000 to a 95% level of confidence, this means that during the day there is a only a 5% chance that the loss the next day will be greater than £100,000.
3. Assume a London bank determines that its VaR is £3 million at 5% for one day. This statement means that the bank expects to lose a minimum of £3 million in one day 5% of the time. A critical, and often overlooked word, is **minimum**. In this example, the bank expects that its losses will be at least £3 million in one day with 5% probability. **In a VaR measure, there is no ultimate maximum that one can state. VaR is thus a minimum extreme loss metric.** With a probability of 5% and a measurement period of one day, we can interpret the bank's VaR as expecting a minimum loss of £3 million once every 20 business days.

Features

Components of Calculations:
1. Time Period
2. Confidence Level – Generally 95% and 99%
3. Loss in percentage or in amount

Statistical Method: It is a type of statistical tool based on Standard Deviation.

Probability: Assuming the values are normally attributed, probability of maximum loss can be predicted.

1. **Time Horizon:** VAR can be applied for different time horizons say 1 day, 1 week, 1 month month and so on.
2.
3. **Control Risk:** Risk can be controlled by setting limits for maximum l o s s .
4.
5. **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.
6.

Application

- To measure the maximum possible loss on any portfolio or a trading position.
- As a tool for Asset and Liability Management especially in banks.
- As a benchmark for performance measurement of any operation or trading.
- To fix limits for individuals dealing in front office of a treasury department.
- To enable the management to decide the trading strategies.

Formula

$$VAR_{t\ days} = SD_{t\ days} \times Z\ Score$$

$$SD_{t\ days} = SD_{1\ day} \times \sqrt{t\ days}$$

or

$$VAR_{t\ days} = VAR_{1\ day} \times \sqrt{t\ days}$$

Example
VAR for 10 days can be calculated using
1. SD of 10 days (multiply with Z Score)
2. VAR of 1 day (multiply with square root of 10 days)

$$VAR_{Portfolio} = SD_{Portfolio} \times Z\ Score$$

$$SD_{Portfolio} = \sqrt{Variance_{Portfolio}}$$

$$Variance_{Portfolio} = SD_A^2 + SD_B^2 + 2 \times SD_A \times SD_B \times Corr_{AB}$$

Sometimes when you innovate, you make mistakes. It is best to admit them quickly, and get on with improving your other innovations. That's been one of my mantras—focus and simplicity. Simple can be harder than complex; you have to work hard to get your thinking clean to make it simple.|"Do not wait; the time will never be 'just right.' Start where you stand, and work with whatever tools you may have at your command, and better tools will be found as you go along.

Security Analysis

Fundamental analysis is a method of evaluating a security in an attempt to measure its intrinsic value, by examining related economic, financial and other qualitative and quantitative factors.

Fundamental Analysis

Economic Analysis

Macro- economic factors are to be assessed while analyzing the overall economy. and quantitative factors. Trends in peoples' income and expenditure reflect the growth of a particular industry/company in future. Consumption affects corporate profits, dividends and share prices in the market.

Factors affecting Economic Analysis

1. Growth Rates of National Income and Related Measures
2. Growth Rates of Industrial Sector
3. Inflation
4. Monsoon

Techniques used in Economic Analysis

Anticipatory Surveys

It incorporates expert opinion on construction activities, expenditure on plant and machinery, levels of inventory – all having a definite bearing on economic activities. Also future spending habits of consumers are taken into account.

Barometer/Indicator Approach

- Leading Indicator
- Roughly Coincidental Indicator
- Lagging Indicator

Economic Model Building Approach

Forecast GNP based on
1. political stability,
2. rate of inflation,
3. rate of interest
4. economic & fiscal policies of government

Forecast GNP based on
1. consumption expenditure,
2. gross private domestic investment,
3. government purchases of goods/ services,
4. net exports.

Compare

Industry Analysis

An assessment has to be made regarding all the conditions and factors relating to demand of the particular product, cost structure of the industry. Since the basic profitability of any company depends upon the economic prospects of the industry to which it belongs, an appraisal of the particular industry's prospects is essential.

Factors affecting Industry Analysis

1. Product Life Cycle
2. Demand Supply Gap
3. Barriers to entry for new players
4. Government Attitude
5. State of competition in the industry
6. Cost Conditions and Profitability
7. Technology and research

Techniques used in Industry Analysis

Regression Analysis

Investor diagnoses the factors determining the demand for output of the industry through product demand analysis. Factors to be considered are GNP, disposable income, per capita consumption / income, price elasticity of demand. For identifying factors affecting demand, statistical techniques like regression analysis and correlation are used.

Input/Output Analysis

It reflects the flow of goods and services through the economy, intermediate steps in production process as goods proceed from raw material stage through final consumption. This is carried out to detect changing patterns/trends indicating growth/ decline of industries.

I think if you do something and it turns out pretty good, then you should go do something else wonderful, not dwell on it for too long. Just figure out what's next.

Company Analysis

Company analysis is a process carried out by investors to evaluate securities, collecting info related to the company's profile, products and services as well as profitability. This requires careful examination of the company's quantitative and qualitative fundamentals.

Factors affecting Company Analysis

1. Net Worth and Book Value
2. Sources and Uses of Funds
3. Cross- Sectional and Time Series Analysis
4. Size and Ranking of the company
5. Growth Record
6. Financial Analysis
7. Competitive Advantage
8. Quality of Management
9. Corporate Governance

Techniques used in Company Analysis

- Correlation & Regression Analysis
- Trend Analysis
- Decision Tree Analysis

Here's to the crazy ones – the misfits, the rebels, the troublemakers, the round pegs in the square holes. The ones who see things differently – they're not fond of rules. You can quote them, disagree with them, glorify or vilify them, but the only thing you can't do is ignore them because they change things. They push the human race forward, and while some may see them as the crazy ones, we see genius, because the ones who are crazy enough to think that they can change the world, are the ones who do.

Assumptions

1. Value of stock depends on the supply and demand for a stock.
2. The supply and demand is actually governed by several factors.
3. Stock prices move in trends which continue for a substantial period of time
4. Technical analysis relies upon chart analysis rather than the information in the financial statements

Technical Analysis

Technical Analysis is a method of share price movements based on a study of price graphs or charts on the assumption that share price trends are repetitive.

Principles

- The market discounts everything
- Price moves in trends
- History tends to repeat itself

Theories

- Dow Jones Theory
- Elliot Wave Theory
- Random Walk Theory
- Efficient Market Hypothesis

Dow Jones Theory

3 Movements

1. **Primary Movement** - is the main trend of the market, which lasts from one year to 36 months or longer. This trend is commonly called bear or bull market.
2. **Secondary Movement** - of the market is shorter in duration than the primary movement, and is opposite in direction. It lasts from two weeks to a month or more.
3. **Daily Movement** - are the narrow movements from day-to-day.

Phases

1. Market discounts everything
2. The 3-trend market
   1. Uptrend
   2. Sideways Trend
   3. Downtrend
3. The 3-Phases of primary trend
   1. Accumulation Phase
   2. Public Participation Phase
   3. Panic phase (Excess Phase)
4. Market indexes must confirm each other
5. Volume must confirm trend
6. Trend remains in effect until clear reversal occurs.

Elliot Wave Theory

Theory

1. Elliot found that the markets exhibited certain repeated patterns or waves. As per this theory wave is a movement of the market price from one change in the direction to the next change in the same direction.
2. These waves are resulted from buying and selling impulses emerging from the demand and supply pressures on the market.

Classification of Waves

Impulsive Patterns-(Basic Waves) - In this pattern there will be 3 or 5 waves in a given direction (going upward or downward). These waves shall move in the direction of the basic movement. This movement can indicate bull phase or bear phase.

Corrective Patterns-(Retracement Waves) - These 3 waves are against the basic direction of the basic movement. Correction involves correcting the earlier rise in case of bull market and fall in case of bear market. As shown in the following diagram waves 1, 3 and 5 are directional movements, which are separated or corrected by wave 2 & 4, termed as corrective movements.

Random Walk Theory

1. Prices of shares in stock market can never be predicted.
2. The reason is that the price trends are not the result of any underlying factors, but that they represent a statistical expression of past data.
3. There may be periodical ups or downs in share prices, but no connection can be established between two successive peaks (high price of stocks) and troughs (low price of stocks)

Efficient Market Hypothesis

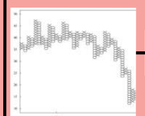
1. EMH states that it is impossible for an investor to outperform the market as the available price sensitive information are already included in the market price of the securities. And thus investor cannot purchase the securities which are undervalued and sell it at inflated price.
2. EMH explains that investor can earn higher returns only by having riskier assets in her (his) portfolio.

Support & Resistance Level

1. **A support level** is a level where the price tends to find support as it falls. This means that the price is more likely to "bounce" off this level rather than break through it.
2. **A resistance level** is the opposite of a support level. It is where the price tends to find resistance as it rises. Again, this means that the price is more likely to "bounce" off this level rather than break through it.

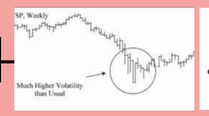
Charts

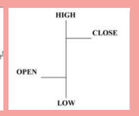
Line Chart



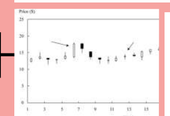
Point & Figure Chart

Bar Chart





Candlestick Chart



Market Indicators

Breadth Index

1. It is an index that covers all securities traded.
2. It is computed by dividing the net advances or declines in the market by the number of issues traded.
3. The breadth index either supports (technical strength) or contradicts(weakness) the movement of the Dow Jones Averages

$$\text{ABI} = \frac{(\text{No. of Advancing Stocks} - \text{No. of Declining Stocks})}{\text{Total Issues Traded}}$$

Volume of Transactions

1. The volume of shares traded in the market provides useful clues on how the market would behave in the near future.
2. It may signal a bull market or bear market.

Confidence Index

1. It is supposed to reveal how willing the investors are to take a chance in the market. It is the ratio of high-grade bond yields to low-grade bond yields.
2. A rising confidence index is expected to precede a rising stock market, and a fall in the index is expected to precede a drop in stock prices.
3. A fall in the confidence index represents the fact that low-grade bond yields are rising faster or falling more slowly than high grade yields.

$$\text{Confidence Index} = \frac{\text{Avg YTM (Best Grade Bonds)}}{\text{Avg YTM (Intermediate Grade Bonds)}}$$

Relative Strength Analysis

1. The relative strength concept suggests that the prices of some securities rise relatively faster in a bull market or decline more slowly in a bear market than other securities i.e. some securities exhibit relative strength.
2. Investors will earn higher returns by investing in securities which have demonstrated relative strength in the past.
3. Relative strength can be measured in several ways.
   1. Calculating rates of return and classifying those securities with historically high average returns as securities with high relative strength is one of them.
   2. Even ratios like security relative to its industry and security relative to the entire market can also be used to detect relative strength in a security or an industry.

$$\text{RSI} = \frac{\text{\% Change in Stock price}}{\text{\% Change in Index}}$$

Odd Lot Theory

1. This theory is a contrary - opinion theory.
2. It assumes that the average person is usually wrong and that a wise course of action is to pursue strategies contrary to popular opinion.
3. The odd-lot theory is used primarily to predict tops in bull markets, but also to predict reversals in individual securities.

Data Analysis

3 Lessons
- Markets Have No Memory
- Market Prices are Fair
- Read the Entrails

3 Challenges
- Limited Information Processing Capabilities.
- Irrational Behaviour
- Monopolistic Influence

3 Forms

Form	Past Information	Public Information	Private Information
Weak Form	✓		
Semi Strong Form	✓	✓	
Strong Form	✓	✓	✓

Test to Verify Weak Form of Market Efficiency → Serial Correlation Test → Run Test → Filter Rules Test

Moving Averages

AMA | EMA

EMA=[CP x e]+[Previous EMA x (1-e)]

CP = Current Closing Price,
e=exponent in decimals

$$AMA_{n,t} = 1/n[P_t + P_{t-1} + \ldots + P_{t-(n-1)}]$$

$$AMA_{n,t} = \frac{\text{Total of the closing price in data}}{\text{number of observation}}$$

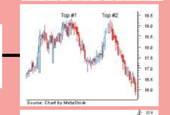
Run Test

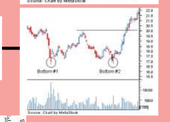
To test the independence of the prices we require
1. Total Number of Runs (r)
2. Number of positive price changes (n1)
3. Number of negative price changes (n2)
4. Mean (μ) = $\frac{2n1n2}{n1+n2} + 1$
5. Standard Deviation (σ) = $\sqrt{\frac{2n1n2(2n1n2-n1-n2)}{(n1+n2)^2(n1+n2-1)}}$
6. Lower Limit = $\mu - t\sigma$
7. Upper Limit = $\mu + t\sigma$

Where, t = value of t at different level of significance

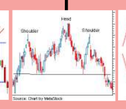
Interpreting Price Patterns

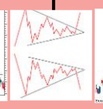
- Gap
- Channel
- Double Top
- Double Bottom

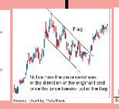




- Wedge
- Head & Shoulders
- Triangle
- Flags & Pennants







3

In finance, valuation is the process of determining the present value (PV) of an asset. Valuations can be done on assets (for example, investments in marketable securities such as stocks, options, business enterprises, or intangible assets such as patents and trademarks) or on liabilities (e.g., bonds issued by a company). Valuations are needed for many reasons such as investment analysis, capital budgeting, merger and acquisition transactions, financial reporting, taxable events to determine the proper tax liability, and in litigation.
In this chapter we are going to discuss about the valuation of securities

Security Valuation

Conferenza.in

Overview

Required Rate of Return

1. Required rate of return is the minimum rate of return that the investor is expected to receive while making an investment in an asset over a specified period of time.
2. This is also called opportunity cost or **cost of capital** because it is the highest level of expected return forgone which is available elsewhere from investment of similar risks.
3. Many times, required rate of return and expected return are used interchangeably. But, that is not the case.

Capital Asset Pricing Model is used widely to calculate required Return on Equity

$$Rx = Rf + \beta_x(Rm - Rf)$$

where
R_x = expected return on investment in "x"(company x)
R_f = risk-free rate of return
β_x = beta of "x"
R_m = expected return of market
Rm-Rf = Market Risk Premium
β_x(Rm-Rf) = Equity Risk Premium

Return Concepts

Discount Rate

1. Discount Rate is the rate at which present value of future cash flows is determined.
2. **Discount rate** is normally the required rate of return which is also called as **cost of capital**

(1+ Nominal Rate) = (1+ Real Rate)(1+Inflation rate)
We can form some principle based on the above formula

1. If projected cash flows are in real terms, the discount rate used should be real discount rate.
2. If projected cash flows are in money terms, the discount rate used should be money discount rate.
3. Where there are more than one inflation rates, then convert the cash flows in which the discount rate is.
4. The depreciation charge remains the same irrespective of the inflation rate and hence it should be considered as Zero Inflation item.

Cash Flows	Discount Rate
Equity	Ke
Preference	Kp
Debt	Kd(1-t)
Bonds	YTM
Mix	Ko

Internal Rate of Return

1. The internal rate of return sometime known as yield on project is the rate at which an investment project promises to generate a return during its useful life.
2. It is the discount rate at which
   PV of CIF = PV of COF
   Or
   NPV=0

Situation	Result
IRR > Ko	Acceptable
IRR < Ko	Not Acceptable

Stock Valuation		
Expected Return > CAPM Return	Buy	Stock is undervalued as it is expected that return will be higher than required.
Expected Return = CAPM Return	Hold	Stock is correctly valued hence we should hold and wait to buy or sell in future.
Expected Return < CAPM Return	Sell	Stock is overvalued as it is expected that return will be less than required.

Valuation

Equity Valuation

Dividend Based

Single Period Holding

$$\frac{D_1}{(1+Ke)^1} + \frac{P_1}{(1+Ke)^1}$$

Multi Period Holding

No Growth

$$\frac{D_1}{Ke}$$

Constant Growth

$$\frac{D_0(1+g)}{Ke-g} \text{ or } \frac{D_1}{Ke-g}$$

Two Stage Model

$$\left[\frac{D_0(1+g_1)}{(1+Ke)^1} + \frac{D_1(1+g_1)}{(1+Ke)^2} + \ldots + \frac{D_{n-1}(1+g_1)}{(1+Ke)^n}\right] + \frac{P_n}{(1+Ke)^n}$$

Three Stage Model

$$\left[\frac{D_0(1+g_1)}{(1+Ke)^1} + \frac{D_1(1+g_1)}{(1+Ke)^2} + \frac{D_2(1+g_1)}{(1+Ke)^3}\right] + \left[\frac{D_3(1+g_2)}{(1+Ke)^4} + \frac{D_4(1+g_2)}{(1+Ke)^5} + \ldots + \frac{D_{n-1}(1+g_2)}{(1+Ke)^n}\right] + \frac{P_n}{(1+Ke)^n}$$

Earnings Based

Gordon's Growth Model

$$\frac{EPS_1(1-b)}{Ke-br}$$

Walters Model

$$P = \frac{D + \frac{r}{K_e}(E-D)}{K_e}$$

PE Multiple

MP = EPS x PE Multiple

Enterprise Value

Enterprise Value = Market Value of Equity + Market Value of Preference + Market Value of Debt + Minority Interest - Cash & Cash Equivalent

EV Multiple

$$\text{EV Multiple} = \frac{\text{Enterprise Value}}{\text{EBITDA}} \qquad \text{EV Multiple} = \frac{\text{Enterprise Value}}{\text{Sales}}$$

Cash Flow Based

FCFE

Net Income + Depreciation - Capital Expenditure - ▲ Non Cash Working Capital + New Debt Issued - Debt Repayment

75+50-20-5+15-10 = 105

FCFF

Based on EBITDA	=EBITDA*(1-tax)+Depreciation*(tax) - Capital Expenditure - ▲ Non Cash Working Capital	260*(1-0.50)*+50*(0.50)-20-5=130
Based on EBIT	=EBIT*(1-tax) + Depreciation - Capital Expenditure - ▲ Non Cash Working Capital	210*(1-0.50)+50-20-5=130
Based on EAT	=EAT+ Interest*(1-tax) + Depreciation - Capital Expenditure - ▲ Non Cash Working Capital	75+60*(1-0.50)-20-5=130
Based on FCFE	=FCFE + Interest*(1-tax) + Principal Prepaid - New Debt Issued + Preference Dividend	105+60*(1-0.50)+10-15+0=130

Sales	1000
Cost	700
Gross Profit	300
Other Expenses	40
EBITDA	260
Depreciation	50
EBIT	210
Interest	60
EBT	150
Tax	75
EAT	75
Add: Depreciation	50
Less: Capital Expenditure	20
Less: Change in Working Capital	5
Less: Principal Repayment	10
Add: New Debt issued	15
FCFE	105

Rights Share

$$\text{Ex-Right Price } (P_1) = \frac{nP_0 + n_1S}{n + n_1}$$

Where,
n = no. of existing shares
P_0 = Price of Share Pre – Right Issue
n_1 = no. of new shares issued under right issue
S = Subscription price of each right share
P_1 = Ex Right Price

$$\text{Value of right} = \frac{n_1(Po - S)}{n + n_1}$$

nP_0 = Value of existing shares
n_1S = funds raised through right issue
$n + n_1$ = No. of shares outstanding after the right issue

Preference Valuation

Redeemable

$$\frac{\text{Dividend}_1}{(1+r)^1} + \frac{\text{Dividend}_2}{(1+r)^2} + \cdots + \frac{(\text{Dividend}_n + \text{Maturity Value})}{(1+r)^n}$$

Irredeemable

$$\text{Irredemable Preference Share Value} = \frac{\text{Dividend}}{\text{Required Return on Preference Share}}$$

Bond Valuation

1 Structure

1. Face Value
2. Coupon Rate
3. Maturity
4. YTM
5. Market Price
6. Redemption Value

2 Types

1. Fixed Rate Bonds
2. Floating Rate Bonds
3. Zero Coupon Bonds
4. Convertible Bonds
5. Covered Bond
6. Deep Discount Bonds
7. Callable Bonds
8. Putable Bonds

3 Yield

1. Current Yield

$$CY = \frac{\text{Interest}}{\text{Market Price}}$$

2. Yield To Maturity

a. Average Method

$$YTM = \frac{C + \frac{(RV - MV)}{N}}{\frac{(RV + MV)}{2}}$$

b. IRR or Discounted Cash Flow Method

$$BV = I \times PVAF_{YTM,\,n} + RV \times PVF_{YTM,\,n}$$

4 Valuation

$$BV = I \times PVAF_{YTM,\,n} + RV \times PVF_{YTM,\,n}$$

BV=Theoretical Value of Bond
I = Annual Interest/Coupon Amount
PVAF=Present Value Annuity Factor
YTM= Yield to Maturity (Investors Required Rate of Investors
PVF= Present Value Factor

CY = Current Yield
YTM= Yield to Maturity
C= Coupon Amount
RV= Redemption Value
MV= Market Value(purchase price)
N= No. of periods to expiry

5 Duration

Macaulay Duration

$$MACD = \sum \text{Weight} \times \text{Year}$$

$$\text{Mac D} = \frac{\sum PV \times Yr}{\sum PV}$$

$$\text{Mac D} = \frac{1+YTM}{YTM} - \frac{(1+YTM) + t(c-YTM)}{c[(1+YTM)^t - 1] + YTM}$$

$$MACD = \frac{\sum \frac{t \times c}{(1+i)^t} + \frac{n \times M}{(1+i)^n}}{P}$$

6 Volatility

Modified Duration (Volatility) attempts to estimate how the price of the bond will change in response to a change in interest (ytm) and is stated in terms of % change in price

$$\text{Mod D} = \frac{\text{Macaulay's Duration}}{1+YTM}$$

7 Convexity

Modified Duration is a good approximation of the percentage of price change for a small change in interest rate. However, the change cannot be estimated so accurately of convexity effect as duration base estimation assumes a linear relationship
This estimation can be improved by adjustment on account of 'convexity'

$$\text{Convexity} = \frac{PV_+ + PV_- - 2PV_0}{2PV_0 \times (\Delta \text{Yield})^2}$$

PV+ = Bonds Price on increase in ▲ Yield
PV- = Bonds Price on increase in ▲ Yield
PVo = Initial Bond Price
AnnModDur = Annual Modified Duration

$$\%\,\Delta PV = [-\text{AnnModDur} \times \Delta \text{Yield}] + [\text{Convexity} \times (\Delta \text{Yield})^2]$$

8 Immunization

1. A portfolio is immunized when its **duration equals the investor's time horizon**.
2. At this point, any changes to interest rates will affect both price and reinvestment at the same rate, **keeping the portfolio's rate of return the same.**
3. Maintaining an immunized portfolio means **rebalancing the portfolio's average duration every time interest rates change,** so that the average duration continues to equal the investor's time horizon.
4. Remember

Investors Horizon = Duration

PV of Assets = PV of Liabilities

Bond Portfolio Duration = ∑ WiDi

9 Forward Rates

An investor can purchase a two-year Treasury bill (say rate is 10%) or buy a one- year bill (say rate is 9%) and roll it into another one-year bill once it matures.

The investor will be indifferent if they both produce the same result. An investor will know the spot rate for the one-year bill (10%) and the two-year bond (9%), but he or she will not know the value of a one-year bill that is purchased one year from now.

Given these two rates though, the forward rate on a one-year bill will be the rate that equalizes the rupee return between the two types of investments mentioned earlier.

$$\text{Year 1, } f_1 = \frac{(1+s_1)^1}{1} - 1$$

$$\text{Year 2, } f_2 = \frac{(1+s_2)^2}{(1+s_1)} - 1$$

$$\text{Year 3, } f_3 = \frac{(1+s_3)^3}{(1+s_1)(1+f_2)} - 1$$

$$\text{Year 4, } f_4 = \frac{(1+s_4)^4}{(1+s_1)(1+f_2)(1+f_3)} - 1$$

10 Term Structure Theories

1. Unbiased Expectation Theory: An investor should earn the same amount of interest from an investment in a single two-year bond today as that person would with two consecutive investments in one-year bonds. The two one-year bonds would each have a lower interest rate individually compared with the two-year bond. However, because of compounding interest, Unbiased Expectations Theory predicts that the net outcome would be equal.
2. Liquidity Preference Theory: Liquidity preference theory asserts that liquidity premiums exist to compensate investors for the added interest rate risk they face when lending long term and that these premiums increase with maturity.
3. Segment Market Theory: It assumes that market participants are either unwilling or unable to invest in anything other than securities of their preferred maturity.
3. Preferred Habitat Theory: is similar to the segmented markets theory in proposing that many borrowers and lenders have strong preferences for particular maturities but it does not assert that yields at different maturities are determined independently of each other. However, the theory contends that if the expected additional returns to be gained become large enough, institutions will be willing to deviate from their preferred maturities or habitats..

Money Market Instrument

Characteristics

a. Short duration,
b. Large volume
c. De-regulated interest rates.
d. The instruments are highly liquid.
e. They are safe investments owing to issuers inherent financial strength

Types of Instruments

1. Call / Notice Money
2. Treasury Bills
3. Commercial Bills
4. Commercial Paper
5. Certificate of Deposit
6. Repo & Reverse Repo

11 Convertible Bonds

1. Conversion Ratio:
The number of shares each convertible bond converts into. It may be expressed per bond.

2. Conversion Value:
CV= Market price per share x Conversion Ratio

3. Conversion Premium:
The amount by which the price of a convertible security exceeds the current market value of the common stock into which it may be converted.
CP = MP - CV
MP = Market Price of Convertible Bond
CV = Conversion Value

4. Conversion Premium Ratio:
Ratio which shows at what premium the convertible bond is trading in the market

$$CP(\%) = \left(\frac{MP}{CV} - 1\right) \times 100$$

5. Straight Value of the Bond:
It is the price where the bond would trade if it were not convertible to stock. Its then is equivalent to non-convertible bond.

6. Minimum Value of the Convertible Bond:
A convertible bond should at the lowest trade at the higher of either the conversion value or straight value.

7. Downside Risk:
Downside risk is the % premium over the straight value of the bond.

$$DR(\%) = \left(\frac{MP}{SV} - 1\right) \times 100$$

8. Conversion Parity Price or Market Conversion Price:
Price at which the investor will neither gain nor lose on buying the bond and exercising it.

$$CPP = \frac{MP}{N} \times 100$$

9. Favourable Income Differential Per Share
It represents extra income earned in Bond over dividend income in shares.

$$FID = \frac{[\text{Interest from Bond} - (\text{Dividend from Equity} \times CR)]}{\text{Conversion Ratio (CR)}}$$

10. Premium Payback Period
It represents the time in which we recover premium paid (to purchase the Convertible Bon) using extra income of Interest

$$PPP = \frac{\text{Conversion Premium}}{\text{Favourable Income Differential}}$$

My favorite things in life don't cost any money. It's really clear that the most precious resource we all have is Time. |I'm as proud of many of the things we haven't done as the things we have done. Innovation is saying no to a thousand things.

Portfolio Management

Conferenza.in

Investor

Return (R)

SIM
[Single Index Model]

$$R_i = \alpha_i + \beta_i R_m + \epsilon_i$$

Where,
R_i = expected return on security i
α_i = alpha coefficient of the straight line
β_i = beta coefficient
R_m = the return on market index
e_i = error term

APT
[Arbitrage Price Theory]

$$R_j = R_f + \beta_1\lambda_1 + \beta_2\lambda_2 + \beta_3\lambda_3 + \cdots + \beta_n\lambda_n$$

Where,
$\lambda_1, \lambda_2, \lambda_3$ are average risk premium for each of the factors in the model

$\beta_1, \beta_2, \beta_3$ are betas of the security for each of the factors

CAPM
[Capital Asset Pricing Model]

Return of Security
$$R_i = R_f + \beta_i(R_m - R_f)$$

Return of Portfolio
$$R_p = R_f + \beta_p(R_m - R_f)$$

Where,
R_i = Return on Security
R_f = Risk free rate of return
R_m = Market return
β = beta of the security (i)or portfolio (p)

Portfolio Return

$$R_p = \sum_{i=1}^{n} \bar{R}_i W_i$$

Where,
$\bar{R}_p$ = Portfolio Return
$\bar{R}$ = Expected return of securities in the portfolio
W_i = Weightage of the respective security in the portoflio

Security Return

Without Probability
$$R = \frac{D + CA}{II}$$
Where, R= Return
D = Dividend,
II= Initial Investment
CA= Capital Appreciation

With Probability
$$\bar{R} = \sum_{i=1}^{n} R_i p_i$$
Where,
$\bar{R}$ = Expected return,
The possible returns R_i and probabilities by p_i

Risk (σ)

Single Security
[Markowitz Model/ Modern Portfolio Theory]

without probability
$$\sigma = \sqrt{\frac{\sum(R - \bar{R})^2}{N}}$$
N = Number of observations

with probability
$$\sigma = \sqrt{\sum_{i=1}^{n}[(R - \bar{R})^2 p]}$$
p = Probability of ith return

Portfolio Risk [2 Securities]
[Markowitz Model/ Modern Portfolio Theory]

$$\sigma_p = \sqrt{w_a^2\sigma_a^2 + w_b^2\sigma_b^2 + 2w_a w_b \sigma_a \sigma_b r_{ab}}$$
Where,
σ_p = **portfolio standard deviation**,
w_a = proportion of **funds invested** in security 'a',
w_b = proportion of **funds invested** in security 'b',
σ_a = **Standard deviation** of security a
σ_b = **Standard deviation** of security b,
r_{ab} = **correlation coefficient** between the returns of the two securites

$r_{ab} = \frac{Cov_{ab}}{\sigma_a \sigma_b}$

Portfolio Risk
[3 Securities]
[Markowitz Model/ Modern Portfolio Theory]

Risk of the portfolio having more than two securities can be modified as:

$$\sigma_p^2 = \sum_{i=1}^{n}\sum_{i=1}^{n} w_i w_j \sigma_i \sigma_j r_{ij}$$

$$\sigma_p^2 = \sum_{i=1}^{n}\sum_{i=1}^{n} w_i w_m Cov_{im}$$

SIM
[Single Index Model]

Security Variance (σ_i^2)
$$\sigma^2 = \beta_i^2\sigma_m^2 + \epsilon_i^2$$
Where, σ^2 = Total Variance,
$\beta_i^2\sigma_m^2$ = Systematic Variance,
ϵ_i^2 = Unsystematic Variance,
σ_m^2 = Expected Variance of index,
β_i = beta of the stock i in the portfolio

Portfolio Variance (σ_p^2)
Total Risk (σ^2) = Systematic + Unsystematic
$$\sigma^2 = \left[\left(\sum_{i=a}^{N} W_i\beta_i\right)^2 \sigma_m^2\right] + \left[\left(\sum_{i=a}^{N}(W_i \epsilon_i)^2\right)\right]$$
Where, σ^2 = Variance of the portfolio,
σ_m^2 = Expected variance of index,
ϵ_i^2 = Unsystematic Risk,
W_i = the portion of the stock i in the portfolio,

Systematic Risk (β)

Unsystematic Risk ϵ_i

Can be diversified & reduced

Perfectly Positively Correlated
When $Corr_{ab} = r_{ab} = 1$
$$Risk\ \sigma_p = (w_a\sigma_a + w_b\sigma_b)$$

Perfectly Negatively Correlated
When $Corr_{ab} = r_{ab} = -1$
$$Risk\ \sigma_p = (w_a\sigma_a - w_b\sigma_b)$$

Uncorrelated/Independent
When $Corr_{ab} = r_{ab} = 0$
$$Risk\ \sigma_p = \sqrt{w_a^2\sigma_a^2 + w_b^2\sigma_b^2}$$

The covariance of returns between securities i and j:
$$Cov_{ij} = \beta_i\beta_j\sigma_m^2$$

Single Security/Asset Beta

Regression Analysis

$$\beta_x = \frac{\sum XY - n\bar{X}\bar{Y}}{\sum Y^2 - n\bar{Y}^2}$$

Where,
β_x = Beta of the stock x
X = Return(%)from the stock,
Y = Return(%) from the market
$\bar{X}$ = Expected or Mean value of returns from stock
$\bar{Y}$ = Expected or Mean value of returns from market
n = number of observation

Correlation Analysis

$$\beta_x = \frac{Corr_{xy}\sigma_x\sigma_y}{\sigma_y^2} \text{ or } \frac{Corr_{xy}\sigma_x}{\sigma_y} \text{ or } \frac{Cov_{xy}}{\sigma_y^2}$$

Where,
β_x = beta of the stock x
$Corr_{xy}$ = correlation between returns of the stock and returns of the market
σ_x = standard deviation of returns of the stock i
σ_y = standard deviation of returns of the market index
σ_y^2 = variance of the market index
Cov_{xy} = Covariance of stock x and y

Where,
Cov_{ab} = Covariance between a and b
R_a = Return on stock a
R_b = Return on stock b
$\bar{R}_a$ = Expected or mean return on stock a
$\bar{R}_b$ = Expected or mean return on stock b

$$Cov_{ab} = \frac{\sum[R_a - \bar{R}_a][R_b - \bar{R}_b]}{N}$$

Portfolio Beta

$$\beta_p = \sum_{i=1}^{N} w_i\beta_i$$

W_i is the weight of security i
β_i is the beta of security i

Market Lines

Capital Market Line
$$R_i = R_f + \frac{\sigma_i}{\sigma_m}(R_m - R_f)$$
σ_i = Standard deviation of the security
σ_m = Standard deviation of the market

Security Market Line
$$R_i = R_f + \beta_i(R_m - R_f)$$
SML is the graphical representation of Capital Asset pricing Model

Security Characteristic Line
$$r_i = \alpha_i + \beta_i r_m$$
r_i = expected return on security i
α_i = alpha $\beta_i(r_m)$ = component of return due to market movement

Optimum Portfolio Theory

Step 1: Calculate Treynor's ratio of given data, arrange in highest to lowest order and then find out cut off C* using given formula:
$$C_i = \frac{\sigma_m^2 \sum \frac{(R_i - R_f)\beta_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum \frac{\beta_i^2}{\sigma_{ei}^2}}$$

Step 2: Determine the relative Z_i investment of each stock in the selected portfolio
$$Z_i = \frac{\beta_i}{\sigma_{ei}^2}\left(\frac{R_i - R_f}{\beta_i} - C^*\right)$$

Step 3: Find out the weight of X_i each stock in the selected portfolio
$$X_i^0 = \frac{Z_i}{\sum Z_i}$$

Portfolio Evaluation Measures

Sharpe Ratio
$$\frac{R_i - R_f}{\sigma_i}$$

Treynor Ratio
$$\frac{R_i - R_f}{\beta_i}$$

Jensen's Alpha
= Actual Return – Required Return
or
Actual return – CAPM return

Portfolio Rebalancing Theories

1. **Buy & Hold Policy:** Do Nothing Approach
2. **Constant Mix Policy:** Balancing the portfolio in the set proportion (say 30:70)at each interval when the portfolio value changes.
3. **Constant Proportion Portfolio Insurance Policy [CPPI]:** Proportion of Risky Assets
   Equity= M(PV-FV)
   Where, M is the multiplier & M>1, PV is the revised portfolio value due to changes in Index , FV is the Floor Value

Do You Know?

1. **Market beta** is 1, Total Risk (σ) = Systematic Risk + Unsystematic Risk
2. **Beta**= **-ve** (stock moves in opposite direction), **+ve** (stock moves in same direction), **0** (stock movement is independent of the market).
3. **Risk reduction** means actual risk (σ) of the portfolio is less than the weighted average risk of the securities that constitutes the portfolio. This is the point where one can say that diversification has resulted into risk reduction.
4. **Beta measures the sensitivity of returns of the stock to the market.** High beta represents high risk, low beta: low risk.
5. **In CAPM if more than one risk free rate of return is given,** then it is better to go moderate and take average of all. Aggressive may resort highest rate whereas conservative can take lowest rate.
6. **Coefficient of Variation**, [CV = Risk➗Return] Coefficient of variation is used where we cannot decide which securities to select from many with the given return and SD. Hence we find out for each security that how much risk we have to bear to earn one unit of return. And then it becomes easy to decide upon the securities for selection.
7. **Coefficient of Determination** / R-Squared/Square of Correlation Coefficient: , it shows that how much the beta of the security is reliable. R-square of 0.35 means 35% of the risk comes from market sources and rest 65% comes from firm specific sources.
8. **A Portfolio's Alpha** is the weighted average of its alpha of the component securities and the weight being the proportion of investment in a security.
9. **Diversification** is a risk-management technique that mixes a wide variety of investments within a portfolio in order to minimize the impact that any one security will have on the overall performance of the portfolio. Diversification lowers the risk of your portfolio.
10. The technique of identifying firms with publicly traded securities, which are engaged solely in the same line of business as the division or project in question. These comparable firms are called **"pureplay firms"**
11. In finance **short selling** (also known as shorting or going short) is the practice of selling securities or other financial instruments that are not currently owned, and subsequently repurchasing them ("covering").

Systematic Risk vs Unsystematic Risk

Basis	Systematic Risk	Unsystematic Risk
Meaning	Risk inherent to the entire market or entire market segment	Risk inherent to the specific company or industry
Control	Uncontrollable by an organisation	Controllable by an organisation
Nature	Macro in nature	Micro in nature
Types	Interest rate risk, market risk, purchasing power / inflationary risk	Business/Liquidity risk, financial/credit risk
Also Known as	Market risk, Non diversifiable risk	Diversifiable risk
Example	Recession and wars all represent sources of systematic risk because they affect the entire market and cannot be avoided through diversification.	Sudden strike by the employees of a company you have shares in, is considered to be unsystematic risk.

Situation	Interpretation	Action
Actual/Expected Return > CAPM (Required Return)	Security is giving more returns than required. It's Undervalued	Buy
Actual/Expected Return = CAPM (Required Return)	Security is giving equal returns as required. It's correctly valued	Hold
Actual/Expected Return < CAPM (Required Return)	Security is giving less returns than required. It's Overvalued	Sell

Advantages of CAPM

1. Considers only systematic risk
2. Better method to calculate cost of equity of no dividend company
3. Can be used as risk adjusted discounted rate (RADR)

Disadvantages of CAPM

1. Unreliable Beta
2. Hard to get the market information
3. No transaction cost

Assumptions of CAPM

Investors
1. Aim to maximise economic utilities.
2. Are rational and risk averse.
3. Are price takers i.e. they cannot influence price.
4. Can lend and borrow unlimited amount @ risk free rate of interest (Rf).
5. Trade without any transaction or taxation cost
6. Assumes all information is available at the same time to all investors.
7. Assumes that all assets are divisible and liquid asset.
8. Assumes that Securities or capital asset does not face any bankruptcy or insolvency.

Objectives of Portfolio Management

1. Security of the Principal Investment
2. Consistency of returns
3. Risk Reduction
4. Capital Growth
5. Liquidity
6. Marketability
7. Favourable tax treatment

Phases in Portfolio Management

1. Security Analysis
2. Portfolio Analysis
3. Portfolio Selection
4. Portfolio Revision
5. Portfolio Evaluation

Levered (β_L) & Unlevered (β_U) Beta

$$\beta_L = \beta_U\left[1 + \frac{D}{E}\right] \text{ or } \beta_U = \frac{\beta_L}{\left[1 + \frac{D}{E}\right]}$$

Where D/E is the Debt Equity Ratio of the respective company
When more than one firm could be identified as potential pure play, the firm with median beta could be chosen as the pureplay otherwise mean of beta of these can be used.

Minimum Variance Portfolio

$$W_A = \frac{\sigma_B^2 - Cov_{A,B}}{\sigma_A^2 + \sigma_B^2 - 2Cov_{A,B}}$$
$$W_B = 1 - W_A$$

Where,
W_A, W_B = Weight of security A and B in minimum varinace portfolio

Assumptions of Markowitz Model

1. Investors are rational
2. The investors have free access to fair information of returns and risk.
3. The markets are efficient and absorb the information quickly and perfectly.
4. Investors are risk averse
5. Standard deviation or variance and expected returns are the basis for investors to take the decision.

5

... Continued _Portfolio Management

Fixed Income Portfolio

Process

1. Setting up objective
2. Drafting guideline for investment policy
3. Selection of Portfolio Strategy - Active and Passive
4. Selection of securities and other assets
5. Evaluation of performance with benchmark

Methods

Arithmetic Average Rate of Return	$AARR = \frac{\sum R_i}{N}$	Ri=Returns of respective period N= no. of periods
Time Weighted Rate of Return	$TWRR = [(1+R_1)(1+R_2).....(1+R_n)] - 1$	
Money Weighted Rate of Return	$MWRR\ (IRR),\ 0 = PV\ of\ CIF - PV\ of\ COF$	
Annualised Return	$ARR = (1+R)x\frac{365}{No.\ of\ days}$	R= Entire return for holding period

Strategy

Passive Strategy

Buy & Hold

This technique is do nothing technique and investor continues with initial selection and do not attempt to churn bond portfolio to increase return or reduce the level of risk.

Indexation

This strategy involves replication of a predetermined benchmark well known bond index as closely as possible.

Immunization

This strategy is more popular among pension funds. Since pension funds promises to pay fixed amount to retire people in the form of annuities any inverse movement in interest may threaten fund's ability to meet their liability timely. By building an immunized portfolio the interest rate risk can be avoided.

Matching Cash Flows

This approach involves buying of Zero Coupon Bonds to meet the promised payment out of the proceeds realized.

Active Strategy

Forecasting Returns & Interest Rate

1. This strategy invokes the estimation of the return on the basis of change in the interest rates.
2. Since interest rate and bond values are inversely related if portfolio manager is expecting a fall in interest rate of bonds he/she should buy with longer maturity period.
3. On the contrary, if he/she expected a fall in interest then he/she should sell bonds with longer period.

Bullet Strategy | Barbell Strategy | Ladder Strategy

Bond Swaps

This strategy involves regularly monitoring bond process to identify mispricing and try to exploit this situation. Some of the popular swap techniques are as follows:

Pure Yield Pickup Swap

It involves switching from a lower yield bond to a higher yield bond of almost identical quantity and maturity.
It is suitable for portfolio manager who is willing to assume interest rate risk as he may suffer a capital loss.

Substitution Swap

It involves swapping with similar type of bonds in terms of coupon rate, maturity period, credit rating, liquidity and call provision but with different prices.
This type of differences exists due to temporary imbalance in the market.

International Spread Swap

In this swap portfolio manager is of the belief that yield spreads between two countries is temporarily out of line and he tries to take benefit of this mismatch.

Tax Swap

It is based on taking tax advantage by selling existing bond whose price has decreased at capital loss and set it off against capital gain in other securities and buying another security.

Interest Rate Swaps

Interest Rate Swap is another technique that is used by Portfolio Manager. This technique has been discussed in greater details in the chapter Interest Rate Risk. Management.

Portfolio Strategy

The Active portfolio management relies on the fact that particular style of analysis or management can generate returns that can beat the market. It involves higher than average costs and it stresses on taking advantage of market inefficiencies.

Passive asset management relies on the fact that markets are efficient and it is not possible to beat the market returns regularly over time and best returns are obtained from the low cost investments kept for the long term.

Active Portfolio Strategy

Top Down Approach

1. In this approach, managers observe the market as a whole and decide about the industries and sectors that are expected to perform well in the ongoing economic cycle.
2. After the decision is made on the sectors, the specific stocks are selected on the basis of companies that are expected to perform well in that particular sector.

Bottom Up Approach

1. In this approach, the market conditions and expected trends are ignored and the evaluations of the companies are based on the strength of their product pipeline, financial statements, or any other criteria.
2. It stresses the fact that strong companies perform well irrespective of the prevailing market or economic conditions.

Passive Portfolio Strategy

Efficient Market Theory

1. This theory relies on the fact that the information that affects the market is immediately available and processed by all investors.
2. The portfolio managers who follows this theory, firmly believes that market averages cannot be beaten consistently.

Indexing

1. According to this theory, the index funds are used for taking the advantages of efficient market theory and for creating a portfolio that impersonate a specific index.
2. The index funds can offer benefits over the actively managed funds because they have lower than average expense ratios and transaction costs.

Other Portfolio Strategy

Patient Portfolio

The investors buy and hold stocks for longer periods. In this portfolio, the majority of the stocks represent companies that have classic growth and generate higher earnings on a regular basis irrespective of financial conditions.

Aggressive Portfolio

This type of portfolio involves making investments in "expensive stocks" that provide good returns and big rewards along with carrying big risks. This portfolio is a collection of stocks of companies of different sizes that are rapidly growing and expected to generate rapid annual earnings growth over the next few years.

Conservative Portfolio

This type of portfolio involves the collection of stocks after carefully observing the market returns, earnings growth and consistent dividend history.

Asset Allocation Strategies

Strategic

1. Strategic asset allocation is an investment strategy focused on the needs of the investor rather than the constant tracking of the markets.
2. 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 constraints.

Tactical

1. Tactical asset allocation is an active management portfolio strategy that shifts the percentage of assets held in various categories to take advantage of market pricing anomalies or strong market sectors.
2. This strategy allows portfolio managers to create extra value by taking advantage of certain situations in the marketplace. It is as a moderately active strategy since managers return to the portfolio's original strategic asset mix when desired short-term profits are achieved.

Insured

1. With an insured asset allocation strategy, you establish a base portfolio value under which the portfolio should not be allowed to drop.
2. As long as the portfolio achieves a return above its base, you exercise active management to try to increase the portfolio value as much as possible.
3. If, however, the portfolio should ever drop to the base value, you invest in risk-free assets so that the base value becomes fixed.
4. For example, an investor who wishes to establish a minimum standard of living during retirement might find an insured asset allocation strategy ideally suited to his or her management goals.

Integrated

1. While all of the other mentioned strategies take into account expectations for future market returns, not all of the strategies account for investment risk tolerance.
2. Integrated asset allocation, on the other hand, includes aspects of all strategies, accounting not only for expectations but also actual changes in capital markets and your risk tolerance.
3. Obviously, an investor would not wish to implement two strategies that compete with one another.

… Continued Portfolio Management

An alternative investment is an asset that is not one of the conventional investment types, such as stocks, bonds and cash.
Most alternative investment assets are held by institutional investors or accredited, high-net-worth individuals because of the complex natures and limited regulations of the investments.

Alternative Investment

Characteristics

High Fees | Limited Historical Return | Illiquidity | Less Transparency | Extensive Research Required | Leveraged Buying

Distressed Securities

Meaning

1. It is a kind of purchasing the securities of companies that are in or near bankruptcy.
2. The main purpose of buying such securities is to make efforts to revive the sick company.
3. Suitable for those investors who cannot participate in the market and those who wants avoid due diligence.

Analysis of Risk before investing in DS

1. **Liquidity Risk** – These securities may not be saleable in the market.
2. **Event Risk** – Any event that particularly affect the company not economy as a whole
3. **Market Risk** – This is another type of risk though it is not important.
4. **Human Risk** – The judge's decision on the company in distress also play a big role.

Exchanges Traded Funds | Commodities

Managed Futures | Mezzanine Finance

Closely Held Companies

Real Estate

Reasons for Complexity in Valuation

1. Inefficient Market
2. Illiquidity
3. Comparison
4. High Transaction Cost
5. No Organised Market

Approaches used for Valuation

1. Sales Comparison Approach
2. Income Approach
3. Cost Approach
4. Discounted Cash Flow Approach

Hedge Funds

Meaning

1. A hedge fund is an investment vehicle that is structured as a corporation or partnership.
2. The fund is managed by an investment manager in the form of an organization or company that is legally and financially distinct from the hedge fund and its portfolio of assets.
3. Hedge funds are often open-ended and allow additions or withdrawals by their investors.
4. Hedge funds are often open-ended and allow additions or withdrawals by their investors.
5. A hedge fund's value is calculated as a share of the fund's net asset value, meaning that increases and decreases in the value of the fund's investment assets (and fund expenses) are directly reflected in the amount an investor can later withdraw.

Types

Open Ended

Open-end mutual fund shares are bought and sold on demand at their net asset value, or NAV, which is based on the value of the fund's underlying securities and is generally calculated at the close of every trading day. Investors buy shares directly from a fund.

Close Ended

Closed-end funds have a fixed number of shares and are traded among investors on an exchange. Like stocks, their share prices are determined according to supply and demand, and they often trade at a wide discount or premium to their net asset value.

Strategies

1. **Selling Short :** Selling shares without owning them, hoping to buy them back at a future date at a lower price
2. **Using Arbitrage :** Seeking to exploit pricing inefficiencies between related securities.
3. **Trading options and derivatives**
4. **Investing in anticipation of a specific Event:** Merger transaction, hostile takeover, spin-off, exiting of bankruptcy proceedings etc.
5. **Investing in Deeply Discounted securities:** of companies about to enter or exit financial distress or bankruptcy, often below liquidation value.

Features

1. Hedge funds utilize a variety of financial instruments to reduce risk, enhance returns and minimize the correlation with equity and bond markets.
2. Many, but not all, hedge fund strategies tend to hedge against downturns in the markets being traded.
3. Many hedge funds have the ability to deliver non market correlated returns.
4. Many hedge funds have as an objective consistency of returns and capital preservation rather than magnitude of returns.
5. Many hedge funds are managed by experienced investment professionals who are generally disciplined and diligent.

Benefits

1. Ability to generate positive returns in both rising and falling equity and bond markets.
2. Inclusion of hedge funds reduces risk and volatility and increases returns of the portfolio.
3. Huge variety of hedge fund provides investors with a wide choice of hedge fund strategies to meet their investment objectives.
4. Provide an ideal long term investment solution, eliminating the need to correctly time entry and exit from markets.
5. Academic research proves hedge funds have higher returns and lower overall risk than traditional investment funds.

Fixed Maturity Plans

- FMPs are **closely ended mutual funds** in which an investor can invest during a New Fund Offer (NFO). FMPs usually invest in Certificates of Deposits (CDs), Commercial Papers (CPs), Money Market Instruments and Non-Convertible Debentures over fixed investment period. Sometimes, they also invest in Bank Fixed Deposits.
- The trading in FMPs is very less. So, basically FMPs are **not liquid instruments.**
- The main advantage of Fixed Maturity Plans is that they are **free from any interest rate risk** because FMPs invest in debt instruments that have the same maturity as that of the fund.
- However, they **carry credit risk,** as there is a possibility of default by the debt issuing company. So, if the credit rating of an instrument is downgraded, the returns of FMP can come down.

Side Pocketing

- Side Pocketing in Mutual Funds leads to **separation of risky assets** from other investments and cash holdings. The purpose is to make sure that money invested in a mutual fund, which is linked to stressed assets, gets locked, until the fund recovers the money from the company or could avoid distress selling of illiquid securities.
- The modus operandi is simple. Whenever, the rating of a mutual fund decreases, the fund shifts the illiquid assets into a side pocket so that current shareholders can be benefitted from the liquid assets. Consequently, the Net Asset Value (NAV) of the fund will then reflect the actual value of the liquid assets.
- Side Pocketing is beneficial for those investors who wish to hold on to the units of the main funds for long term. Therefore, the process of Side Pocketing ensures that liquidity is not the problem even in the circumstances of frequent allotments and redemptions.
- Side Pocketing is quite common internationally. However, Side Pocketing has also been resorted to bereft the investors of genuine returns.
- In India recent fiasco in the Infrastructure Leasing and Financial Services (IL&FS) has led to many discussions on the concept of side pocketing as IL&FS and its subsidiaries have failed to fulfill its repayments obligations due to severe liquidity crisis.

Tracking Error

- 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.
- Higher the tracking error higher is the risk profile of the fund. Whether the funds outperform or underperform their benchmark indices; it clearly indicates that of fund managers are not following the benchmark indices properly. In addition to the same other reason for tracking error are as follows:
  - Transaction cost
  - Fees charged by AMCs
  - Fund expenses
  - Cash holdings
  - Sampling biasness

The Tracking Error is calculated as follows:

$$TE = \sqrt{\frac{\sum(d - \bar{d})}{n - 1}}$$

d = Differential return

$\bar{d}$ = Average differential return

n = No. of observation

Mutual Fund

Conferenza.in

Meaning

A Mutual Fund is a trust that pools money of a number of investors. The trust is managed by professional fund managers who invest the money collected from investors in capital market instruments such as shares, debentures and other securities.

Players

1. Sponsor
2. Asset Management Company
3. Trustee
4. Unit Holder
5. Mutual Fund

Advantages

1. Professional Management
2. Diversification
3. Affordability
4. Convenience
5. Return Potential
6. Low Cost
7. Liquidity
8. Transparency
9. Well Regulated
10. Flexibility
11. Tax Benefit

Disadvantages

1. No Guaranteed Return
2. High Fees & Expenses
3. Management Risk
4. Diversification
5. Unethical Practices

Factors
affecting selection of mutual funds

1. Past Performance
2. Investment Objectives
3. Expense Ratio
4. Fund Manager
5. PE Ratio
6. Funds Turnover Ratio
7. Size of the Fund

Classification

Functional Classification

1. **Open Ended Scheme**
2. **Close Ended Scheme**
3. **Interval Schemes:** Interval scheme are a cross between an open ended and close ended structure

Portfolio Classification

1. **Equity Funds**
   - Growth Funds
   - Aggressive Funds
   - Balanced Funds
   - Income Funds
2. **Debt Funds**
   - Bond Funds
   - Gilt Funds

Ownership Classification

1. Public Sector Funds
2. Private Sector Funds
3. Foreign Funds
3. **Special Funds**
   - Index Funds
   - International Funds
   - Offshore Funds
   - Sector Funds
   - Money Market Funds
   - Funds of Funds
   - Gold Funds

Schemes

1. Balanced Funds
2. Equity Diversified Funds
   - Index Funds
   - Dividend Yield Fund
     - Dividend Payout Option
     - Dividend Reinvestment Option
   - Small & Mid Cap Funds
3. Tax Saving Funds- Equity Linked Saving Scheme (ELSS)
4. Sector Specific Funds
5. Thematic Funds

Difference between Open, Close & Exchange Traded Funds

Parameter	Open ended funds	Close ended funds	Exchange traded funds
Fund Size	Flexible	Fixed	Flexible
Liquidity provider	Fund itself	Stock market	Stock Market/Fund itself
Sale Price	At NAV plus load, if any	Significant premium/ discount to NAV	Very close to actual NAV of the scheme
Availability	Fund itself	Through exchange where listed	Through exchange where listed/ fund itself
Intra-Day Trading	Not possible	Expensive	Possible at low cost
NAV	Daily	Daily	Real Time
Portfolio Disclosure	Monthly	Monthly	Daily/Real time

Exit Points

1. Consistent under performance
2. Changes in objectives of Mutual Fund
3. Changes in objectives of Investor
4. Replacement of Fund Manager

NAV

- NAV represents the market value of the net assets of the funds
- Assets & Liabilities should be calculated at market value or net realisable value.
- NAV changes Daily.

NAV = (Total Assets - Total Liabilities) / No. of Units

Returns

Holding period return

$$HPR = \frac{(NAV_1 - NAV_0) + CG + I}{NAV_0}$$

Where, HPR= Holding Period Return, NAV_0=Net asset value at beginning, NAV_1=Net asset value at closing, CG =Capital Gains **Distribution,** CG =Interest or Dividend **Received**

Return in case the dividends and capital gains are reinvested

$$HPR = \frac{(N_1 \times NAV_1) - (N_0 \times NAV_0)}{(N_0 \times NAV_0)}$$

N_1 = No. of units at the end of period,
NAV_1 = Ending Price,
N_0 = No. of units at the beginning of period,
NAV_0 = Beginning Price

r_2=Return desired by Investor
r_1=Return earned by Mutual Funds

$$r_2 = \frac{1}{1 - \text{initial exp}} \times r_1 + \text{recurring exp.}$$

1. **Trail Commission**
   - A trailing commission is money you pay an advisor each year that you own an investment.
   - The purpose of the fee is to provide incentive for the advisor to review his clients' holdings and to provide advice.
2. **Entry Load & Exit Load**
   - Entry load is charged at the time an investor purchases the units of a scheme. The entry load percentage is added to the prevailing NAV at the time of allotment of units.
   - Exit load is charged at the time of redeeming (or transferring an investment between schemes). The exit load percentage is deducted from the NAV at the time of redemption (or transfer between schemes).
3. **Expense Ratio**
   - It is the percentage of the assets that were spent to run a mutual fund.
   - It includes things like management and advisory fees, travel costs and consultancy fees.
   - The expense ratio does not include brokerage costs for trading the portfolio.

Expense Ratio

$$ER = \frac{\text{Expenses incurred per unit}}{\text{Average NAV}}$$

$$ER = \frac{\text{Expenses}}{\text{Average value of portfolio}}$$

Securitization

1 Meaning

1. Process of securitization typically involves the creation of pool of assets from the illiquid financial assets, such as receivables or loans which are marketable.
2. It is the process of repackaging or rebounding of illiquid assets into marketable securities.
3. These assets can be automobile loans, credit card receivables, residential mortgages or any other form of future receivables.

2 Features

1. Creation of Financial Instruments
2. Bundling and Unbundling
3. Tools of Risk Management
4. Structured Finance
5. Trenching
6. Homogeneity

3 Participants

Primary Participant

1. Originator
2. Special Purpose Vehicle
3. The Investors

Secondary Participant

1. Obligors (Borrower)
2. Rating Agency
3. Receiving and paying agent (Servicer)
4. Agent or Trustee
5. Credit Enhancer
6. Structurer

4 Mechanism

1. Creation of Pool of Assets
2. Transfer to SPV
3. Sale of Securitized Papers
4. Administration of assets
5. Recourse to Originator
6. Repayment of funds
7. Credit Rating to Instruments

5 Problems

1. Taxation
2. Accounting
3. Lack of standardization
4. Inadequate Debt Market
5. Ineffective Foreclosure laws

6 Benefits

From the angle of Originator

1. Off- Balance Sheet Financing
2. More specialisation in main business
3. Helps to improve financial ratios
4. Reduced borrowing Cost

From the angle of Investor

1. Diversification of Risk
2. Regulatory requirement
3. Protection against default

7 Pricing of Instruments

From Originator's Angle

The instruments can be priced at a rate at which originator has to incur an outflow

From Investor's Angle

Security price can be determined by discounting best estimate of expected future cash flows using rate of yield to maturity of a security of comparable security with respect to credit quality and average life of the securities.

8 Instruments

Pass Through Certificates (PTC)

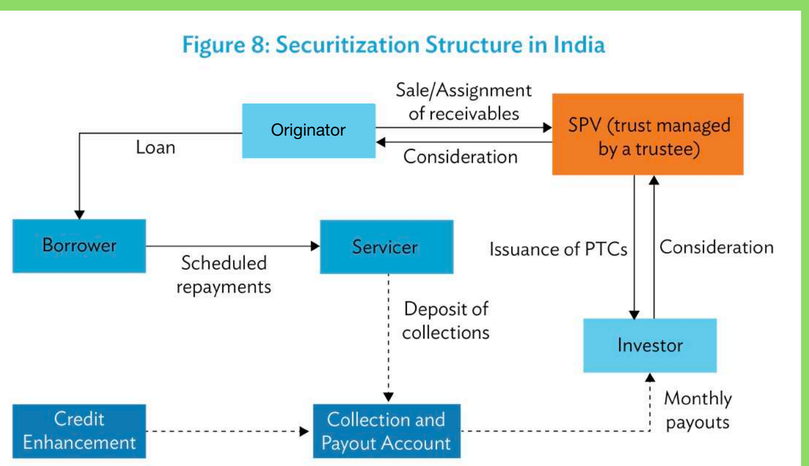
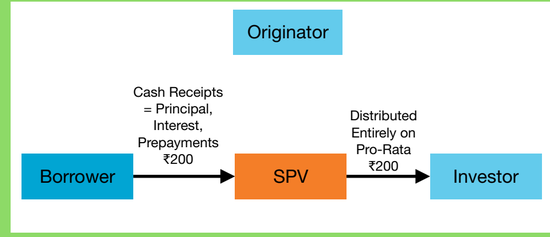


Figure 8: Securitization Structure in India

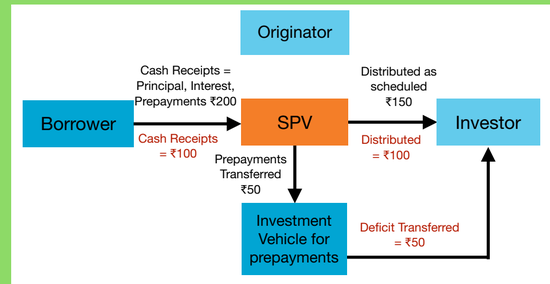
PTC = pass-through (or pay-through) certificate, SPV = special-purpose vehicle.

Source: CRISIL.



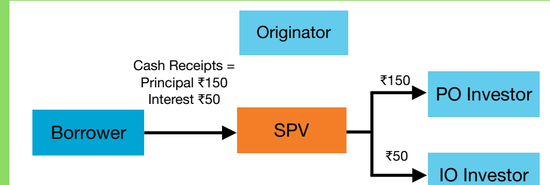
1. Originator (seller of the assets) transfers the **entire** receipt of cash in the form of interest or principal repayment from the assets sold.
2. These securities represent direct claim of the investors on all the assets that has been securitized through SPV.
3. Since all cash flows are transferred the investors carry proportional beneficial interest in the asset held in the trust by SPV.
4. **Since it is a direct route any prepayment of principal is also proportionately distributed among the securities holders.**
5. Further due to these characteristics on completion of securitization by the final payment of assets, all the securities are terminated.

Pay Through Securities (PTS)



1. The PTC structure has a long life and unpredictable cash flows that inhibit participation by some of the fixed income investors.
2. The **pay through structure** reduces the term to maturity and provides some certainty regarding timing of cash flows.
3. It is issued **as a debt security** (bonds / debentures) and designed for variable maturities and yield so as to suit the needs of different investors.
4. The debt instrument is issued in the form of a **tranche** and each tranche is redeemed one at a time.
5. In this case, cash flows are to be reconfigured since they have to match the maturity profile of the debt security.
6. The **payment to investors is at different time** intervals than the flows from the underlying assets.
7. Therefore, the **reinvestment risk** on the cash flows till they are passed on the investors is carried by the SPV.

Stripped Securities



When YTM (Interest Rates)	Price of PO Securities	Price of IO Securities
Increases	Falls	Rise
Decreases	Rises	Falls

Stripped Securities are created by dividing the cash flows associated with underlying securities into two or more new securities. Those two securities are as follows:

(1) **Interest Only** (IO) Securities

(2) **Principle Only** (PO) Securities

1. Accordingly, the holder of IO securities receives only interest while PO security holder receives only principal. Being highly volatile in nature these securities are **less preferred** by investors.
2. In case yield to maturity (YTM) in market rises, PO price tends to fall as borrower prefers to postpone the payment on cheaper loans. Whereas if interest rate in market falls, the borrower tends to repay the loans as they prefer to borrow fresh at lower rate of interest.
3. In contrast, value of IO's securities increases when interest rate goes up in the market as more interest is calculated on borrowings.
4. Thus, from the above, it is clear that it is mainly perception of investors that determines the prices of IOs and POs

Securitization in India

1. It is the **Citi Bank** who pioneered the concept of securitization in India by bundling of auto loans in securitized instruments.
2. Thereafter many organizations securitized their receivables. Although started with securitization of **auto loans** it moved to other types of receivables such as **credit card receivables, residential mortgages or any other form of future receivables**
3. In order to encourage securitization, the Government has come out with Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (**SARFAESI**) Act, 2002, to tackle menace of Non Performing Assets (NPAs) without approaching to Court.
4. It has become an important source of funding for micro finance companies and NBFCs and even now a days **commercial mortgage backed securities** are also emerging.
5. Securitization in Indian Market is that it is dominated by a few players e.g. **ICICI Bank, HDFC Bank, NHB etc.**
6. As per a report of CRISIL, securitization transactions in India scored to the highest level of approximately **Rs.190000 crores**, in Financial Year 2019
7. In order to further enhance the investor base in securitized debts, SEBI allowed **FPIs to invest in securitized debt** of unlisted companies upto a certain limit.

Derivatives Analysis & Valuation

Meaning of Derivatives

1. A Derivative is an agreement between buyer and seller for an underlying asset which is to be bought/sold on certain future date for a certain future price.
2. Derivative does not have any value of its own but its value, in turn, depends on the value of the other physical assets which are called underlying assets.
3. These underlying assets may be securities, commodities, currency, live stock etc. A derivative emerges out of a contract between two parties.
4. Example: Forwards, Futures, Options, Swaps, caps, floors, collars, etc.

Importance of Underlying

All derivative instruments are dependent on an underlying to have value.

1. The change in value in a forward contract is broadly equal to the change in value in the underlying.
2. In the absence of a valuable underlying asset the derivative instrument will have no value.
3. On maturity, the position of profit/loss is determined by the price of underlying instruments. If the price of the underlying is higher than the contract price the buyer makes a profit. If the price is lower, the buyer suffers a loss.

Users of Derivatives

Users	Purpose
Corporation	To hedge currency risk and inventory risk
Individual Investors	For speculation, hedging and yield enhancement.
Institutional Investor	For hedging asset allocation, yield enhancement and to avail arbitrage opportunities.
Dealers	For hedging position, exploiting inefficiencies and earning dealer spreads.

Cash vs Derivatives Market

Basis	Cash Market	Derivatives Market
Assets Traded	Tangible Assets are traded	Contracts based on tangible or intangibles assets like index or rates are traded.
Quantity Traded	Even one share can be purchased	In Futures and Options minimum lots are fixed.
Risk	More Risky	Less Risky
Purpose	Cash assets may be meant for consumption or investment.	Derivative contracts are for hedging, arbitrage or speculation.
Amount Required	Buying securities in cash market involves putting up all the money upfront	Buying futures simply involves putting up the margin money.
Ownership	The holder becomes part owner of the company.	While in futures it does not happen.

Types

Forwards

A forward contract is an agreement between two parties to buy or sell an underlying asset at a certain future time for a certain future price.

Problems with Forward Contract

(a) lack of centralisation of trading,

(b) illiquidity, and

(c) counterparty risk.

Futures

Future contract is identical to the forward contract. The difference in futures contract is that instead of dealing with another party the contract will be entered now with the exchanges who will act as an intermediary

Options

Option Contract is a type of derivatives contract traded on the exchanges which gives the buyer of the contract the **right (but not the obligation)** to buy/sell the underlying asset at a predetermined price within or at the end of a specified period.

Swaps

Discussed in Interest Rate Risk Management Chapter

Option Buyer [Holder]

- Call Option [Right to Buy]
- Put Option [Right to Sell]

Option Seller [Writer]

Premium [Value of the Option] — paid to

Valuation

- Factors
- Methods

Basis

The difference between the prevailing spot price of an asset and the futures price is known as the basis, i.e.,

Basis = Spot price – Futures price

Going Long

When an investor goes long - that is, enters a contract by agreeing to buy asset, it means that he or she is trying to profit from an anticipated future price increase.

Going Short

A speculator who goes short - that is, enters into a futures contract by agreeing to sell asset is looking to make a profit from declining price levels. By selling high now, the contract can be repurchased in the future at a lower price, thus generating a profit for the speculator.

Initial Margin

Participants in a futures contract are required to deposit margins in order to open and maintain a futures position. [Just like we pay rent deposit before we step into the rented house]

Maintenance Margin

The maintenance margin is the minimum amount a futures trader is required to maintain in his margin account in order to hold a futures position. The maintenance margin level is usually slightly below the initial margin.

Mark to Market

- Futures are marked-to-market every day, so the current price is compared to the previous day's price.
- While the margin accounts of each party get adjusted at the end of each day, on the same time the old future contract gets replaced with the new one at the new price.
- Thus each future contract is rolled over to the next day at new price.

Fair Value of Forwards/Futures

Basis	Time Value of Money	Derivatives
Annual	$A = P(1+r)^t$	$F = S(1+r)^t$
Multiple	$A = P\left(1+\frac{r}{n}\right)^{nt}$	$F = S\left(1+\frac{r}{n}\right)^{nt}$
Continuous	$A = Pe^{rn}$	$F = Se^{rn}$

Adjusting for Dividends and Cost
Present value of Dividend Income (I) will be reduced from the spot price above and Present value of Cost C will be added to the spot price.
If given in % the same should be adjusted in rate of interest r.

Hedging with Futures

$$N = \frac{\text{Value to be hedged}}{\text{Futures contract Value}} \times \text{Risk to be reduced}$$

N= No. of contracts of futures to be traded to hedge the spot market position
Risk to be reduced = Multiply by beta only to the extent we have to reduce the risk. If we have to reduce whole risk, then multiply by entire beta.
Futures Contract Value = Futures Price x Lot Size

Forward Contracts vs Futures Contract

Basis	Forward Contract	Futures Contract
Trading	Traded in OTC Market	Traded in Exchange
Default Risk	Traded privately, hence bears risk of default	Are exchange traded which provides the protection and hence no risk of default
Margin Requirement	Involves no margin payment	Initial margin is required to be paid as a good faith money
Transparency	Not transparent as the contract is private in nature	Transparency is maintained and is reported by the exchange
Size of Contract	No standardised size	Standard in terms of quantity or the amount as the case may be
Maturity	Any valid business date agreed to by the two parties	Standard date, usually one delivery date such as the last of Thursday of every month
Currencies Traded	All Currencies	Major Currenicies

Benefits of trading in Index Futures compared to any other security?

1. Thecontracts are highly liquid
2. Index Futures provide higher leverage than any other stocks
3. It requires low initial capital requirement
4. It has lower risk than buying and holding stocks
5. It is just as easy to trade the short side as the long side
6. Only have to study one index instead of 100s of stocks

Call & Put	American & European	Covered & Naked
A **Call option** is the right, but not the obligation, to buy the underlying asset by a certain date for a certain price. A **Put option** is the right, but not the obligation, to sell the underlying asset by a certain date for a certain price.	An option that is exercisable on or before the expiry date is called **American option** and one that is exercisable only on the expiry date, is called **European option**.	In a "**Covered**" Option, the seller of the option already owns the asset. In a "**Naked**" Option, the seller does not own the asset.

Futures Contract vs Option Contract

Basis	Futures Contract	Options Contract
Right	Both the parties have right	Only buyer of the option has the right
Risk	For both the parties	Only for seller of the option
Obligation	For both the parties	Only for seller of the option
Premium	None of the parties is required	Buyer of the option is required to pay it upfront
Settlement	Here settlement is must it never expires	It can simply expires without being exercised
Nature	It is not a pure hedging tool	It is a pure hedging tool
Margin	Both the parties are required to deposit margin	In this only the seller of the option is required to deposit it.

Option Payoff

Basis	Option	Payoff	Effect
Long (Holder of the option)	Call	Payoff = Max (0, Spot Price - Strike Price)	Limited Loss, Unlimited Profit
	Put	Payoff = Max (0, Strike Price - Spot Price)	Limited Profit, Limited Loss
Short (Writer of the option)	Call	Payoff = Min (0, Strike Price - Spot Price)	Limited Profit, Unlimited Loss
	Put	Payoff = Min (0, Spot Price - Strike Price)	Limited Loss, Limited Profit

Options Greeks

Greeks	Symbol	Represents	Formula
Delta	δ	Delta represents the change in the Option value with ₹1 change in the Stock Price	$\text{Delta}(\delta) = \frac{\Delta Vo}{\Delta So}$
Gamma	γ	Gamma represents the change in the Options Delta with ₹1 change in the Stock Price	$\text{Gamma}(\gamma) = \frac{\Delta \delta}{\Delta So}$
Rho	ρ	Rho represents the change in the Options Value with 1% change in the Interest Rates	$\text{Rho}(\rho) = \frac{\Delta Vo}{\Delta r}$
Theta	θ	Theta represents the change in the Options Value with 1 day change in the time to expiry	$\text{Theta}(\theta) = \frac{\Delta Vo}{\Delta t}$
Vega	ν	Vega represents the change in the Options Value with 1% change in the volatility of the stock	$\text{Vega}(\vartheta) = \frac{\Delta Vo}{\Delta \sigma}$

Where, Vo= value of the option, So= Spot price of the stock, r= rate of Interest, t= time to expiration

Intrinsic Value [IV] & Time Value [TV]

- Option Premium has two parts IV & TV |
- **Option Premium = Intrinsic Value + Time Value**
- IV is the difference between the spot price & the strike price of the share to the extent the option is in the money.
- Means at ATM and OTM the intrinsic value of the Option is simply Zero. This represents that intrinsic value can never be negative.

Call Option, IV = Max [S-K,0] Put Option, IV = Max [K-S,0]

Factors Affecting Option Valuation (Option Premium)

Factor		Call	Explanation	Put	Explanation
Stock Price	Increase	▲	For a given strike price(55) increase in the stock price(60,70,80) increases the demand for call hence higher premium and vice-versa	▼	For a given strike price(55) increase in the stock price(30,40,50) decreases the demand for put hence lower premium and vice-versa
	Decrease	▼		▲	
Exercise Price	Increase	▼	For a given stock price (55) increase in the strike price (30,40,50) decreases the demand for call hence lower premium and vice-versa	▲	For a given stock price (55) increase in the strike price (60,70,80) increases the demand for put hence higher premium and vice-versa
	Decrease	▲		▼	
Time to Expiration	More	▲	More the time to expiry, more are the chances for Option to be In The Money, hence higher premium & vice-versa	▲	More the time to expiry, more are the chances for Option to be In The Money, hence higher premium & vice-versa
	Less	▼		▼	
Volatility	More	▲	More the volatility, more are the chances for Option to be In The Money, hence higher premium & vice-versa	▲	More the volatility, more are the chances for Option to be In The Money, hence higher premium & vice-versa
	Less	▼		▼	
Interest Rate	Increase	▲	Increase in interest rate increases the interest income that can be earned on money saved in buying call option, which increases demand for call and premium thereon	▼	Increase in interest rate increases the opportunity cost of interest income on put option which decreases demand for put and premium thereon (however less practical)
	Decrease	▼		▲	

In The Money, At The Money, Out of The Money (ITM, ATM, OTM)

Call		S_t is the spot price (say 50,55,60) at time t and K is the strike price say (55) of the option		Put	
S_t	K	Situation	Explanation	S_t	K
65	55	In The Money (ITM)	If you can make money by exercising it immediately then it is said that CALL/PUT option is In The Money	50	55
55	55	At The Money (ATM)	And if the current price and strike price are equal, it is said to be At The Money	55	55
50	55	Out of The Money (OTM)	If the option were exercised immediately, the option holder would be at loss then it is said that CALL/PUT option is Out of The Money	65	55

Binomial Model

$$\text{Option Value} = \frac{O_u x\, p + O_d x\,(1-p)}{(1+r)}$$

Where,
P is the probability of price moving upwards, r= rate of interest for time t , Ou is the options value at upper level, Od is the options value at lower level

Calculation of Probability (p)

$$S_o = \frac{S_u x p + S_d(1-p)}{1+r}$$

$S_o(1+r) = S_u x p + S_d - S_d x p$

$S_o(1+r) = p(S_u - S_d) + S_d$

$p = \frac{S_o(1+r) - S_d}{(S_u - S_d)}$

Divide RHS by S_o

$p = \frac{(1+r) - S_d/S_o}{S_u/S_o - S_d/S_o}$

$p = \frac{(1+r) - d}{u - d}$

P_s = Probability of price moving upwards
S_o = Stock price at time 0
S_u = Stock price at upper level
S_d = Stock price at lower level
$u = S_u/S_o$ = upward volatility
$d = S_d/S_o$ = Downward volatility

Black Scholes Model

VALUE OF CALL OPTION

$$C_o = S\,x\,N(d_1) - Ke^{-rt}\,x\,N(d_2)$$

VALUE OF PUT OPTION

$$P_o = Ke^{-rt}\,x\,[1 - N(d_2)] - S\,x[1 - N(d_1)]$$

Where,

$$d_1 = \frac{\ln\left(\frac{S}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}, \qquad d_2 = d_1 - \sigma\sqrt{t}$$

S = current stock price, K = strike price of the option
t = time remaining until expiration, r = current continuously compounded risk free interest rate, σ = standard deviation of continuously compounded annual return
ln = natural logarithm, N(x) = Standard normal cumulative distribution function

Adjusting for Dividends
In case of dividend yield (y = dividends/current value of the asset)

Call Option $= C_o = Se^{-yt}\,x\,N(d_1) - Ke^{-rt}\,x\,N(d_2)$

Put Option $= P_o = Ke^{-rt}\,x[1 - N(d_2)] - Se^{-yt}\,x[1 - N(d_1)]$

Where, $d_1 = \frac{\ln\left(\frac{S}{K}\right) + \left(r - y + \frac{\sigma^2}{2}\right)t}{\sigma\sqrt{t}}, \qquad d_2 = d_1 - \sigma\sqrt{t}$

Put Call Parity Theory

It states that there exists some relationship between value of the call Option & value of the put option.

$$S + P_o = C_o + PV\ of\ K$$

Where, S= Spot price of the underlying asset,
K= Exercise price of the stock, Po= Price (Premium) of the put option,
Co= Price (Premium) of the call option

Interest Rate Risk Management

Determinants

1. **Supply and Demand** : When economic growth is high, demand for money increases, pushing the interest rates up and vice versa.
2. **Inflation** - The higher the inflation rate, the more interest rates are likely to rise.
3. **Government** - Government is the biggest borrower. The level of borrowing also determines the interest rates.

Types

Gap Exposure

Gap Exposure = Interest Rate Sensitive Assets (Rs) - Interest Rate Sensitive Liabilities (Rs)

1. A **positive or asset sensitive gap** means that an increase in market interest rates could cause an increase in Net Interest Income (NII).
2. Conversely, a **negative or liability sensitive gap** implies that the banks' NII could decline as a result of increase in market interest rates.
3. Positive or Negative Gap is multiplied by the assumed interest rate changes to derive the **Earnings at Risk (EaR)**. The EaR method facilitates to estimate how much the earnings might be impacted by an adverse movement in interest rates.

Basis Risk

1. 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.
2. For example while assets may be benchmarked to Fixed Rate of Interest, liabilities may be benchmarked to Floating Rate of Interest.

Embedded Option Risk

1. 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.
2. The faster and higher the magnitude of changes in interest rate, the greater will be the embedded option risk to the banks' NII.

Yield Curve Risk

1. In a floating interest rate scenario, banks may price their assets and liabilities based on different benchmarks, i.e. TBs yields, fixed deposit rates, call money rates, MIBOR, etc.
2. In case the banks use two different instruments maturing at different time horizon for pricing their assets and liabilities, any non-parallel movements in yield curves would affect the NII.

Price & Reinvestment Risk

1. Price risk is simply the risk that the price of a security will fall.
2. In the financial market, bond prices and yields are inversely related.
3. Increase in Interest Rates will lead to fall in prices
4. Decrease in Interest Rates will lead to increase in prices

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

Methods to Measure

1. The traditional Maturity Gap Analysis (to measure the interest rate sensitivity of earnings),
2. Duration (to measure interest rate sensitivity of capital),
3. Simulation and
4. Value at Risk.

Hedging

Traditional Methods

Asset & Liability Management

1. ALM 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)
2. Banks and other financial institutions provide services which expose them to various kinds of risks like credit risk, interest risk, and liquidity risk.
3. It is therefore appropriate for institutions (banks, finance companies, leasing companies, insurance companies, and others) to focus on asset- liability management when they face financial risks of different types.

Forward Rate Agreement

1. A forward rate agreement (FRA) is an over-the-counter contract between parties that determines the rate of interest to be paid or received on an obligation beginning at a future start date.
2. An FRA involves two counterparties: the fixed rate receiver (short) and the floating rate receiver (long). Thus, being long the FRA (Fixed Payer) means that you gain when Libor rises (because you have to pay fix rate even if the libor has increased).
3. If we are the fixed receiver, then it is understood without saying that we also are the floating payer, and vice versa.
4. Because there is no initial exchange of cash flows, to eliminate arbitrage opportunities, the FRA price is the fixed interest rate such that the FRA value is zero on the initiation date.
5. FRAs are identified in the form of "X, Y" where X and Y are months and the multiplication symbol, ×, is read as "by." To grasp this concept and the notion of exactly what is the underlying in an FRA, consider a 3 × 9 FRA, which is pronounced "3 by 9"
6. The 3 indicates that the FRA expires in three months. The underlying is implied by the difference in the 3 and the 9
7. FRAs are cash settled with the payment based on the net difference between the interest rate and the reference rate in the contract.

$$\text{Settlement} = \frac{(N)(RR - FR)(\frac{dtm}{DY})}{[1 + RR(\frac{dtm}{dy})]} \times 100$$

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 LIBOR 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 LIBOR > FR the seller owes the payment to the buyer, and if LIBOR < FR 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.

Modern Methods

Interest Rate Futures

1. An interest rate future is a contract between the buyer and seller agreeing to the future delivery of any interest- bearing asset.
2. Interest rate futures are used to hedge against the risk that interest rates will move in an adverse direction, causing a cost to the company.
3. Currently, Interest Rate Futures segment of NSE offers two instruments i.e. Futures on 6 year, 10 year and 13 year Government of India Security and 91 day Government of India Treasury Bill (91 DTB).
4. Bonds form the underlying instruments, not the interest rate. Further, IRF, settlement is done at two levels:
   1. Mark-to-Market settlement done on a daily basis and
   2. Physical delivery which happens on any day in the expiry month.
5. In IRF following are two important terms:

1. **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 is published by NSE.

   (Conversion Factor) x (futures price) = actual delivery price for a given deliverable bond.

2. **Cheapest to Deliver (CTD):** The CTD is the bond that minimizes difference between the quoted Spot Price of bond and the Futures Settlement Price (adjusted by the conversion factor). It is called CTD bond because it is the least expensive bond in the basket of deliverable bonds.

   Profit of seller of futures

   = (Futures Settlement Price x Conversion factor) − Quoted Spot Price of Deliverable Bond

   Loss of Seller of futures

   = Quoted Spot Price of deliverable bond − (Futures Settlement Price x Conversion factor)

   That bond is chosen as CTD bond which either maximizes the profit or minimizes the loss

Interest Rate Options

Caps:

A cap provides a guarantee that the coupon rate each period will not be higher than agreed limit. It will be capped at certain ceiling.

It's a derivative instrument where the buyer of the cap receives payment at the end of each period where the rate of interest exceeds the agreed strike price.

Floors :

A floor provides a guarantee that the coupon rate each period will not be lower than agreed limit. It will be floored at certain ceiling.

It's a derivative instrument where the buyer of the floor receives payment at the end of each period where the rate of interest goes below the agreed strike price.

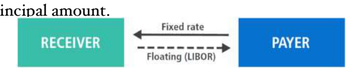
Collars :

Collar provides a guarantee that the coupon rate each period will not fall below lower limit and will not go beyond upper limit. It will be capped at upper limit and floored at lower limit.

It's a combination of caps and floors.

Interest Rate Swaps

An interest rate swap is an agreement between two counterparties in which one stream of future interest payments is exchanged for another based on a specified principal amount.



Types

1. **Plain Vanilla Rate Swap**
   1. In this swap, Party A agrees to pay Party B a predetermined, fixed rate of interest on a notional principal on specific dates for a specified period of time.
   2. Concurrently, Party B agrees to make payments based on a floating interest rate to Party A on that same notional principal on the same specified dates for the same specified time period.
2. **Basis Rate Swap**
   1. A basis swap is a floating-floating interest rate swap. A simple example is a swap of 1-month Libor for 6-month Libor.
3. **Asset Rate Swap**
   1. Similar in structure to a plain vanilla swap, the key difference is the underlying of the swap contract. Rather than regular fixed and floating loan interest rates being swapped, fixed and floating investments are being exchanged.
   2. In a plain vanilla swap, a fixed libor is swapped for a floating libor. In an asset swap, a fixed investment such as a bond with guaranteed coupon payments is being swapped for a floating investment such as an index.
4. **Amortising Rate Swap**
   1. An exchange of cash flows, one of which pays a fixed rate of interest and one of which pays a floating rate of interest, and both of which are based on a notional principal amount that decreases.
   2. In an amortising swap, the notional principal decreases periodically because it is tied to an underlying financial instrument with a declining (amortising) principal balance, such as a mortgage.

Swaptions

Meaning

1. 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.

Features

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.

Uses

1. Swap traders can use them for speculation purposes or to hedge a portion of their swap books.
2. Swaptions have become useful tools for hedging embedded optionality which is common to the natural course of many businesses.
3. Swaptions are useful to borrowers targeting an acceptable borrowing rate.
4. Swaptions are also useful to those businesses tendering for contracts.
5. Swaptions also provide protection on callable/puttable bond issues.

Categories

- **Bermudian Swaption** — In which the owner is allowed to enter the swap on multiple specified dates.
- **European Swaption** — In which the owner is allowed to enter the swap only on the expiration date.
- **American Swaption** — In which the owner is allowed to enter the swap on any day that falls within a range of two dates.

Foreign Exchange & Risk Management

Basics

1 Exchange Rate
Rate at which one currency is converted in another currency.

2 Base Currency & Counter Currency
Base Currency = Underlying Asset
Counter Currency = Price or Quote Currency

USDINR 68.90

Here, **USD** is Base Currency and **INR** is Counter Currency
The above quote is read as INR 68.90 for 1 USD

3 Bid & Ask Rate
Bid - Banks Buying rate for **Base Currency**
Ask - Banks Selling rate for **Base Currency**
Example

USDINR 68.90/95

From Bank's Angle		68.90	68.95
Base Currency	USD	Buy	Sell
Counter Currency	INR	Sell	Buy

Bank always buy cheaper and sell higher

4 Direct & Indirect Quote
DQ- If the quote is given as Home Currency per unit of Foreign Currency it is direct quote
IDQ- If the quote is given as Foreign Currency per unit of Home Currency it is indirect quote

USDINR 68.90/95

Above quote is Direct for Indian entity, and Indirect for American entity

Direct Quote = 1/Indirect Quote
Bid(DQ)= 1/Ask(IDQ)
Ask(DQ)= 1/Bid(IDQ)

5 Spot Rate & Forward Rate
Spot Rate - Rate at which one currency can be converted into another currency **at spot (t=0)**

Forward Rate - Rate at which one currency can be converted into another currency **at some future date (t=3,6,9)**

6 Spread & Swap
Spread - Difference between Ask & Bid
Swap - Difference between Forward & Spot

₹/$ (USDINR)	Bid	Ask	Spread Points
Spot	65.4025	65.4250	**225**
Forward	65.4100	65.4375	**275**
Swap Points (Forward Margin)	**75**	**125**	

7 American & European Quote
American Quote: The rates quoted in amounts of US dollar per unit of foreign currency.

INRUSD 0.0145/0149

European Quote: The rates quoted in amounts of Foreign currency per unit of USD.

USDINR 68.90/95

8 Cross Rates
$$\frac{A}{C} = \frac{A}{B} \times \frac{B}{C}$$

USDINR = USDGBP X GBPINR

Bid(USDINR) = Bid(USDGBP) X Bid(GBPINR)
Bid(USDINR) =1/Ask(GBPUSD) X 1/Ask(INRGBP)

Ask(USDINR) = Ask(USDGBP) X Ask(GBPINR)
Ask(USDINR) =1/Bid(GBPUSD) X 1/Bid(INRGBP)

9 Premium & Discount

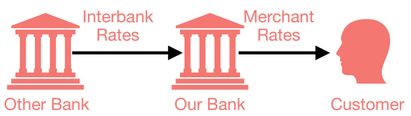
Premium/(Discount) in Base Currency	Premium/(Discount) in Counter Currency
$\frac{F-S}{S}$ or $\frac{F}{S}-1$	$\frac{S-F}{F}$ or $\frac{S}{F}-1$

F= Forward Rate, S= Spot Rate

10 PIPS (Price Interest Point)
- It is the smallest unit by which a currency quotation can change. E.g., USD/INR quoted to a customer is INR 61.75.
- The minimum value this rate can change is either INR 61.74 or INR 61.76. In other words, for USD/INR quote, the pip value is 0.01.
- However, in Indian interbank market, USD-INR rate is quoted upto 4 decimal point. Hence minimum value change will be to the tune of 0.0001.

11 Merchant Rates & Interbank Rates
- Exchange rates applied to all types of customersare called merchant rates as against the rates quoted to each other by banks in the interbank market, which are called interbank rates.

Interbank Rates + Margin = Merchant Rates



12 Broken Period Forward Rate
For broken period the convenient way is to interpolate the rates between the two standard day
What is the forward rate of ₹/$ for 3 months 25 days?

Spot ₹/$ 47.0725/745	1m 133/140	3m 145/160	6m 155/175
Bid Rate	145 + (155-145) x 25/90	148	47.0725+0.0148 = **47.0873**
Ask Rate	160 + (175-160) x 25/90	164	47.0745+0.0164 = **47.0909**
Spot ₹/$ 47.0725/745	**1m 140/133**	**3m 160/145**	**6m 175/155**
Bid Rate	160 + (175-160) x 25/90	164	47.0725-0.0164 = **47.0561**
Ask Rate	145 + (155-145) x 25/90	148	47.0745-0.0148 = **47.0597**

Theories in Forex

1 Interest Rate a Parity Theory
It states that higher interest in one country will be offset by depreciation in the currency of that country

When Exchange Rates are in Direct Quote	When Exchange Rates are in Indirect Quote
$\frac{1+rd}{1+rf} = \frac{F}{S}$	$\frac{1+rf}{1+rd} = \frac{F}{S}$

Where, rd, rf =Interest Rates of Domestic and Foreign Country. F= Forward Rate, S= Spot Rate

Interest Rate Differential
Low interest currency should be at **premium** equal to interest rate differential and until then we should **borrow** this currency and beyond this we should **invest** in that currency for arbitrage gain.

High interest currency should be at **discount** equal to interest rate differential and until then we should **invest** in this currency and beyond this we should **borrow** that currency for arbitrage gain.

Arbitrage using IRPT

If Low Interest Rate Currency is at		Action on Low Interest Rate Currency
Discount		Borrow
Premium	Less than IRD	Borrow
	Equals IRD	No Arbitrage
	More than IRD	Invest

If Low Interest Rate Currency is at		Action on Low Interest Rate Currency
Discount		Borrow
Premium	Less than IRD	Borrow
	Equals IRD	No Arbitrage
	More than IRD	Invest

2 Purchasing Power Parity Theory
It states that higher inflation in one country will be offset by depreciation in the currency of that country

When Exchange Rates are in Direct Quote	When Exchange Rates are in Indirect Quote
$\frac{1+i_d}{1+i_f} = \frac{F}{S}$	$\frac{1+i_f}{1+i_d} = \frac{F}{S}$

Where, id , if =Inflation Rates of Domestic and Foreign Country. F= Forward Rate, S= Spot Rate

3 International Fisher Effect
According to the IFE, 'nominal risk-free interest rates contain a real rate of return and anticipated inflation'. This means if investors of all countries require the same real return, interest rate differentials between countries may be the result of differential in expected inflation.

Exposures in Forex

1 Transaction Exposure
- It measures the effect of an exchange rate change on outstanding obligations that existed before exchange rates changed but were settled after the exchange rate changes. Thus, it deals with cash flows that result from existing contractual obligations.

2 Translation Exposure
- Also known as accounting exposure, it refers to gains or losses caused by the translation of foreign currency assets and liabilities into the currency of the parent company for consolidation purposes.
- Translation exposures arise due to the need to "translate" foreign currency assets and liabilities into the home currency for the purpose of finalizing the accounts for any given period. A typical example of translation exposure is the treatment of foreign currency loans.

3 Economic Exposure
- It refers to the extent to which the economic value of a company can decline due to changes in exchange rate. It is the **overall impact** of exchange rate changes on the value of the firm. The essence of economic exposure is that exchange rate changes significantly alter the cost of a firm's inputs and the prices of its outputs and thereby influence its competitive position substantially.

1. I hated every minute of training. But I said, "Don't quit. Suffer now and live the rest of your life as a champion."– Muhammad Ali
2. Unless you try to do something beyond what you have already mastered, you will never grow."
3. Would you like me to give you a formula for success? It's quite simple, really: Double your rate of failure. "You are thinking of failure as the enemy of success. But it isn't at all."You can be discouraged by failure or you can learn from it, so go ahead and make mistakes. Make all you can. Because remember that's where you will find success."

Risk Management in Forex

Decision

No Hedging
Keeping the position open

Hedging

Internal

1 Home Currency Invoicing
- By invoicing in home currency exporter can shift the risk of foreign exchange rate movements.
- Trading in home currency has some advantage but buyers may prefer invoice in their home currency.

2 Leading & Lagging
- Leading refers to prepaying import payments or receiving early payment for exports;
- Lagging relates to delaying import payments or receiving late payment on exports.

3 Netting
- The simplest scheme is known as bilateral netting and involves pairs of companies.
- Each pair of associates nets out their own individual positions with each other & cash flows are reduced by the lower of each company's purchases from or sales to its netting partner.
- It reduces the number of inter company payments and receipts.
- It reduces banking costs and increases central control of inter company settlements.

4 Matching
- Matching is a mechanism whereby a company matches its foreign currency inflows with its foreign currency outflows in respect of amount and approximate timing.
- The prerequisite for a matching operation is a two-way cash flow in the same foreign currency
- Although netting and matching are terms, which are frequently used interchangeably, there are distinctions. Netting is a term applied to potential flows within a group of companies whereas matching can be applied to both intra-group and to third-party balancing.

5 Price Variation
- Price variation involves increasing selling prices to counter the adverse effects of exchange rate change.

6 Asset & Liability Management
- This technique can be used to manage balance sheet, income statement or cash flow exposures.
- It has aggressive or defensive postures. In the aggressive attitude, the firm simply increases exposed cash inflows denominated in currencies expected to be strong or increases exposed cash outflows denominated in weak currencies. By contrast, the defensive approach involves matching cash inflows and outflows according to their currency of denomination, irrespective of whether they are in strong or weak currencies.

External

1 Derivatives
1. Forward
2. Futures
3. Options
4. Swaps

Whether we want to buy futures or buy option it depends upon the underlying asset which the stock exchange is trading

Say If you Want to Buy Dollars

Situation 1

Now Futures available in the market at the price of Rs/$ = 50

or Options available in the market at the strike price of Rs/$ = 50

Here the asset (product) = is Dollar (which is 1 in unit) and Price for the asset is Rupees (which is 50)

What do you want to do with the Asset(dollar) = Buy, hence Buy Futures (or Call Option)

Situation 2

Now Futures available in the market at the price of $/Rs = 0.02

or Options available in the market at the strike price of $/Rs = 0.02

Here the asset (product) = is Rupees (which is 1 in unit) and Price for the asset is Dollar (which is 0.02)

What do you want to do with the Asset(Rupees) = Sell (because you want to buy dollars, means you want to sell rupees) ,

If you want to sell asset then Sell Futures(buy Put Option)

Conclusion

It all depends on the UNDERLYING ASSET which the stock exchange is trading in , and not what you want.

If you want to sell Asset - Sell Futures, or Buy Put Option

If you want to buy Asset -Buy Futures, or Buy Call Option

If you will solve Currency Futures and Options questions by considering the above logic , the answer will never be wrong.

Money Market Hedge
The main objective is to "arrange the transactions in such a manner that on due date there should not be any flow of cash from one country to another country"

In case of **FC *Liability***

1. There is a **foreign currency liability.**
2. Hence create **foreign currency asset.**
3. Determine the **present value** of the foreign currency liability (discounting factor is the **FC deposit rate**).
4. **Borrow home currency** equivalent to the present value of the FC liability.
5. **Convert the borrowed home currency** in foreign currency at the spot rate.
6. **Invest** this foreign currency amount at **FC deposit rate.**
7. On maturity, **invested amount will be exactly equal to the foreign currency liability.** Receive the maturity proceeds and settle the FC Liability.
8. On the other hand the home currency borrowed amount will due for payment along with the interest.

In case of **FC *Asset***

1. There is a **foreign currency asset.**
2. Hence create **foreign currency liability.**
3. Determine the **present value** of the foreign currency asset (discounting factor is the **FC lending rate**).
4. **Borrow foreign currency** equivalent to the present value of the FC asset.
5. **Convert the borrowed foreign currency** in home currency at the spot rate.
6. **Invest** this converted home currency amount at **HC deposit rate.**
7. On maturity, **FC borrowed amount will be exactly equal to the foreign currency asset.** Receive FC asset and settle the due borrowings.
8. On the other hand the home currency invested amount will mature receive the same along with interest.

Foreign Exchange & Risk Management

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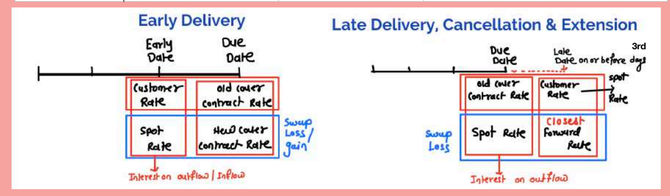
Delivery Cancellation & Extension of Forward Contracts

	Early	On due date	Late
Delivery	1. Deliver at Agreed Rate 2. Interest on outflow or inflow of funds (if any) 3. Swap Gain or Loss (if any)	Deliver at Agreed Rate	**Cancel the Old Contract** 1. Cancel at Spot Rate or the rate on 3rd day from due date whichever is earlier 2. Interest on outflow of funds (if any) 3. Swap Gain or Loss (if any) **Enter into New Contract** 4. Deliver at Spot Rate
Cancellation	Cancel at Forward Rate for the balance period of the original forward contract	Cancel at Spot Rate	**Cancel the Old Contract** 1. Cancel at Spot Rate or the rate on 3rd day from due date whichever is earlier 2. Interest on outflow of funds (if any) 3. Swap Gain or Loss (if any)
Extension	**Cancel the Old Contract** 1. Cancel at Forward Rate for the balance period **Enter into New Contract** 2. At relevant Forward Rate	**Cancel the Old Contract** 1. Cancel at Spot Rate **Enter into New Contract** 2. At relevant Forward Rate	**Cancel the Old Contract** 1. Cancel at Spot Rate or the rate on 3rd day from due date whichever is earlier 2. Interest on outflow of funds (if any) 3. Swap Gain or Loss (if any) **Enter into New Contract** 4. At relevant Forward Rate

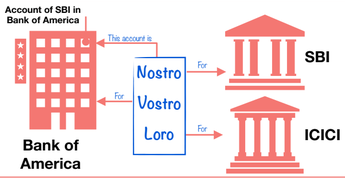


1. In case of Late Delivery, Cancellation, Extention profit if any is not passed on but loss if any is recovered from customer.

2. **Swap Gain or Loss**
   - In case of **Early Delivery** - Swap loss or gain is the Difference between Early Date Spot Rate & New Forward Contract Rate taken to cancel cover contract
   - In case of **Late delivery, cancellation or extension**-Swap loss is the Difference between Due Date Spot Rate & Closest Forward Contract Rate
3. **Interest on Outlay or Inflow of Funds**
   - In case of **Early Delivery** - Interest is calculated on the net inflow or outflow on **early date** which is the difference between the **agreed rate** with customer & **spot rate.**
   - In case of **Late delivery, cancellation or extension**- Interest is calculated on net inflow or outflow **on due date** which is the difference between the original **cover rate & spot rate.**

Nostro, Vostro & Loro Account

Nostro Account	**"Our** account with **your** bank"	Nostro accounts are generally held in a foreign country (with a foreign bank), by a domestic bank (from our perspective, our bank). It is obvious that account is maintained in that foreign currency.	State Bank of India account in Bank of America is a Nostro Account for State Bank of India
Vostro Account	**"Your** account with **our** bank"	Vostro accounts are generally held by a foreign bank in our country (with a domestic bank). It is generally maintained in Indian Rupee (if we consider India)	State Bank of India account in Bank of America is a Vostro Account for Bank of America
Loro Account	**"Your** account with **their** bank"	Loro accounts are generally held by a 2nd party bank account in 3rd Party's bank.	State bank of India account in Bank of America is Loro Account for ICICI Bank



Market Particpiants

The participants in the foreign exchange market can be categorized as follows

- **Non-bank Entities** - to meet their import or export commitments or hedge their transactions against fluctuations
- **Banks** - Banks also exchange currencies as per the requirements of their clients.
- **Speculators** - they buy and sell currencies with a view to earn profit due to fluctuations in the exchange rates.
- **Arbitrageurs** - make profit from price differential existing in two markets by simultaneously operating in two different markets.
- **Governments** - monitor the market and help in stabilizing the exchange rates.

Strategies for Exposure Management

- **Low Risk: Low Reward**
  This option involves automatic hedging of exposures in the forward market as soon as they arise, irrespective of the attractiveness or otherwise of the forward rate.
- **Low Risk: Reasonable Reward**
  This strategy requires selective hedging of exposures whenever forward rates are attractive but keeping exposures open whenever they are not.
  This option is similar to an investment strategy of a combination of bonds and equities with the proportion of the two components depending on the attractiveness of prices.
- **High Risk: Low Reward**
  Perhaps the worst strategy is to leave all exposures unhedged. The risk of destabilization of cash flows is very high. The merit is zero investment of managerial time or effort.
- **High Risk: High Reward**
  This strategy involves active trading in the currency market through continuous cancellations and re-bookings of forward contracts.

ISO 4217

- ISO 4217 is the international standard describing **three-letter codes** (also known as the currency code) to define the names of currencies, as established by the International Organization for Standardization (ISO).
- The ISO 4217 code list is the common way in banking and business, all over the world, for defining different currencies.
- The first two letters of the code are the two letters of **country codes**. The third letter is usually the **initial of the currency** itself.

Flag	Country / Entity	Currency	Code
	India	Indian Rupee	INR
	United States of America	US Dollar	USD
	Japan	Yen	JPY
	United Kingdom	Pound	GBP
	Canada	Canadian Dollar	CAD
	Switzerland	Swiss Franc	CHF
	Australia	Australian Dollar	AUD
	Singapore	Singapore Dollar	SGD
	Europe	Euro	EUR

International Financial Management

International Capital Budgeting

1 Complexities involved in International Capital Budgeting

1. Cash flows from foreign projects have to be **converted** into the currency of the parent organization.
2. Profits remitted to the parent firm are subject to **tax** in the home country as well as the host country
3. Effect of **foreign exchange risk** on the parent firm's cash flow
4. Changes in rates of **inflation** causing a shift in the competitive environment and thereby affecting cash flows over a specific time period
5. **Restrictions imposed on cash flow distribution** generated from foreign projects by the host country
6. **Political risk** in the form of changed political events reduce the possibility of expected cash flows
7. Estimation of the **terminal value** in multinational capital budgeting is difficult since the buyers in the parent company have divergent views on acquisition of the project.

2 Adjusting the Discunt Rate in International Capital Budgeting

1. Normally discount rate is adjusted upwards for higher risk in the project and downwards for lower risk in the project.
2. It simply means higher the risk , higher should be the discount rate and vice versa.
3. But lately it is argued that instead of adjusting the discount rate while considering risk it is worthwhile to adjust cash flows.
   - The annual cash flows are discounted at a rate applicable to the project either at that of the host country or parent country.
   - Probability with certainty equivalent method along with decision tree analysis are used for economic and financial forecasting.
   - Cash flows generated by the project and remitted to the parent during each period are adjusted for political risk, exchange rate and other uncertainties by converting them into certainty equivalents.

3 Different Scenarios Involved

1. Foreign company investing in India
2. An Indian Company is investing in foreign country by raising fund in the same country
3. An Indian Company is investing in foreign country by raising fund in different country through the mode of Global Depository Receipts (GDRs)

4 Adjusted Net Present Value (APV)

1. Different components of the project's cash flow have to be discounted separately.
2. The APV method uses different discount rates for different segments of the total cash flows depending on the degree of certainty attached with each cash flow.

APV = NPV + PV of Tax Shield on Interest + PV of Interest Subsidies

International Sources of Finance

Source	1 Foreign Currency Convertible Bonds (FCCBs)	2 American Depositary Receipts (ADR)	3 Global Depositary Receipts (GDR)	4 Euro Convertible Bonds
Meaning	• A type of convertible bond issued in a currency **different than the issuer's domestic 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.**	• U.S. banks simply purchase a large lot of shares from a foreign company, bundle the shares into groups and reissue them on either the NYSE, AMEX or Nasdaq. • The depository bank sets the ratio of U.S. ADRs per home country share. This ratio can be anything less than or greater than 1. For example, a ratio of 4:1 means that one ADR share represents four shares in the foreign company.	• GDR is similar to an ADR, but is a depositary receipt sold outside of the United States and outside of the home country of the issuing company. • If the Indian Company which has issued ADRs in the American market wishes to further extend it to other countries such as Europe, then they can sell these ADRs to the public of Europe and the same would be named as GDR.	• Euro Convertible bonds are quasi-debt securities (unsecured) which can be converted into depository receipts or local shares. • ECBs offer the investor an option to convert the bond into equity at a fixed price after the minimum lock in period. • The price of equity shares at the time of conversion will have a premium element. The bonds carry a fixed rate of interest. • Indian companies which have opted ECBs issue are Jindal Strips, Reliance, Essar Gujarat, Sterlite etc. • Indian companies are increasingly looking at Euro-Convertible bond in place of Global Depository Receipts because GDRs are falling into disfavour among international fund managers.
Advantages	1. Flexibility to convert the bond into equity at a price or redeem the bond at the end of a specified period,. 2. Companies prefer bonds as it leads to delayed dilution of equity and allows company to avoid any current dilution in earnings per share 3. Investor is assured of a minimum fixed interest earnings	1. ADRs allow US Investor to invest in companies outside North America with greater ease. 2. By investing in different countries, you have the potential to capitalize on emerging economies.	**Advantages to Company** 1. Accessibility to foreign capital markets 2. Rise in the capital because of foreign investors **Advantages to Investor** 3. Helps in diversification, hence reducing risk 4. More transparency since competitor's securities can be compared	
Disadvantages	1. Exchange risk is more in FCCBs as interest on bonds would be payable in foreign currency. 2. FCCBs mean creation of more debt and a forex outgo in terms of interest which is in foreign exchange. 3. The interest rate is low, say around 3– 4%.	1. ADRs come with more risks, involving political factors, exchange rates and so on. 2. Language barriers and a lack of standards regarding financial disclosure can make it difficult to research foreign companies		

International Working Capital Management

1 Complexities involved in International Working Capital Management

1. A multinational firm has a wider option for financing its current assets. A MNC has funds flowing in from different parts of international financial markets. Therefore, it may choose to avail financing either locally or from global financial markets.
2. Interest and tax rates vary from one country to the other. A Treasurer associated with a multinational firm has to consider the **interest/ tax rate differentials** while financing current assets.
3. A multinational firm is confronted with **foreign exchange risk.**
4. Restrictions imposed by the home or host country government towards **movement of cash and inventory** on account of political considerations affect the growth of MNCs.
5. With **limited knowledge of the politico-economic** conditions prevailing in different host countries, a Manager of a multinational firm often finds it difficult to manage working capital of different units of the firm operating in these countries. The pace of development taking place in the communication system has to some extent eased this problem.

2 Objectives of International Cash Management

1. To minimise **currency exposure risk**
2. To minimise overall **cash requirements** of the company as a whole without disturbing smooth operations of the subsidiary or its affiliate
3. To minimise **transaction costs**
4. To minimise country's **political risk**
5. To take advantage of **economies of scale** as well as reap benefits of **superior knowledge.**

3 How Centralised Cash Management helps MNCs

1. To maintain **minimum cash balance** during the year
2. To manage judiciously **liquidity requirements** of the centre
3. To optimally use various **hedging strategies** so that MNC's foreign exchange exposure is minimised
4. To aid the centre to generate **maximum returns by investing** all cash resources optimally
5. To aid the centre to take advantage of **multinational netting** so that transaction costs and currency exposure are minimised
6. To make maximum utilization of **transfer pricing mechanism** so that the firm enhances its profitability and growth.

4 Stock Piling

1. An international firm possesses normally a **bigger stock than EOQ** and this process is known as stock piling. The different units of a firm gets a large part of their inventory from sister units in different countries. This is possible in a vertical set up.
2. For political disturbance there will be bottlenecks in import. If the **currency of the importing country depreciates,** imports will be costlier thereby giving rise to stock piling.
3. To take a decision against stock piling the firm has to weigh the cumulative carrying cost vis-à-vis expected increase in the price of input due to changes in exchange rate. If the probability of **interruption in supply** is very high, the firm may opt for stock piling even if it is not justified on account of higher cost.
4. Also in case of global firms, lead time is larger on various units as they are **located far off in different parts of the globe.** Even if they reach the port in time, a lot of customs formalities have to be carried out. Due to these factors, re-order point for international firm lies much earlier.

Mergers, Acquisitions and Corporate Restructuring

1 Definitions

Mgers

Merger can be defined as "The combination of one or more corporations or business entities into a single business entity; the joining of two or more companies to achieve greater efficiencies of scale and productivity."

Aqitions

An acquisition or takeover is the purchase of one business or company by another company or other business entity. This includes acquiring directly or indirectly shares, voting rights, assets or control over management or assets of another enterprise.

Grate Rstructuring

It is the process of making changes in the composition of a firm's one or more business portfolios in order to have a more profitable enterprise. Simply, reorganing the structure of the organiation to fetch more profits from its operations or is best suited to the present situation.

2 Need for M&A

1. **Sergitiorating eonomi:** in other words combined values of two firms shall be more than their individual value
2. **Diersiation:** Greater the combination of statistically independent or negatively correlated income streams of merged companies, there will be higher reduction in the business risk in comparison to companies having income streams which are positively correlated to each other.
3. **Taxtion:** 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.
4. **Gth** Merger and acquisition mode enables the firm to grow at a rate faster than the other mode viz organic growth.
5. **Gnsolidtion of Podcion:** Production capacity is increased by combining two or more plants.

3 Objectives of M&A

1. Horiontal growth to achieve optimum sie, to enlarge the market share, to curb competition or to use unutilised capacity;
2. ertical combination with a view to economising costs and eliminating avoidable taxes
3. Diversification of business;
4. Mobilising financial resources by utilising the idle funds lying with another company for the expansion of business.
5. Taking over a 'shell' company which may have the necessary industrial licenses etc., but whose promoters do not wish to proceed with the project.

4 Types of Merger

1. A **Hrizontal Mger** is usually between two companies in the same business sector. The example of horiontal merger would be if a health care system buys another health care system.
2. A **Vertial Mger** represents the buying of supplier of a business. In the same example as above if a health care system buys the ambulance services from their service suppliers is an example of vertical buying.
3. **Gnglomerate Mger** is the third form of M& process which deals the merger between two irrelevant companies. The example of conglomerate M& with relevance to above scenario would be if the health care system buys a restaurant chain.
4. **Gngeneric Mger** is a merger where the acquirer and the related companies are related through basic technologies, production processes or markets.
5. **Rerse Mger** Such mergers involve acquisition of a public company (Shell Company) by a private company, as it helps private company to by-pass lengthy and complex process required to be followed in case it is interested in going public.

5 Takeover Strategies

1. **Tendr fer** is a public, open offer or invitation (usually announced in a newspaper advertisement) by a prospective acquirer to all stockholders of a publicly traded corporation (the target corporation) to tender their stock for sale at a specified price during a specified time, subject to the tendering of a minimum and maximum number of shares.
2. In **Sreet Sep** the larger number of target company's shares are quickly purchased by the acquiring company before it makes an open offer.
3. **Bear Hug** : A buyout offer so favourable to stockholders of a company targeted for acquisition that there is little likelihood they will refuse the offer.
4. **Grategi Alliane** is a kind of partnership between two entities in which they take advantage of each other's core strengths like proprietary processes, intellectual capital, research, market penetration, manufacturing and/or distribution capabilities etc. They will have an open door relationship with another entity and will mostly retain control.
5. **Brandver** : Acquirer Company enters into an alliance with such powerful brands that cut down the brands of the target company making it weaker and then acquirer company simply takeover the target company.

6 Takeover by Reverse Bid

1. **Rerse Takeover** : Acquisition"usually refers to a purchase of a smaller firm by a larger one. Sometimes, however, a smaller firm will acquire management control of a larger and/or longer-established company and retain the name of the latter for the post-acquisition combined entity.
2. **Rerse Mger** : A form of transaction that enables a private company to be publicly listed in a relatively short time frame. A reverse merger occurs when a privately held company (often one that has strong prospects and is eager to raise financing) buys a publicly listed shell company, usually one with no business and limited assets.

Three test requirement for takeover by reverse bid

1. The assets of the transferor company are greater than the transferee company.
2. Equity capital to be issued by the transferee company for acquisition should exceed its original share capital.
3. There should be a change of control in transferee company by way of introduction of a minority holder or group of holders.

7 Antitakeover Strategy

1. **Gwjel Defense:** Sell off the entire or some of the company's most valuable assets
2. **Ison Pl:** Dilute the targeting company's stock in the company so much that bidder never manages to achieve an important part of the company without the consensus of the board.
3. **Ison Pt:** Here the company issue bonds which will encourage the holder of the bonds to cash in at higher prices which will result in Target Company being less attractive.
4. **Geenmail:** Greenmail involves repurchasing a block of shares which is held by a single shareholder or other shareholders at a premium over the stock price in return for an agreement called as standstill agreement. In this agreement it is stated that bidder will no longer be able to buy more shares for a period of time often longer than five years.
5. **W Kgh:** The target company seeks for a friendly company which can acquire majority stake in the company
6. **W squire:** Instead of acquiring the majority stake in the target company white squire acquires a smaller portion, but enough to hinder the hostile bidder from acquiring majority stake
7. **Gldn Prahtes:** An agreement between a company and an employee (usually upper executive) specifying that the employee will receive certain significant benefits if employment is terminated. This will discourage the bidders and hostile takeover can be avoided.
8. **Pman dfense:** The target company itself makes a counter bid for the Acquirer Company and let the acquirer company defence itself which will call off the proposal of takeover.

8 Benefits of Reverse Merger

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

9 Reasons of M&A Failures

1. No common vision
2. Nasty surprises resulting from poor due diligence
3. Poor governance.
4. Poor communication
5. Poor program management
6. Lack of courage
7. Weak leadership

10 Divestiture / Demerger

Aning

Divestiture means a company selling one of the portions of its divisions or undertakings to another company or creating an altogether separate company.

Rasons for Dsture

1. To pay attention on core areas of business;
2. The Division's/business may not be sufficiently contributing to the revenues;
3. The sie of the firm may be too big to handle;
4. The firm may be requiring cash urgently in view of other investment opportunities.

11 Ways of Demerger

1. **Sll of** It refers to the selling a particular division, asset, product line, subsidiary or factory to another entity for an agreed upon sum which may be payable either in cash or securities.
2. **S-off:** It refers to the separation of the part of the existing business and creating a new entity. Shareholders of the existing company continue to be the shareholders of the new entity
3. **S-up** A corporate action in which a single company splits into two or more separately run companies. Shares of the original company are exchanged for shares in the new companies. After a split-up, the original company ceases to exist.
4. **Qsi Cre Ots:** Similar to spin off with the difference that the parent company sells minority stake in the newly formed company usually in an IPO while retaining the rest. This will bring some cash into the company.
5. **Sle of a Dvsion:** In the case of sale of a division, the seller company is demerging its business whereas the buyer company is acquiring a business.

12 Financial Restructuring

1. Financial restructuring is the reorganiing of a business'assets and liabilities.
2. Consequent upon losses the share capital or net worth of companies get substantially eroded sometimes leading to negative net worth putting the firm on the verge of liquidation.
3. To revive from this financial restructuring is resorted to.
4. It requires the need to re-start with the fresh balance sheet which is free from losses and fictitious assets. This causes sacrifice on the part of shareholders of the company.
5. Sometimes the creditors may also agree to reduce their claim &also convert their dues to the agreed extent in securities.

13 Reasons of Selling Company

1. Competitor's pressure is increasing.
2. No access to new technologies and developments
3. Strong market entry barriers. Geographical presence could not be enhanced
4. Badly positioned on the supply and/or demand side
5. No efficient utilisation of distribution capabilities
6. New strategic business units for future growth could not be developed
7. Not enough capital to complete the project
8. Possibility to sell the business at an attractive price or it is in best interest of shareholders

14 Equity BuyBack

1. This refers to the situation wherein a company buys back its own shares back from the market.
2. This results in reduction in the equity capital of the company.
3. This strengthen the promoter's position by increasing his stake in the equity of the company.
4. When the company has very limited investment options it decides to buyback some of its outstanding shares from the shareholders, by utiliing some portion of its surplus cash.
5. Cairn India bought back 3.67 crores shares and spent nearly ₹1230crores by May 204.

15 Leveraged BuyOuts

1. A leveraged buyout (LBO) is an acquisition where the purchase price is financed through a combination of equity and debt and in which the cash flows or assets of the target are used to secure and repay the debt.
2. Since the debt always has a lower cost of capital than the equity, the returns on the equity increase with increasing debt. The debt thus effectively serves as a lever to increase returns which explains the origin of the term LBO.
3. LBOs can have many different forms such as Management Buy-out (MBO), Management Buy-in (MBI), secondary buyout and tertiary buyout, among others, and can occur in growth situations, restructuring situations and insolvencies.

16 Management BuyOuts

A management buyout (MBO) is a form of acquisition where a company's existing manager acquires a large part or all of the company from either the parent company or from the private owners.

An MBO can occur for a number of reasons

1. The owners of the business wants to retire &sell the company to the management team they trust.
2. The owners of the business have lost faith in the business and are willing to sell it to the management (who believes in the future of the business) in order to get some value for the business.

17 Cross Border M&A

1. Cross-border M& is a popular route for global growth and overseas expansion.
2. Major factors that motivate multinational companies to engage in cross-border M& include the following
   1. Globalization of production and distribution of products and services.
   2. Integration of global economies.
   3. Expansion of trade and investment relationships on International level.
   4. Many countries are reforming their economic and legal systems, and providing generous investment and tax incentives to attract foreign investment.
   5. Privatiation of state-owned enterprises and consolidation of the banking industry.

13

Corporate Valuation

Need for Corporate Valuation

1. Information for its internal stakeholders,
2. Comparison with similar enterprises for understanding management efficiency,
3. Future public listing of the enterprise,
4. Strategic planning, for e.g. finding out the value driver of the enterprise, or for a correct deployment of surplus cash,
5. Ball park price (i.e. an approximate price) for acquisition, etc.

Important Terms

1. Present Value of Cash Flows
2. Internal Rate of Return
3. Return on Investment
4. Perpetual Growth Rate
5. Terminal Value

Methods of Valuation

1. Asset Based

Book Value = Total Assets - Long Term Debt

Total Assets = Fixed Assets + Intangible Assets + Current Assets − Current Liabilities

This can also be equated to share capital plus free reserves.

2. Earnings Based

$$\text{Value of the Equity} = \frac{\text{EAT}}{\text{Ke}}$$

$$\text{Value of the Company} = \frac{\text{EBITDA}}{\text{Ko}}$$

3. Cash Flow Based

There are essentially five steps in performing DCF based valuation:

1. Arriving at the 'Free Cash Flow'
2. Forecasting of future cash flows (also called projected future cash flows)
3. Determining the discount rate based on the cost of capital
4. Finding out the Terminal Value (TV) of the enterprise
5. Finding out the present values of both the free cash flows and the TV, and interpretation of the results.

4. Enterprise Value Based

Enterprise Value = Market Value of Equity + Market Value of Preference + Market Value of Debt + Minority Interest - Cash & Cash Equivalent

5. Economic Value Added

EVA = NOPAT – (Invested Capital * WACC)

OR

EVA= NOPAT – Capital Charge

6. Market Value Added

MVA= Market Value – Book Value

7. Relative Valuation

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.

In the process, there may be extrapolations set to the desired range to achieve the target set. To elaborate –

1. Find out the 'drivers' that will be the best representative for deriving at the multiple. Drivers can be
   1. Enterprise value based multiples, which would consist primarily of EV/EBITDA, EV/Invested Capital, and EV/Sales.
   2. Equity value based multiples, which would comprise of P/E ratio and PEG.
2. Determine the results based on the chosen driver(s) through financial ratios
3. Find out the comparable firms, and perform the comparative analysis, and
4. Iterate the value of the firm obtained to smoothen out the deviations

Shareholders Value Analysis

Steps involved in SV computation:

a. Arrive at the Future Cash Flows (FCFs) by using mix of the value drivers'

b. Discount these FCF using WACC

c. Add the terminal value to the present values computed in step (b)

d. Add market value of non-core assets

e. Reduce the value of debt from the result in step (d) to arrive at value of equity

StartUp Finance

1. Meaning

1. Initial infusion of Money
2. Banks are not interested
3. Use savings, loan from family and friends
4. Take some risk &speed up initial operations
5. Bootstrap- Without any help of investors
6. Strong Business Plan
7. Seek advice from experienced people

2. Sources of Funding 💰

Personal Financing | Family & Friends | Microloans | Personal Credit Lines | Vendor Financing | Peer-to-Peer Lending | Crowd Funding | Factoring Accounts Receivables

3. Pitch Presentation

1. Pitch deck presentation is a short and brief presentation (not more than 20 minutes) to investors explaining about the prospects of the company and why they should invest into the startup business.
2. Some of the methods have been highlighted below as how to approach a pitch presentation:

Introduction | Team | Problem | Solution | Marketing | Projections or Milestone | Competition | Business Model | Financing

4. Bootstrapping

1. An individual is said to be boot strapping when he or she attempts to found and build a company from personal finances or from the operating revenues of the new company.
2. Professionals who engage in bootstrapping are known as bootstrappers.
3. Compared to using venture capital, boot strapping can be beneficial, as the entrepreneur is able to maintain control over all decisions.
4. Methods of BootStrapping

Conferenza.in

Trade Credit | Factoring | Leasing | State Tax Credit Program | Free & Discounted Resources

5. Angel Investors

1. Invest in small startups or entrepreneurs.
2. One-time investment or an ongoing injection of money
3. More favourable terms
4. Focused on startups take their first steps. Also called as informal investors, angel
5. Crowdfunding platforms online or networks.
6. Use their own money, unlike venture capitalist

funders, private investors, seed investors or business angels.

6. Startup India 🇮🇳 Initiative

Startup means an entity, incorporated or registered in India

Upto **10 years** from the it's date of incorporation | **Incorporated as** either a Private Limited Company or a Registered Partnership Firm or a Limited Liability Partnership | Should have annual **turnover not exceeding ₹100 crores** for any of the financial years since its inception | Entity should not have been formed by **splitting up or reconstruction** a business already in existence | Should work towards **development or improvement** of a product, process or service and/or have scalable business model with high potential for creation of wealth & employment

Check the latest definition at https://www.startupindia.gov.in/content/sih/en/startup-scheme.html

7. Benefits of Startup in India

Simple Process | Reduction in Patents Cost | Easy access to Funds | Tax Holidays | Apply for Tenders

R&D Facilities | No Time Consuming Compliance | Easy Exit | Meet other Entrepreneurs | Choose your Investor

Venture Capital

Meaning

Venture capital means funds made available for 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.

Characteristics

1. Long time horizon
2. Lack of liquidity
3. High Risk
4. Equity Participation

Investment Process

1. Deal Origination
2. Screening
3. Due Diligence
4. Deal Structuring
5. Post Investment Activity
6. Exit Plan

Structure

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

a) a domestic vehicle for the pooling of funds from the investor, and

b) 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,

2. Offshore Funds: Two common alternatives available to offshore investors are: the "offshore structure" and the "unified structure".

1) 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.

2) 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.

Advantages

1. **Solid Capital Base:** Provides a solid capital base for future growth.
2. **Risk & Rewards:** Venture Capital shares both Risk and Rewards
3. **Advice & assistance:** Provide practical advice and assistance to the company based on past experience.
4. **Network of Contacts:** Venture capitalist also has a network of contacts in many areas that can add value to the company.
5. **Additional Funding:** Capable of providing additional rounds of funding should it be required to finance growth.
6. **IPO:** Preparing a company for an initial public offering (IPO) of its shares onto the stock exchanges.
7. **Trade Sale:** Also facilitate a trade sale.

Stages of Funding

1. **Seed Money:** to prove a new idea.
2. **Start-Up:** for expenses associated with marketing and product development.
3. **First Round:** Early sales and manufacturing funds.
4. **Second Round:** Working capital for early stage companies that are selling product, but not yet turning in a profit.
5. **Third Round:** expansion money for a newly profitable company
6. **Fourth Round:** it is intended to finance the "going public" process

Financial Policy & Corporate Strategy

CA MAYANK KOTHARI

3 Fundamental Elements

1. A clear and realistic strategy,
2. The financial resources, controls and systems to see it through and
3. The right management team and processes to make it happen.

Strategy + Finance + Management = Fundamentals of Business

Characteristics of Strategy

1. **Long term in nature:** The plan can be made in a short time, but the effect or impact it has on the organization is in the long term or in the forseeable future.
2. Strategy contains elements of **uncertainty**
3. It is directed towards the **goals** of the organization
4. **Dynamic** in the nature
5. Strategies are normally **complex**
6. Strategy **affects** the whole organization

Corporate Level Strategy

1. We can simply say that corporate level strategies are concerned with questions about what business to compete in.
2. Corporate level strategies affect the entire organization and are considered delicate in the strategic planning process.

3 Basic Questions that the Corporate Level Strategy should be able to answer

1. **Suitability:** Whether the strategy would work for the accomplishment of common objective of the company.
2. **Feasibility**: Determines the kind and number of resources required to formulate and implement the strategy.
3. **Acceptability**:It is concerned with the stakeholders satisfaction and can be financial and nonfinancial.

Financial Planning

1. Financial planning is the backbone of the business planning and corporate planning.
2. It helps in defining the feasible area of operation
3. There are 3 major components of Financial planning:
   1. Financial Resources (FR)
   2. Financial Tools (FT)
   3. Financial Goals (FG)

   FR+FT=FG
4. For an individual, financial planning is the process of meeting one's life goals through proper management of the finances.
5. These goals may include buying a house, saving for children's education or planning for retirement.
6. It is a process that consists of specific steps that helps in taking a big- picture look at where you financially are.
7. Using these steps you can work out where you are now, what you may need in the future and what you must do to reach your goals.

What makes an Organisation Sustainable?

1. Have a clear strategic direction;
2. Be able to scan its environment or context to identify opportunities for its work;
3. Be able to attract, manage and retain competent staff;
4. Have an adequate administrative and financial infrastructure;
5. Be able to demonstrate its effectiveness and impact in order to leverage further resources; and
6. Get community support for, and involvements in its work
7. Be able to demonstrate its effectiveness and impact in order to leverage further resources; and
8. Get community support for, and involvement in its work

Functions of SFM

1. Continual **search** for best investment opportunities;
2. **Selection** of the best profitable opportunities;
3. Determination of **optimal mix of funds** for the opportunities;
4. Establishment of systems for **internal controls**;
5. **Analysis of results** for future decision-making.

Key Decisions Financial Strategy?

1. Financing Decision
2. Investment Decision
3. Dividend Decision
4. Portfolio Decision

Business Level Strategy

1. Business-level strategy focuses on how to attain and satisfy customers, offer goods and services that meet their needs, and increase operating profits.
2. To do this, business-level strategy focuses on positioning itself against competitors and staying up to date on market trends and technology changes.

Functional Level Strategy

1. Functional Level Strategy is the day-to-day strategy that is going to keep your organization moving in the right direction.
2. Just as some businesses fail to plan from a top-level perspective, other businesses fail to plan at this bottom-level.

Outcomes of Financial Planning

1. **Financial Objectives**: Financial objectives are to be decided at the very outset so that rest of the decisions can be taken accordingly. The objectives need to be consistent with the corporate mission and corporate objectives.
2. **Financial Decision Making**: Financial decision making helps in analyzing the financial problems that are being faced by the corporate and accordingly deciding the course of action to be taken by it.
3. **Financial Measures**: The financial measures like ratio analysis, analysis of cash flow statement is used to evaluate the performance of the Company. The selection of these measures again depends upon the Corporate objectives.

What makes an Organisation Financially Sustainable?

To be financially sustainable, an organization must:

1. Have more than one source of income;
2. Have more than one way of generating income;
3. Do strategic, action and financial planning regularly;
4. Have adequate financial systems;
5. Have a good public image;
6. Be clear about its values (value clarity); and
7. Have financial autonomy