



Rai Technology University

ENGINEERING MINDS

Security Analysis and Portfolio Management



SYLLABUS

Overview of Investment

Concept of Investment; Various Investment Alternatives; Application of Investment Alternatives; a Case Study on Investment Alternatives

Overview of Risk Management

Concept of Risk Management; Analysis of Risk Management; a Case Study on Risk Management

Equities in India

Basic of Stocks; Different Types of Stocks; National Stock Exchange; Trading of Equities

Trading of Securities

Introduction to Markets and their Functions; Development of Securities Market in India; SEBI and its Role in Primary and Secondary Market; SEBI and its Functions; a Case Study on OTCBB

Analysis and Valuation of Debt and Equity

Introduction to Bonds; Embedded Options; Analysis of Bond, Relationship between Price and Yield; a Case Study on Mirage Resorts: Refunding a Bond Issue, Various Models of Stock Valuation, Concept of Credit Rating, Analysis of Credit Rating Framework, Rationales of Rating; Case Study: Aether Systems - Common Stock Valuation; the Variable Growth Model

Security Analysis and Valuation: Fundamental and Technical Analysis

Stock Prices Change; its Causes; Effect of Macroeconomics Variable on Stock Market; Difference between Technical and Fundamental Analysis; Company Analysis; Basics and usefulness of Technical Analysis; Case Study: Coca Cola.

Efficient Market Hypothesis

Introduction; Concept of Market Efficiency; Tests of Efficient Market Hypothesis; Case Study: EBay- Stock Market Efficiency.

Portfolio Management

Introduction to Portfolio Management; Relation between Risk and Return; Optimal Portfolio; Capital Asset Pricing Model; its Valuation and Validity; Case Study: Nations Bank - Valuation: Stock Valuation: the Gordon Growth Model; Portfolio Evaluation; Case Study: Vanguard - Mutual Funds and Taxes.

Articles

Bonds and Bond Funds; Nate Pile's Small Cap Classroom; Dangers of Inaction; Bond with the Best; Take your Time to Plan Investment.

Suggested Readings:

1. Security Analysis and Portfolio Management by Donald E. Fischer Ronald J. Jordan, Publisher: Prentice-Hall of India
2. Security Analysis And Portfolio Management by V. Gangadhar, Publisher: Anmol Publications
3. Security Analysis And Portfolio Management 6th Edition, by Fischer Donald E and Jordan Ronald J, Publisher: Prentice hall of India
4. Security Analysis And Portfolio Management by S Kevin Publisher: Prentice hall of India

COURSE OVERVIEW

This course involves the functioning of Indian securities market, study of two decisions: setting the optimal asset-allocation mix (using modern portfolio theory) and analyzing and selecting securities within the asset class and analysis of various investing options available to the Indian investors. Although it focuses primarily on the first of these decision processes, there is also a brief review of security analysis models, the capital markets, and their historic risk/return aspects. The theory and practice of identifying the optimal allocation of wealth among the various asset classes is presented. The mathematics underlying the portfolio decision is reviewed to give the student a foundation for understanding the elements that influence asset-allocation models.

The course also presents techniques for quantifying expected risk and expected return for individual asset classes and portfolios; for evaluating portfolio performance; for portfolio distribution; for applying the dividend discount model to security analysis; and for the use of options, futures, and other investments.

The objective of this course is to provide the study of end-to-end investment decision process. That's why the course firstly deal with the functioning of stock market plus the options strategies; secondly it deals with answer the questions like: When to invest, Where to invest and How much to invest and

lastly it gives the overview of the various investing options available to the investor and how they are best suited to them.

Course Highlights

- Overview and Functioning of Stock Market
- Overview of Primary and Secondary Market
- Corporate Debt Market
- Derivatives Trading and Strategies
- Determination of security prices
- Portfolio selection and efficient sets
- The Capital Asset Pricing Model
- Factor models of security returns
- Common stocks and their characteristics
- Financial analysis of common stocks
- Common stock valuation
- Investment management and performance valuation
- Characteristics of fixed-income securities
- Bond valuation and analysis
- Portfolio management and Performance evaluation
- Investing in Mutual Funds, Equities, Real Estate, Small Savings, Fixed Deposits, Insurance, Bonds and Credit Cards.

SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

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LESSON 1 INVESTMENT PLANNING

Introduction to Investment Planning

Investment planning is an alien concept for the Indian populace. For a country, which till now was worried about making ends, meet this emerging trend is definitely a new experience. But, the truth is that if only they would have been introduced to the Art of Managing Money, life could have been so much easier. Most of us spend more than half of our lives working and saving because money is important, in fact crucial. However, most of us spend almost no time planning to make that hard-earned money work more effectively for us. So, how do you plan your financial life?

What is investment planning?

Financial planning is nothing but an assessment of your goals and the steps you must take to help make them a reality.

What you first need to figure out.....

What is it that you want?

Is your wish to retire with a sound lump sum amount or do you want a steady monthly income. Is your son's education or daughters' marriage worrying you? The key is to figure out your goals.

Where is your money going?

The most important thing is that you should where your money is going. Zero on your monthly and annual expenses.

Why should you invest?

You should invest so that your money grows and shields you against rising inflation. If prices rise by four per cent annually it would not be sufficient if your savings only give you a return of three per cent. It leaves you with a deficit of one per cent. The idea is that your rate of return on investments should be greater than the rate of inflation, leaving out with a nice surplus over a period of time. Whether your money is invested in stocks, bonds, mutual funds or certificates of deposit (CD), the end result is to create wealth for retirement, marriage, college fees, vacations, better standard of living or to just pass on the money to the next generation. Also, it's exciting to review your investment returns and to see how they are accumulating at a faster rate than your salary.

When to Invest?

The sooner you invest the better it is. By investing into the market right away you allow your investments more time to grow, whereby the concept of compounding interest swells your income by accumulating your earnings and dividends. Considering the unpredictability of the markets, research and history indicates these three golden rules for all investors:

1. Invest early
2. Invest regularly
3. Invest for long term and not for short term

There is always a first time for everything so also for investing. To invest you need capital free of any obligation. If you are not

in the habit of saving sufficient amount every month, then you are not ready for investing. The advice is:

Avoid unnecessary or lavish expenses as they add up to your savings. A dinner at Copper Chimney or Grand Hyatt can always be avoided, the pleasures of avoiding it will be far greater if the amount is saved and invested.

Clear all your high interest debts first out of the savings that you make. Credit card debts (revolving credits) and loans from pawnbrokers typically carry interest rates of between 24-36% annually. It is foolish to pay off debt by trying to first make money for that cause out of gambling or investing in stocks with whatever little money you hold. In fact its prudent to clear a portion of the debt with whatever amounts you have.

Notes

LESSON 2

INTRODUCTION TO STOCK MARKET

Introducing

Like several other goods which require a market place for buyer and sellers to come together; shares too need a bazaar where they can be sold and bought. The bazaars where shares are sold are either primary market or secondary market. Primary market refers to the business done through Initial PUBLIC offers (IPOs), during which shares are offered for the first time to the public or to existing shareholders through rights. The latter is the existing shareholder either on priority or through a private placement when shares are selectively sold to limited number of investors. New equity shares are initially issued and offered through the primary market and subsequently they are traded through the secondary market. The latter consists of network of stock exchanges.

A Stock Exchange is the actual bazaar that conducts securities trading. Companies that wish their stock to be bought or sold list their shares in the stock exchange and members registered at the stock exchange either buy or sell these stocks on behalf of their investor clientele the prices of the listed securities keep changing depending on the demand and supply for that security, almost akin to what happens to the other commodity products (in their respective markets).

A stock exchange regulate the entire activity of trading to ensure that trade takes place in transparent manner and that the deals once struck are honored. It registers members who have the necessary qualification, skills and financial resources to undertake the trading in securities. Not all the stock bought and sold in the market pass through the stock exchanges. Shares of those companies who have not listed with any stock exchanges can't be sold through stock exchanges. If an investor wants to sell shares of such companies then he has to find the buyer through his own means.

This is where a stock exchange helps investors. It provides a large market place consisting of hundreds of members representing thousands of buyers and sellers to give a fair valuation of shares and to improve liquidity of the investment. Presently there are 25 Government recognized stock exchanges in various states of India. Of these, National Stock Exchange (NSE) and Bombay Stock Exchange (BSE) operate all over India and handle the bulk of business volumes. There is also Interconnected Stock Exchange (ISE) and Over – the – Counter Exchange (OTC), which operates at more than one location but their business volumes are not very significant at present.

Stock Market Glossary

Let's take a quick tour of the various stock market terms to understand the meaning and their importance:

Equity Shares

An equity share in a company is a share in its ownership. Equity shareholders collectively constitute the ownership of the company and enjoy the fruits of the ownership like dividends

and voting in the meetings etc., but they are not liable for the debts of the company beyond the value that has already been subscribed through the share capital. However certain shares do not carry ownership privileges like voting etc. these shares are preferential or non – voting shares. But preference shareholders get assured dividends, if the company makes profit and they would get back their money invested after a specified period of time. Equity shareholders can only redeem their investment by selling the share at the market price.

You can buy equity or preference shares either in primary market or in secondary market. Depending on the market appeal, shares are also called by different names.

Blue Chip Shares

Shares of large, financially strong and well – established companies which have stood up against all odds and which have a good profitability and dividend track record are called blue chip shares. The volumes of trading in these stocks are high and they enjoy any time liquidity in the exchange. HLL, ITC and Reliance are the example of such shares.

Growth Shares

These are the shares that have out performed others in the industry. Shares of such companies grow at a faster rate than others in terms of sales and profitability. Infosys, Wipro and NIIT are the current example of growth shares. These shares may be fairly priced or over priced as investors buy these fancied stocks on expectation of even further growth. Sometimes the expected growth may not take place due to adverse internal and external factors, but generally these stocks give quick returns as compared to the value stocks.

Value Stocks

Value stocks are those that currently have a low market sentiment and are under priced relative to their intrinsic value. A major advantage is that, it limits the downside risk of the portfolio – since their prices may not dip further. On the flip side, however, the market may not take cognizance of the stock's potential worth for a long time. In which case, the investors have to hold them for a longer period till its full worth is recognized.

Defensive Shares

These stocks are generally neutral to business cycle. These have low fluctuations in their prices and are fairly stable. If you expect a downtrend in the economy, it may be a good idea to pick up a defensive stock, so that your portfolio value may not erode. At present, FMCG and Pharma stocks fall into this category.

Cyclical Shares

These shares are in commodity companies and their prices depend on the cyclical fluctuations of the economy. If they economy is doing well, they appreciate otherwise their prices would fall. Cement, Steel and Petrochemical shares fall under this category.

Speculative Shares

These shares tend to fluctuate widely in short span of time on expectations of some major deal in the parent company. For example, if market expects a foreign tie – up, a merger or even an acquisition; the prices of these shares rise to dizzy heights but may fall equally abruptly, if the expected turn of events do not takes place.

Turn Around Shares

These are the shares of those companies which have large accumulated losses but which show signs of recovery or making profits. At present, SAIL and Mafatlal Industries are the examples of such shares.

Book Closure and Record date

Ownership in shares traded in the stock market keeps changing hands amongst investors through buy and sell transactions. When corporate benefits like dividend, bonus or rights are announced, it become necessary to identify the owner at that given point of time so that only such owners can receive the corporate benefits. Problem arises because different buyers often hold shares without sending them for registration to the company. But to receive the benefits, an investor needs to send them for the registration. To facilitate this registration companies usually announce the cut – off dates from time to time. Only those members registered in the company's share register as on such cut – off dates would alone be entitled to receive the corporate benefits. Such cut- off dates is referred to as book closure and record dates.

Cum – Dividend and Ex – Dividend

When you buy with cum dividend or cum rights or cum bonus, you are entitled for the dividend, rights or bonus shares for which the books are about to be closed.

When you buy the shares ex dividend or ex bonus or ex rights, you are not entitled to these benefits but the previous owner would be entitled to them. Irrespective of whether you are buying cum or ex, the prices you pay for the security would have normally got adjusted for the corporate benefits you may or may not immediately receive on shares bought.

Stock Market Indices

These are the numbers that measure the general movement of the market. They represent the entire market or the segment thereof. The two most popular index in Indian market are, SENSEX (Sensitive Index) of Bombay Stock Exchange, which reflects the price movement of 30 selected shares on the BSE and NIFTY of National Stock Exchange, which reflect the price movement of selected 50 shares on NSE. These shares have been selected on the basis of market capitalization and liquidity.

Good or Bad Delivery

When shares are sold in the stock exchange, the seller delivers the shares along with a transfer deed to the buyer through his broker. Bad delivery refers to the cases where the transfer deed or share certificate may have some problem like being torn, mutilated, overwritten, defaced or spelling mistakes in the name of company or the transferor, erasure or crossing out the characters of the folio numbers, distinctive number range or certificate numbers. Bad delivery can also occur if the transfer deed is improperly stamped. In such cases the delivery needs to

be rectified by the seller's broker within a stipulated period. If the documents are complete and proper, it's a good delivery and the shares can be sent for transfer in the name of the buyer.

Transfer and Transmission

Shares, like any other property can change hands by following the due process of law. Ownership of shares can be transferred from one to another through a sale or gift when accompanied by a transfer deed. It can also be transmitted from one person to another by operation of the law in case of the death or insolvency from the owner to his legal heirs or creditors.

Settlement

At the end of a trading period, the obligation of each broker is calculated and brokers settle their respective obligations as per rules, by laws and regulations prescribed. This process is called settlement.

Auction

When a broker selling shares default on the delivery, the exchange resorts to a mechanism called auction to fulfill its obligation towards the broker buying the shares. In a particular settlement, if the selling brokers have delivered short, their deliveries are bad or if they have not rectified the company's objections reported against them. The stock exchange purchases the requisite quantity from the market through the auction and delivers them to the buying party.

Company Objections

When investors send share certificate along with the transfer deeds to the company for registration, the registration is sometimes rejected if the signature differs, shares are fake, forged or stolen or if there is a court injunction preventing the transfer of shares etc. in such cases, the company returns the shares along with a letter stating its objections. Such cases are identified as company objections.

Stock Lending

It is a mechanism through which seller going short borrows stocks to meet his obligations. The present stock lending mechanism announced by the SEBI is similar to *badla* in certain aspects, but the main difference is that the mutual funds can lend stocks, while in *badla* they cant participate. However, there is no provision for a long buyer to obtain funds through the stocks lending mechanism. It only provides for the lending of securities for a price mainly to short sellers. The lenders of the scrips earn additional returns by lending his stocks for a specified period to those who need them to discharge their delivery obligations. With the introduction of derivatives in the market, stock lending would help broad base the market.

LESSON 3

OVERVIEW OF INDIAN FINANCIAL SYSTEM

Introduction

The organised part of the Indian Financial System can be classified from the point of view of the regulators as:

Regulatory Authorities

RBI	SEBI
Commercial Banks	Primary Market
Forex Markets	Secondary market
Financial Institutions	Derivatives Market
Primary Dealers	

Reserve Bank of India (RBI)

Commercial banks include public sector banks, private banks and foreign banks. RBI, under Banking Regulation Act and Negotiable Instrument Act, regulates these banks.

Financial Institutions may be of all India level like IDBI, IFCI, ICICI, NABARD or sectoral financial institutions like, EXIM, TFCIL etc. IFCI was the first term lending institution to be set up. IDBI is the apex development financial institution set up to provide funds for rapid industrialization in India. In order to boost the disbursement of credit to the agriculture sector, Agriculture Refinance Corporation was set up by RBI to provide refinance to banks and institutions extending credit to the agriculture sector.

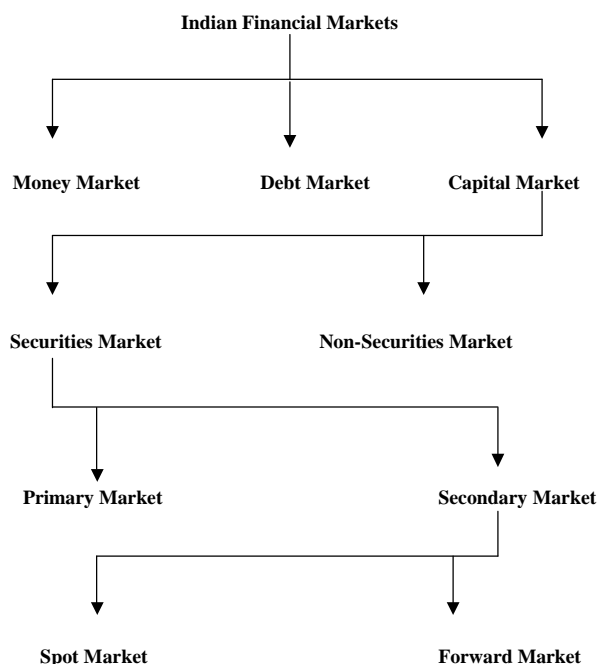
The participants in Foreign exchange market include banks, financial institutions and are regulated by RBI.

Primary dealers are registered participants of the wholesale debt market. They bid at auctions for government debts, treasury bills, which are then retailed to banks and financial institutions, which invest in these papers to maintain their Statutory Liquidity Ratio (SLR).

Securities and Exchange Board of India (SEBI)

SEBI was set up as an autonomous regulatory authority by the Government of India in 1988 "To protect the interest of the investors in the securities and to promote the development of and to regulate the securities market and the matters connected therewith or incidental thereto". It is empowered by two acts namely "The SEBI Act, 1992 and The Securities Contract (Regulation) Act, 1956 to perform the function of protecting investors rights and regulating the capital markets.

Overview of Indian Financial Markets



Role of Capital Market

1. It is the indicator of the inherent health of the economy.
2. It is the largest source of funds with long or indefinite maturity for companies and thereby enhances capital formation in the economy.
3. It offers a number of investment avenues to the investors.
4. It helps in channelising the savings pool in the economy towards investments, which are more efficient and give a better rate of return thereby helping in optimum allocation of capital in the country.

Primary Market

The primary market is the place where the new offerings by companies are made either as Initial Public Offer (IPO) or Rights Issue. IPOs are offerings made by the companies for the first time while rights are offerings made to the existing shareholders. Investors who prefer to invest in the primary issues are called Stags.

Secondary Market

Secondary market consists of stock exchanges where the buy orders and sell orders are matched in the organised manner/ there are at present 25 recognized stock exchanges in India and are governed by the Securities Contracts (Regulation) Act (SCRA).

The functions of stock exchange are as follows:

1. It ensures a measure of safety and fair dealing.
2. It translates short-term and medium-term investments into long term funds for companies.
3. It directs the flow of capital to the area of maximum returns and ensures ample investment for the investor depending on their risk preference.
4. It induces the companies to improve their standard of performance.

Derivatives Market

It is the market for the financial instrument, which derives their values from the underlying assets like stock, commodity or currency. Derivatives' trading has started with Index Futures, followed by Index Option and then Stock Option as per the recommendation of the SEBI appointed L. C. Gupta Committee.

Derivatives market has the following roles:

1. Derivatives allow hedging of market risk.
2. It allows for a separate market to be developed for lending of funds and securities to the market.
3. It helps in making the underlying cash market more liquid.
4. It helps in innovations and creations of new financial products.

Self-Regulatory Organizations (SROs)

SEBI is authorized to promote and regulate SROs. SROs are practical and efficient tool for regulating various kinds of participants in the market. They have bylaws and code of conduct to bind their members.

Currently, the SROs related to the securities market whose regulatory framework is well established and which have actually been functioning are the stock exchanges. Other non-registered SROs are:

1. Association of Merchant Bankers of India (AMBI)
2. Association of Mutual Funds of India (AMFI)

Investment Products

Fixed Income

Fixed income products include bank deposits, Government securities, Bonds, Debentures, Commercial papers and Certificate of Deposits. Criteria for investment in fixed income products:

1. Yield to maturity.
2. Credit rating of the security.
3. Risk preference.

For fixed income securities interest is the major decisive factor. Credit rating of the securities published periodically helps the investor in credit risk assessment.

- **Government Securities:** It includes T-Bills (364, 182, 91 & 14 days), Bonds issued by the Central & State Government, State Financial Institutions, Municipal Bodies, Port Trusts, and Electricity Bodies etc. T-Bills are discounted instruments and these may be traded with a repurchase clause, called repos. Repos are allowed in 364, 182 and 91 days T-Bills and the minimum repo term is 1 day. The banks purchase these

securities; financial institutions and Provident fund trust for their SLR requirements and are normally referred to as gilt-edged securities.

- **Bonds:** It can be of many types like Regular Income, Infrastructure, Tax saving or Deep Discount Bonds. These are investment products with fixed coupon rates and a definite period after which they are redeemed. The bonds may be regular income with the coupons being paid at fixed intervals or cumulative in which interest is paid on redemption. Deep Discount bonds are one, which is issued at a discount at the face value, and the investor is paid the face value at redemption.
- **Debentures:** It may be many types like, Fully convertible debentures (FCDs), Partly convertible debentures (PCDs) and non-convertible debentures (NCDs). FCDs are those whose face value is converted into fixed number of equities at a fixed price. The price of each equity share is received by the way of converting the face value of convertible securities i.e. the debenture is called the conversion price and the number of equity shares exchangable per unit of the convertible security i.e. debenture is called conversion ratio. *Callable debenture* is a debenture in which the issuing company has the option of redeeming the security before the specified redemption date at a pre-determined price. *Puttable debenture* is one where the holder has the option of getting it redeemed before the maturity date. PCDs are debentures where a portion of the face value is converted into equity shares and the NCDs, also called the *khoka*, are redeemed on maturity only.
- **Public Deposits:** Corporates can raise funds from the public in the form of fixed deposits. These deposits are unsecured and are mainly used for the working capital requirements. These unsecured public deposits are governed by the Companies (Acceptance of Deposits) Amendment Rules 1978. Under this rule, public deposits can't exceed 25% of the share capital and free reserves and the maximum maturity period is 3 years while the minimum is 6 months.
- **Certificate of Deposits:** These are short term funding instruments issued by banks and financial institutions at a discount to the face value. Banks can issue CDs for duration of less than 1 year while FIs can only issue this for more than 1 year. The issuing bank or financial institution can't repurchase the instruments. CDs have to be issued for a minimum of Rs. 5 lakhs with multiples of Rs. 1 lakh thereafter. These are generally used by corporates to meet their short-term requirements.
- **Commercial Papers:** These represent short-term promissory notes issued by firms with a high credit rating. The maturity of these varies from 15 days to 1 year, sold at a discount to the face value and redeemed at the face value. CPs can be issued by the companies having minimum net worth of Rs. 4 crores and needs a mandatory credit rating of P2 (CRISIL), D2 (Duff & Phelps), PR2 (Credit Analysis & Research) and A2 (ICRA). The rating should not be more than 2 months old. It can be issued for a minimum amount of Rs. 25 lakhs and more in multiples of Rs. 5 lakhs.

Equity Shares

An equity share in a company is a share in its ownership. Equity shareholders collectively constitute the ownership of the company and enjoy the fruits of the ownership like dividends and voting in the meetings etc., but they are not liable for the debts of the company beyond the value that has already been subscribed through the share capital. However certain shares do not carry ownership privileges like voting etc. these shares are preferential or non – voting shares. But preference shareholders get assured dividends, if the company makes profit and they would get back their money invested after a specified period of time. Equity shareholders can only redeem their investment by selling the share at the market price.

Credit Rating Agencies

The major credit rating agencies existing in India are Credit Rating Information Services of India Limited (CRISIL), Indian Credit Rating agency (ICRA), Credit Analysis & Research (CARE). The rating accorded by any rating agency is instrument specific and relates to the debt instrument of any maturity, public deposits and preferential shares.

Exercise

1. Explain the term Stock market and what are the various stocks available in the market, depending on the market appeal?
2. What are Ex-dividend and Cum-dividend shares? Explain the term Stock Lending and how it is different from *Badla* system?
3. Explain Indian Financial system from the regulator's point of view.
4. What are the different markets available in the Indian Financial market system and explain the roles of each of them.

Explain the various investment products available in Indian market.

Notes

LESSON 4 MARKET INDICES

Introduction

India Index Services & Products Limited (IISL) is India's first specialist company dedicated to providing investors in Indian equity with Indices and Index services. IISL is the joint venture between CRISIL and NSE. IISL has a consulting and licensing agreement with Standard & Poor Corporation, the world's leading provider of investible equity indices, for co-branding IISL's equity indices.

IISL Indices for Index Derivatives / Index Funds

S&P CNX Nifty

It comprises 50 stocks and is a market capitalization weighted index. Stocks are selected based on their market capitalization and liquidity. All stocks in the index should have market capitalization of more than 500 crores and should have traded for 85% of the trading days at an impact cost of less than 1.5%. The low impact cost of S&P CNX Nifty makes it an optimal index for derivative trading.

S&P CNX Defty

It is a dollar denominated index based on S&P CNX Nifty. All computations are done using the S&P CNX Nifty index and the online exchange rates (\$ vs. Rs.) disseminated by information vending systems.

CNX Nifty Junior

It comprises 50 midcap stocks and is a market capitalization weighted index. All stocks in the index should have market capitalization of more than Rs. 200 crores and should have traded for 85% of the trading days at an impact cost of less than 2.5%.

Index Maintenance

Index maintenance plays a crucial role in ensuring stability of the index, as well as in meeting its objective of being a consistent benchmark in the equity markets. IISL has constituted an Index Policy Committee, which evolves policies and guidelines for managing the CNX indices. An index maintenance sub-committee takes decision on addition / deletion of companies on any index. Each index has a Replacement Pool comprising companies that meet all criteria for candidacy to that index. All replacement of companies in the index comes from this pool, which is continuously monitored.

Methods of Computation

1. Price weighted Arithmetic Mean Method.
2. Equi-weighted Arithmetic Mean Method.
3. Market Capitalization Weighted Arithmetic Mean Method.

Example 1: Let's say Index comprises of following four Securities on base date, with base value of 1000, as in NSE.

Shares	Prices (P ₀)	Issue size	Prices today (P ₁)
A	20	4000	45
B	60	5000	50
C	145	2000	150
D	15	10000	15
Total	240	21000	260

Price Weighted Arithmetic Mean Method

Divide the total of the weightage over base prices for today's by the total of weightage of the base prices on base date and multiply the outcome with the base value to get the result or alternatively divide the total of today's prices by the total of prices on base date and multiply the outcome with base value to get the index value today.

Shares	P ₀	P ₀ / 240	P ₁	P ₁ / 240
A	20	0.0833	45	0.1875
B	60	0.2500	50	0.2083
C	145	0.6042	150	0.6250
D	15	0.0625	15	0.0625
Total	240	1.0000	260	1.0833

$$\text{Nifty} = 1.0833 / 1.0000 * 1000 = 1083.30$$

Alternatively,

$$\text{Nifty} = 260 / 240 * 1000 = 1083.3$$

Equi-Weighted Arithmetic Mean Method

Divide the individual P₁ by individual P₀ and add all the outcomes, then divide the sum by the number of stocks included in calculation and finally multiply the outcome with the base value to find the index today.

Shares	Prices (P ₀)	Prices today (P ₁)	P ₁ / P ₀
A	20	45	2.2500
B	60	50	0.8333
C	145	150	1.0344
D	15	15	1.0000
Total	240	260	5.1177

$$\text{Nifty} = 5.1177 / 5 * 1000 = 1023.54$$

Market Capitalization Weighted Arithmetic Mean Method

Divide the total of the weightage over base capitalization for today's by the total of weightage of the base capitalization on base date and multiply the out come with the base value to get the result or alternatively divide the total of today's capitalization by the total of capitalization on base date and multiply the outcome with base value to get the index value today.

Shares	Prices (P ₀)	Issue size	Capitalization at t ₀	Weightage	Prices today (P ₁)	Capitalization at t ₁	Weightage over Base Cap
A	20	4000	80000	0.098	45	180000	0.219
B	60	5000	300000	0.366	50	250000	0.305
C	145	2000	290000	0.354	150	300000	0.366
D	15	10000	150000	0.183	15	150000	0.183
Total	240	21000	820000	1.000	260	880000	1.073

$$\text{Nifty} = 1.073 / 1.000 * 1000 = 1073.00$$

Alternatively,

$$\text{Nifty} = 880000 / 820000 * 1000 = 1073.00$$

Issue Size Change in an Index Security

Index value should remain constant even if the issue size and issue price changes on account of corporate action or change in composition.

$$\text{Index Value (I)} = \{\text{Market Capitalization (M)} / \text{Base Capitalization (B)}\} * \text{Initial Index Value (IIV)}$$

$$\text{Change in Market Capitalization (DM)} = \text{Change in Issue Size} * \text{Issue Price}$$

Now, Index should not move with change in issue size.

Therefore,

$$I = \{(M+DM) / B+DB\} * (IIV)$$

$$B+DB = (M+DM) * (IIV / I)$$

$$B+DB = \{M * (IIV / I)\} + \{DM * (IIV / I)\}$$

$$\text{New Base Capitalization} = \text{Old Base Capitalization} + \{DM * (IIV / I)\}$$

$$\text{Or, Change in Base Capitalization} = \{DM * (IIV / I)\}$$

Example 2: On April 5, the total market cap of S&P CNX Nifty is Rs. 197500 crores and base cap is Rs. 195000 crores. It is decided to replace scrip A, a constituent of Nifty having a market cap of Rs. 1000 crores with scrip B that has a market cap of Rs. 900 crores with effect from April 6. What is the revised base cap of Nifty on April 6?

$$IIV = 1000$$

$$M = 197500$$

$$B = 195000$$

$$DM = -100$$

$$I = 197500 / 195000 * 1000 = 1012.8205$$

$$\text{Revised Base Cap} = 195000 + \{-100 * (1000 / 1012.82)\} = 194901.27$$

Impact Cost

Impact cost represents the cost of executing a transaction in a given stock, for a specific predefined order size, at any given point of time. Impact cost is a practical and realistic measure of market liquidity; it is closer to the true cost of execution faced by a trader in comparison to the bid-ask spread. It should however

be emphasised that:

- Impact cost is separately computed for buy and sell
- Impact cost may vary for different transaction sizes
- Impact cost is dynamic and depends on the outstanding orders
- Where a stock is not sufficiently liquid, a penal impact cost is applied

In mathematical terms it is the percentage mark up

observed while buying / selling the desired quantity of a stock with reference to its ideal price (best buy + best sell) / 2.

Example 3: Given the order book for a security, the impact cost to buy 1500 shares of the security.

Order Book			
Buy Quantity	Buy Price	Sell Quantity	Sell Price
1000	98	1000	99
2000	97	1500	100
1000	96	1000	101

To buy 1500 shares

$$\text{Ideal Price} = (98 + 99) / 2 = 98.5$$

$$\text{Actual Buy Price} = (1000 * 99 + 500 * 100) / 1500 = 99.33$$

$$\text{Impact Cost (for 1500 shares)} = \{(\text{Actual Price} - \text{Ideal Price}) / \text{Ideal Price}\} * 100$$

$$= \{(99.33-98.5) / 98.5\} * 100 = 0.84\%$$

Basics of Neat System

The NEAT system is the trading system provided by the exchange to its trading members. The term NEAT is an acronym for 'National Exchange for Automated Trading'. The NEAT CM system supports an order driven market. Wherein order matched automatically. Order matching is necessary on the basis of security, its price, time and quantity.

Basic Trading Terminology

Market Phases

The system is normally made available for trading on all days except Saturday, Sunday and other holidays. A trading day typically consists of number of discrete market phases.

Pre – Open Phase

The pre – open period is applicable only to normal market. Order matching takes place at the end of the session, based on which an opening price is computed and assigned to all trades of pre – open. Simple Regular lot and Stop Loss orders can be entered in this phase.

Opening Phase

In this period, all orders that have been entered during the pre – open are matched. During this phase, the trading member can't login to the system.

Open Phase

The open period indicates the commencement of trading activity. During this phase orders are matched in a continuous basis. Several activities, such as order entry, order modification, order cancellations are allowed during this phase.

Close Phase

The close period is applicable only to the normal market. Order matching takes place at the end of the session, based on which the closing price is computed and assigned to all trades of close phase. Simple Regular lot and Stop Loss orders can be entered in this phase.

Market Close Phase

When the market closes, trading in all instruments for that market comes to an end. A message to this effect is sent to all trading members. No further orders are accepted, but the user is permitted to perform the activities like enquiries.

SURCON Phase

Surveillance and Control (SURCON) is that period after market close during which, the user have enquiry access only. After the end of SURCON period, the system processes the data and prepares the system for the next trading day. When the system start processing data the interactive connection with the trading system is lost and a message to that effect is displayed at the trader workstation.

Market Types

The capital market system has four types of markets. They are:

Normal Markets

All orders in the Normal market have to be of regular lot size or multiples thereof. The normal consists of various book types, wherein orders are segregated as Regular Lot orders, Special Term orders, Negotiated Trade orders and Stop Loss orders depending on their attributes.

Odd Lot Market

An order is called an odd lot order, if the order size is less than regular lot size. In an odd lot market, both the price and quantity of both the orders (buy & sell) should exactly match for trade to take place.

Spot Market

Spot orders are similar to the normal market orders except that spot orders have a different settlement period vis-à-vis normal market. These orders do not have special term attributes attached to them.

Auction Market

In the auction market, the Exchange on behalf of trading members for settlement related reasons initiates auctions. There are three types of participants in this market.

- a. Initiator: The party, which initiates the auction process, is called the Initiator.
- b. Competitor: The party, which enters orders on the same side as of the initiator, is called a competitor.
- c. Solicitor: The party, which enters orders on the opposite side as of the initiator, is called a Solicitor.

Order Types & Conditions

The system allows the trading members to enter orders with various conditions attached to them as per their requirements. Members can enter 'O' (Open) orders for opening an transaction on the system and 'C' (Close) orders for closing out an existing position in the participant code field in the order entry screen. These conditions are broadly divided into the following categories:

Time Conditions

- a. **DAY** – It is an order which is valid for the day on which it is entered. If the order is not executed during the day, the system cancels the order automatically at the end of the day.
- b. **GTC** – A Good Till Cancelled (GTC) order remains in the system until the user cancels it. Consequently, it spans trading days, if not traded on the day the order is entered. The exchange notifies the maximum number of days an order can remain in the system. Currently, all GTC orders get purged on Tuesday; each day counted is a calendar day including the holidays. The days counted are the inclusive of the day on which the order is placed and the order is cancelled from the system at the end of the day of the expiry period.
- c. **GTD** – A Good Till Days (GTD) order allows the user to specify the number of days / date till which the order should stay in the system, if not executed. The maximum days allowed by the system are same as in GTC order. At the end of this days / date, the order is cancelled from the system. Each day /date counted as a calendar day and inclusive of holidays. The days counted are the inclusive of the day on which the order is placed and the order is cancelled from the system at the end of the day of the expiry period.
- d. **IOC** - An Immediate or Cancel (IOC) order allows a Trading Member to buy or sell a security as soon as the order is released into the market, failing which the order will be removed from the market. Partial match is possible for the order, and the unmatched portion of the order is cancelled immediately.

Quantity Conditions

- a. **DQ** – An order with a Disclosed Quantity (DQ) condition allows the Trading Member to disclose only a part of the order quantity to the market. For example, an order of 1000 with a disclosed quantity condition of 200 will mean that 200 is displayed to the market at a time. After this is traded, another 200 are automatically released and so on till the full order is executed. The Exchange may set a minimum disclosed quantity criteria from time to time.

- b. **MF** - Minimum Fill (MF) orders allow the Trading Member to specify the minimum quantity by which an order should be filled. For example, an order of 1000 units with minimum fill 200 will require that each trade be for at least 200 units. In other words there will be a maximum of 5 trades of 200 each or a single trade of 1000. The Exchange may lay down norms of MF from time to time.
- c. **AON** - All or None orders allow a Trading Member to impose the condition that only the full order should be matched against. This may be by way of multiple trades. If the full order is not matched it will stay in the books till matched or cancelled.

Price Conditions

- a. **Limit Price/Order** - An order that allows the price to be specified while entering the order into the system.
- b. **Market Price/Order** - An order to buy or sell securities at the best price obtainable at the time of entering the order.
- c. **Stop Loss (SL) Price/Order** - The one that allows the Trading Member to place an order, which gets activated only when the market price of the relevant security reaches or crosses a threshold price. Until then the order does not enter the market. A sell order in the Stop Loss book gets triggered when the last traded price in the normal market reaches or falls below the trigger price of the order. A buy order in the Stop Loss book gets triggered when the last traded price in the normal market reaches or exceeds the trigger price of the order.

Example: If for stop loss buy order, the trigger is 93.00, the limit price is 95.00 and the market (last traded) price is 90.00, then this order is released into the system once the market price reaches or exceeds 93.00. This order is added to the regular lot book with time of triggering as the time stamp, as a limit order of 95.00

Quantity Freeze

An order results in a quantity freeze, if the quantity is greater than 1% of the security. A quantity freeze is sent to the exchange for approval. The exchange may either approve or reject the request for quantity freeze.

Price Freeze

All limit price orders are checked for certain validations. The limit price should be in multiples of tick size and within the days minimum / maximum price range, otherwise the order is rejected by the system. If an order price lies outside the Operational range but within day's maximum / minimum range, it results in a price freeze and the order is not accepted as a valid order till the time exchange approves it.

Order Matching

Matching Attributes

Buy and sell orders are matched on the main attribute like Book Type, Symbol, Series, Quantity and Price.

Matching Priority

Before we go into the details of order matching, it is necessary to understand the terms "Active" and "Passive" order. An active order is an order entering the system. Once this order does not

find a match, it remains in the system as an outstanding order and is called as passive order. Best sell order is the order with the lowest price and the best buy order is the order with the highest price. The unmatched orders are queued in the system in the following priority:

- a. **By Price** – A buy order with a higher price gets a higher priority and similarly, a sell order with a lower price gets a higher priority.
- b. **By Time** – If there is more than order at the same price, the order entered earlier gets a higher priority.

As and when valid orders are received by the system, they are first numbered, time stamped, and then scanned for a potential match. This means that each order has a distinctive order number and a unique time stamp on it. If a match is not found then the orders are stored in the book as per price / time priority. An active buy order matches with the best passive sell order if the price of the passive sell is less than or equal to the price of the active buy order. Similarly, an active sell order matches with the best passive buy order, if the price of the passive buy order is greater than or equal to the price of the active sell order.

Pre – Open Matching

The pre – open matching rules applies to the pre – open period for the normal market. During the pre-open period, the system accepts all normal order activity but does not generate trade. Based on orders carried over from the previous day, any new order entered for the current trading day and any changes / cancellations to these orders, the system computes opening price for each security. All order entry functions available during normal trading hours are also available during pre-open. Orders can be entered, modified, or cancelled. Orders can be limited to price orders or market orders. After the pre-opening matching algorithm is executed, the system will begin the process of opening the market. During the opening process order entry function is disabled. Based on the pre-open matching algorithm, opening prices of the securities are calculated and all opening trade occurs at this price only.

Open Phase Matching

During this phase, orders are matched on a continuous basis in all book types. Orders are arranged in price / time priority and trade take place at the passive order price. Order matching takes place if the best buy price is greater than or equal to the best sell price with the minimum quantity condition being satisfied. If the combined equity of one or more matching orders on the opposite side of the regular lot book is equal to or more than the quantity of the active order, the active order is completely traded else it may be partially traded. If after trading, any quantity is left untraded, the order is added to the regular lot book with price / time priority. An active order with disclosed condition tries to maximize the quantity as possible, regardless of the disclosed quantity i.e. a single trade takes place for a quantity more than the disclosed quantity. If an active order with the disclosed quantity can't trade its total quantity, it is added to the regular lot book with the price / time priority. The disclosed order quantity is determined as follows:

- If the remaining order quantity is less than or equal to the original disclosed quantity, the disclosed order quantity is set as equal to remaining order quantity.
- If the remaining order quantity is more than the original disclosed quantity, the disclosed order quantity is set to the original disclosed quantity.

Once an order with the disclosed quantity has become a passive order, it trades only in units of the disclosed quantity or less. Each time the disclosed quantity is replenished, the order is re-time stamped and added to the regular order book as fresh order.

Negotiated Trade Matching

Negotiated trade entries are matched on the basis of the counter party trading member id entered at the time of the order entry. If the counter side entry of the negotiated trade is not entered on the same day then this trade entry is cancelled. All the terms related to a negotiated trade entry must be identical to the corresponding entry made by the counter party. The orders in the NT book can be modified / cancelled till the time such alerts is not created. All negotiated trade requires exchange approval.

Spot Order Matching

Matching rules for the spot order are similar to that of regular lot book.

Odd lot Order Matching

Odd lot matching takes place only for orders in odd lot book. There are no partial trades for an odd lot order i.e. each match is an exact match where the quantity of the passive order is equal to that of the active order.

Auction Matching

All auction orders are entered into the Auction order book. The rules for matching of auction are similar to that of the regular lot. Auction order matching takes place at the end of the solicitor period for the auction only, across orders belonging to the same auction. All auction trade takes place at the auction price that is calculated as per matching rules.

Neat Screen

- **Ticker:** It displays the series, market type, stock symbol, volume and price at which each successive trade takes place on the exchange.
- **Snap Quote:** It allows a trading member to get immediate market information on any desired security.
- **Most Active Securities:** It gives a list of securities with the highest traded value during the day.
- **MBP:** 'Market by price' displays the best five price points available in each security along with the total order quantity at these 5 prices.
- **Market Movement:** It provides the hourly details of a particular security like buying order quantity; selling order quantity, high price, low price etc.
- **Outstanding Orders:** It provides the details of orders that are not traded for a particular security.
- **Previous Trades:** It provides the details of all trades in a security for the day.

End of Day Report

Once the trading day ends, the details of trading activities done are generated as reports and downloaded on the user workstation of corporate and branch managers. Following are the reports available at the trader's workstation:

- **Market Statistics Report:** Commonly called the *Bhav Copy* in market parlance, this report gives details to all securities traded on a particular day. The information given includes price statistics for each security as well as quantity and volume traded during the day. It also includes the day's index value for S&P CNX Nifty, CNX Junior Nifty, S&P CNX Defty, S&P CNX 500 and CNX Midcap 200.
- **Open Orders Report:** This report shows records of all outstanding GTC / GTD orders for the day that can take part in trading on the next trading day.
- **Order Log:** This report gives record of all the orders entered, modified or cancelled during the day.
- **Trades Done Report:** This report shows the record of all the trades executed by the member-trading firm during the day.
- **Negotiated Deals:** A negotiated deal may be defined as a deal at a mutually agreed price and quantity between two clients of the same broker and two clients of two different brokers.

Exercise

1. What are the methods of computation of index? Which method is being followed in NSE and BSE and why?
2. Let's say Index comprises of following four Securities on base date, with base value of 1000, as in NSE

Shares	Prices (P ₀)	Issue size	Prices today (P ₁)
Reliance	202	4000000	245
Wipro	600	500000	450
BFL	145	200000	150
SAIL	25	1000000	55
Total	972	5700000	900

Find the index value today?

3. On April 5, the total market cap of S&P CNX Nifty is Rs. 257500 crores and base cap is Rs. 255000 crores. It is decided to replace scrip A, a constituent of Nifty having a market cap of Rs. 800 crores with scrip B that has a market cap of Rs. 927 crores with effect from April 6. What is the revised base cap of Nifty on April 6?
4. Given the order book for a security, find the impact cost to sell 1500 shares of the security.

Order Book			
Buy Quantity	Buy Price	Sell Quantity	Sell Price
1000	98	1000	99
2000	97	1500	100
1000	96	1000	101

LESSON 5

Introduction

The National Securities Clearing Corporation Ltd. (NSCCL), a wholly owned subsidiary of NSE, was incorporated in August 1995. It was set up to bring and sustain confidence in clearing and settlement of securities; to promote and maintain, short and consistent settlement cycles; to provide counter-party risk guarantee, and to operate a tight risk containment system. NSCCL commenced clearing operations in April 1996.

Clearing

Clearing is the process of determination of obligations, after which the obligations are discharged by settlement.

NSCCL has two categories of clearing members: trading members and custodians. The trading members can pass on its obligation to the custodians if the custodian confirms the same to NSCCL. All the trades whose obligation the trading member proposes to pass on to the custodian are forwarded to the custodian by NSCCL for their confirmation. The custodian is required to confirm these trade on T + 1 days basis.

Once, the above activities are completed, NSCCL starts its function of Clearing. It uses the concept of multi-lateral netting for determining the obligations of counter parties. Accordingly, a clearing member would have either pay-in or payout obligations for funds and securities separately. Thus, members pay-in and payout obligations for funds and securities are determined latest by T + 1 day and are forwarded to them so that they can settle their obligations on the settlement day (T+2).

Cleared and Non – Cleared Deals

NSCCL carries out the clearing and settlement of trades executed in the following sub-segments of the Equities segment:

1. All trades executed in the Book entry / Rolling segment.
2. All trades executed in the Limited Physical Market segment.

NSCCL does not undertake clearing and settlement of deals executed in the Trade for Trade sub-segment of the Equities (Capital Market) segment of the Exchange. Primary responsibility of settling these deals rests directly with the members and the Exchange only monitors the settlement. The parties are required to report settlement of these deals to the Exchange.

Clearing Mechanism

Trades in rolling segment are cleared and settled on a netted basis. Trading and settlement periods are specified by the Exchange / Clearing Corporation from time to time. Deals executed during a particular trading period are netted at the end of that trading period and settlement obligations for that settlement period are computed. A multilateral netting procedure is adopted to determine the net settlement obligations, in a rolling settlement, each trading day is considered as a trading period and trades executed during the day are netted to obtain the net obligations for the day.

Settlement Cycle

Real Time Gross Settlement

It involves settlement of trades on real time and involves every single trade being settled without any netting. This type settlement involves the smallest time between the trade and settlement.

At the end of each trading day, concluded or locked-in trades are received from NSE by NSCCL. NSCCL determines the cumulative obligations of each member and electronically transfers the data to Clearing Members (CMs). All trades concluded during a particular trading period are settled together. A multilateral netting procedure is adopted to determine the net settlement obligations (delivery/receipt positions) of CMs. NSCCL then allocates or assigns delivery of securities inter se the members to arrive at the delivery and receipt obligation of funds and securities by each member. Settlement is deemed to be complete upon declaration and release of payout of funds and securities.

On the securities pay-in day, delivering members are required to bring in securities to NSCCL. On pay out day the securities are delivered to the respective receiving members. Exceptions may arise because of short delivery of securities by CMs, bad deliveries or company objections on the payout day.

Auctions

Each CM would communicate to NSCCL on the pay-in day the securities that the CM would be delivering and those that the CM is unable to deliver. NSCCL identifies short deliveries and conducts a buying-in auction on the day after the payout day through the NSE trading system.

The CM is debited by an amount equivalent to the securities not delivered and valued at a valuation price (the closing price as announced by NSE on the day previous to the day of the valuation). If the buy-in auction price is more than the valuation price, the CM is required to make good the difference. All shortages not bought-in are deemed closed out at the highest price between the first day of the trading period till the day of squaring off or closing price on the auction day plus 20%, whichever is higher. This amount is credited to the receiving member's account on the auction payout day.

Bad Delivery

Bad deliveries (deliveries which are prima facie defective) are required to be reported to the clearinghouse within two days from the receipt of documents. The delivering member is required to rectify these within two days. Un-rectified bad deliveries are assigned to auction on the next day. In a typical settlement cycle bad deliveries are reported on Friday and are to be rectified by Monday. Failing which the clearing corporation conducts an auction buy-in on Wednesday. Like in the case of short deliveries there is a valuation of debit and a square off in

the event of unsuccessful auction. Good / Bad delivery norms are given by SEBI.

Company Objections

Company objections arise when, on lodgment of the securities with the company / Share Transfer Agent (STA) for transfer, which are returned due to signature mismatch or for any other reason for which the transfer of security cannot be effected. The original selling CM is normally responsible for rectifying / replacing defective documents to the receiving CM as per pre-notified schedule. The CM on whom company objection is lodged has an opportunity to withdraw the objection if the objection is not valid or the documents are incomplete (i.e. not as required under guideline No.100 or 109 of SEBI Good/Bad delivery guidelines), within 7 days of lodgment against him. If the CM is unable to rectify/replace defective documents on or before 21 days, NSCCL conducts a buying-in auction for the non-rectified part of defective document on the next auction day through the trading system of NSE. All objections, which are not bought-in, are deemed closed out on the auction day at the closing price on the auction day plus 20%. This amount is credited to the receiving member's account on the auction payout day.

Rolling Settlement

In a rolling settlement, each trading day is considered as a trading period and trades executed during the day are settled based on the net obligations for the day.

At NSE, trades in rolling settlement are settled on a T+2 basis i.e. on the 2nd working day. For arriving at the settlement day all intervening holidays, which include bank holidays, NSE holidays, Saturdays and Sundays are excluded. Typically trades taking place on Monday are settled on Wednesday, Tuesday's trades settled on Thursday and so on. A tabular representation of the settlement cycle for rolling settlement is given below:

	Activity	Day
Trading	Rolling Settlement Trading	T
Clearing	Custodial Confirmation Delivery Generation	T+1 working days T+1 working days
Settlement	Securities and Funds pay in Securities and Funds pay out Valuation Debit	T+2 working days T+2 working days T+2 working days
Post Settlement	Auction Bad Delivery Reporting Auction settlement Rectified bad delivery pay-in and pay-out Re-bad delivery reporting and pickup Close out of re-bad delivery and funds ay-in & payout	T+3 working days T+4 working days T+5 working days T+6 working days T+8 working days T+9 working days

Risk Management

A sound risk management system is integral to an efficient clearing and settlement system. NSE introduced for the first time in India, risk containment measures that were common internationally but were absent from the Indian securities markets.

Risk containment measures include capital adequacy requirements of members, monitoring of member performance and track record, stringent margin requirements, position limits based on capital, online monitoring of member positions and automatic disablement from trading when limits are breached, etc.

Margins (Equities)

Categorization of Stocks for imposing Margins:

- The Stocks which have traded at least 80% of the days for the previous 18 months shall constitute the Group I and Group II.
- Out of the scrips identified above, the scrips having mean impact cost of less than or equal to 1% shall be categorized under Group I and the scrips where the impact cost is more than 1, shall be categorized under Group II.
- The remaining stocks shall be classified into Group III.
- The impact cost shall be calculated at 15th of each month on a rolling basis considering the order book snapshots of the previous six months. On the basis of the impact cost so calculated, the scrips shall move from one group to another group from the 1st of the next month.

Daily margins payable by members consists of the following:

- a. Value at Risk Margin
- b. Mark to Market Margin

Daily margin, comprising of the sum of VaR margin and mark to market margin is payable.

Value at Risk Margin

VaR margin is applicable for all securities in rolling settlement. All securities are classified into three groups for the purpose of VaR margin.

For the securities listed in Group I Scrip wise daily volatility calculated using the exponentially weighted moving average methodology that is used in the index futures market and the scrip wise daily VaR would be 3.5 times the volatility so calculated.

For the securities listed in Group II the VaR margin shall be higher of scrip VaR (3.5 sigma) or three times the index VaR, and it shall be scaled up by root 3.

For the securities listed in Group III, the VaR margin would be equal to five times the index VaR and scaled up by root 3.

VaR margin rate for a security constitutes the following:

- Value at Risk (VaR) based margin, which is arrived at, based on the methods stated above. The index VaR, for the purpose, would be the higher of the daily Index VaR based on S&P CNX NIFTY or BSE SENSEX. The index VaR would be subject to a minimum of 5%.

- Additional VAR Margin: 6% as specified by SEBI.
- Security specific Margin: NSCCL may stipulate security specific margins for the securities from time to time.

The VaR based margin would be rounded off to the next higher integer (For Eg: if the VaR based Margin rate is 10.01, it would be rounded off to 11.00) and capped at 100%.

The VaR margin rate computed as mentioned above will be charged on the net outstanding position (buy value-sell value) of the respective clients on the respective securities across all open settlements. The net position at a client level for a member are arrived at and thereafter, it is grossed across all the clients for a member to compute gross exposure for margin calculation.

For example, in case of a member, if client A has a buy position of 1000 in a security and client B has a sell position of 1000 in the same security, the net position of the member in the security would be taken as 2000. The buy position of client A and sell position of client B in the same security would not be netted. It would be summed up to arrive at the member's exposure for the purpose of margin calculation.

Mark-to-Market Margin

Mark to market margin is computed on the basis of mark to market loss of a member. Mark to market loss is the notional loss which the member would incur in case the cumulative net outstanding position of the member in all securities, at the end of the relevant day were closed out at the closing price of the securities as announced at the end of the day by the NSE. Mark to market margin is calculated by marking each transaction in scrip to the closing price of the scrip at the end of trading. In case the security has not been traded on a particular day, the latest available closing price at the NSE is considered as the closing price.

In the event of the net outstanding position of a member in any security being nil, the difference between the buy and sell values would be considered as notional loss for the purpose of calculating the mark to market margin payable.

$$\text{MTM Profit / Loss} = \{(\text{Total Buy Qty} * \text{Close Price}) - \text{Total Buy Value}\} + \{\text{Total Sale Value} - (\text{Total Sale Qty} * \text{Close Price})\}$$

MTM profit/loss across different securities within the same settlement is set off to determine the MTM loss for a settlement. Such MTM losses for settlements are computed at client level.

ADDITIONAL VOLATILITY MARGIN SYSTEM

The system of additional volatility margin has been acceptable to all trading in all stock exchanges with effect from July 6, 1998. The current procedure followed since August 3, 1999, is as follows:

Price

The additional volatility margin is not mandatory for securities whose close price is less than Rs. 40. If the price of the security increase to Rs. 40 or more it becomes eligible for consideration towards this margin. If price of a security reduces to below Rs. 40 in a settlement period, it is still eligible for the consideration during that settlement period.

Price Bands

The daily price band for all securities traded at or above Rs. 20 is +/- 8%. There is no settlement band for all securities at or above Rs. 20.

Definition of Volatile Security

A security is considered as volatile based on the price movement of the security in the preceding 6 weeks. For the purpose of computing this volatility, at the end of every settlement cycle, the high and the low prices of the security in the preceding 6 weeks is considered. The parameter for volatility percentage is calculated as follows:

$$\text{VP} = \{(\text{High}_{6 \text{ weeks}} - \text{Low}_{6 \text{ weeks}}) / \text{Low}_{6 \text{ weeks}}\} * 100 \geq 40.00$$

Corporate Actions

Price variations in the preceding 6 weeks on account of dividends, calls, bonuses, rights, mergers, amalgamations and scheme of arrangements etc. is excluded for determining volatile securities. The factor is determined after adjusting for such actions.

Margin Rates

The volatility margin is as follows:

Volatility Percentage	Margin Rates
> 60% and < 70%	5%
> 70% and < 90%	10%
> 90% and < 110%	15%
> 110% and < 130%	20%
>130% and < 150%	25%
>150%	30

Additional margin of 5% will be imposed on the net sale position at the end of the day on all the securities.

Gross Exposure Margin

Gross exposure margin is computed on the aggregate of the net cumulative outstanding position in each security of the CM in the following manner:

Gross Exposure (Rs. Million)	Margin Payable
0 – 10	Nil
> 10 and upto 30	2.5%
> 30 and upto 60	Rs. 5 lakh plus 5% in excess of Rs. 30 million
> 60 and upto 80	Rs. 20 lakh plus 10% in excess of Rs. 60 million
> 80 and upto 200	Rs. 40 lakh plus 15% in excess of Rs. 80 million
> 200	Rs. 220 lakh plus 20% in excess of Rs. 200 million

Application

Volatility margin is computed for all securities where volatility margin is higher than marked to market margin. It is payable in addition to daily margin. It is levied on the net outstanding position of the member in each scrip based on the respective margin slabs.

Clearing & Settlement (Derivatives)

National Securities Clearing Corporation Limited (NSCCL) is the clearing and settlement agency for all deals executed on the Derivatives (Futures & Options) segment. NSCCL acts as legal counter-party to all deals on NSE's F&O segment and guarantees settlement.

A Clearing Member (CM) of NSCCL has the responsibility of clearing and settlement of all deals executed by Trading Members (TM) on NSE, who clear and settle such deals through them.

Clearing & Settlement (Retail Debts)

National Securities Clearing Corporation Limited (NSCCL) is the clearing and settlement agency for all deals executed in Retail Debt Market.

Salient features of Clearing and Settlement in Retail Debt Market segment

- Clearing and settlement of all trades in the Retail Debt Market shall be subject to the Bye Laws, Rules and Regulations of the Capital Market Segment and such regulations, circulars and requirements etc. as may be brought into force from time to time in respect of clearing and settlement of trading in Retail Debt Market (Government securities).
- Settlement in Retail Debt Market is on T + 2 Rolling basis viz. on the 2nd working day. For arriving at the settlement day all intervening holidays, which include bank holidays, NSE holidays, Saturdays and Sundays are excluded. Typically trades taking place on Monday are settled on Wednesday, Tuesday's trades settled on Thursday and so on.
- Clearing and settlement would be based on netting of the trades in a day.
- NSCCL shall compute member obligations and make available reports/data by T+1. The obligations shall be computed separately for this market from the obligations of the equity market.
- The settlement schedule for the Retail Debt Market (Government Securities)

Sr. No.	Day	Description
1	T	Trade Date
2	T + 1 (11:00 a.m.)	Custodial Confirmation
3	T + 2 (10.30 a.m.)	Securities & Funds pay-in
4	T + 2	Securities & Funds pay-out

- Fund settlement and securities settlement shall be through the existing clearing banks and depositories of NSCCL, in a manner similar to the Capital Market segment. The existing clearing bank accounts shall be used for funds settlement.
- The existing CM pool account with the depositories that is currently operated for the CM segment, will be utilized for the purpose of settlements of securities.
- In case of short deliveries, unsettled positions shall be closed out. The close out would be done at Zero Coupon Yield Curve (ZCYC) valuation for prices plus a 5% penalty factor. The buyer shall be eligible for the highest traded price from the trade date to the date of close out or closing price of the security on the close out date plus interest calculated at the rate of overnight FIMMDA-NSE MIBOR for the close out date whichever is higher and the balance shall be credited to the Investor Protection Fund.
- Members may please note that the penal actions and penalty points shall be similar to as in Capital Markets.

Exercise

1. What is the clearing and settlement cycle for equities at NSE?
2. What are the margin payable for equities and what are the slab rates?

- What is the clearing & settlement cycle for Retail debts?
- The price movements for the following securities is as given below:

Security	Preceding 6 week High	Preceding 6 week Low	Settlement Close
A	140	80	100
B	205	195	200
C	15	5	10
D	105	95	100
E	130	90	110

Which of the following statements are true for the above securities for the next settlement.

- Security A will attract an additional volatility margin at a rate of 15%.
 - Security B will attract an additional volatility margin at a rate of 5%.
 - Security C will attract an additional volatility margin at a rate of 20%.
 - Security D will attract an additional volatility margin at a rate of 10%.
 - Security E will attract an additional volatility margin at a rate of 5%.
- A member trades in four securities, A, B, C and D on a trading day. The gross exposure margin computed for the member is Rs. 10 lakh. All the above securities are identified as volatile at their respective margin rates. The MTM margin and the Volatility margin computed for each of these securities is given below:

Security	MTM Margin (Rs. Lakh)	Volatility Margin (Rs. Lakh)
A	6	5
B	4	5
C	2	3
D	6	5

What is the total margin payable by the member?

Notes

LESSON 6

OVERVIEW OF THE PRIMARY MARKET

Introduction

Primary market is a place where corporate may raise capital by the way of:

- a. **Initial Public Offer:** Sale of securities to the members of the public.
- b. **Rights Issue:** Method of raising further capital from the existing shareholders / debenture holders by offering additional shares to them on a preemptive basis.
- c. **Private Placements:** As the name suggests it involves selling securities privately to a group of investors.

All issues by a new company has to be made at par and for an existing company the issue price should be justified as per Malegam Committee recommendation by

- The EPS for the last three years and comparison of pre-issue P/E ratio to the P/E ratio of the industry.
- Latest Net Asset value.
- Minimum return of increased net worth to maintain pre-issue EPS. A company may also raise finance from the international markets by issuing ADRs and GDRs.

Steps of a Public Issue

Vetting of Prospectus by SEBI

A draft prospectus is prepared giving out details of the company, promoters, background, management, terms of the issue, project details, modes of financing, past financial performance, projected profitability and others. Additionally a venture capital firm has to file the details of the terms subject to which funds are to be raised in the proposed issue in document called the 'placement memorandum'.

- a. **Appointment of Underwriters:** The underwriters are appointed who commit to shoulder the liability and subscribe to the shortfall in case the issue is under subscribed. For this commitment they are entitled to a maximum commission of 2.5% on the amount underwritten.
- b. **Appointment of Bankers:** Bankers along with their branch network act as the collecting agency and process of funds procured during the public issue. The banks provide the temporary loan for periods between the issue date and the date issue proceeds becomes available after allotment, which is referred to as 'bridge loan'.
- c. **Appointment of Registrars:** Registrars process the application form, tabulate the amount collected during the issue and initiates the allotment procedures.
- d. **Appointment of Brokers to the issue:** Recognized members of stock exchanges are appointed as the brokers to the issue for marketing the issue. They are eligible for a maximum brokerage of 1.5%.

- e. **Filing the Prospectus with the registrar of the Company:** The draft prospectus along with the copies of the agreements entered into with the Lead managers, Underwriters, Bankers, Registrars and Brokers to the issue is filed with the Registrar of Companies for that State where the registered office of the company is located.
- f. **Printing and Dispatching of Application Forms:** The prospectus and application form are printed and dispatched to the Bankers, Underwriters and Broker to the issue.
- g. **Filing the initial listing application:** A letter is sent to the Stock Exchange where the issue is proposed to be listed giving the details and stating the intent of getting the shares listed on the exchange. The initial listing application has to be sent with a fee of Rs. 7500.
- h. **Statutory Announcement:** An abridged version of the prospectus and the issue starting and closing dates are to be published in major English dailies and vernacular newspapers.
- i. **Processing of Applications:** After the close of Public issue all the application forms are scrutinized, tabulated and then shares are allotted against these applications.
- j. **Establishing the liability of the Underwriter:** In case the issue is not fully subscribed then the liability of the subscription falls on underwriters, who have to subscribe to the shortfall, in case they have not procured the amount committed by them as per the underwriting agreement.
- k. **Allotment of Shares:** After the issue is subscribed to the minimum level, the allotment procedure as prescribed by the SEBI is initiated.
- l. **Listing of the issue:** The shares after having been allotted have to be listed compulsorily in the regional stock exchange and optionally at the other stock exchanges.

Cost of a Public Issue

The cost of a public issue works out to be 8% to 12 % depending on the issue size but the maximum has been specified by SEBI as under:

For Equity and Convertible Debentures:

- When the issue size is upto 5 crores = Mandatory costs + 5%
- When the issue size is greater than 5% = Mandatory costs + 2%

For Non Convertible Debentures

- When the issue size is upto 5 crores = Mandatory costs + 2%
- When the issue size is greater than 5 crores = Mandatory costs + 1%

Mandatory costs include underwriting commission, brokerage, fee to lead managers of the issue, expenses on statutory announcement, listing fees and stamp duty.

Eligibility for an IPO

An Indian Company is allowed to issue an IPO if:

- The company has a track record of dividend paying capability for 3 out of immediate preceding 5 years.
- A public financial institution or scheduled commercial banks has appraised the project to be financed through the proposed offer and the appraising agency participates in the financing of the project to the extent of at least of 10 % of the project cost. Typically a new company has to compulsorily issue shares at par, while the companies with a track record, the shares can be issued at premium. Before the advent of SEBI the prices of shares were valued as per the Controller of Capital Issues (CCI).

Rights Issue

The right issue involves selling of securities to the existing shareholders in proportion to their current holdings. When a company issues additional equity capital it has to be offered in the first instance to the existing shareholders in a pro-rata basis as per section 81 of the companies act, 1956. The shareholders may, by special resolution, forfeit this right, partially or fully by a special resolution to enable the company to issue additional capital to the public or alternatively by passing a simple resolution and taking the permission of the Central Government.

Example: A limited company is issuing the rights in the ratio of 3 shares for every 5 shares held at Rs. 30. The cum-rights price is Rs. 60 per share. What is the ex-right price likely to be?

Cum-right price of the shares = $5 * 60 = 300$

Value of the right subscription = $3 * 30 = 90$

Total value for 8 shares = 390

Therefore, Ex-right price = $390 / 8 = 48.75$

Private Placements

A private placement results from the sale of securities by the company to one or few investors. The distinctive features of private placements are:

- There is no need for formal prospectus as well as underwriting agreements.
- The terms of the issue are negotiated between the company and the investors.

The issuers are normally the listed public limited companies or closely held public or private limited companies, which can't access the primary market. The securities are placed normally with the Institutional investors, Mutual Funds or other Financial Institutions.

Sebi Guidelines for IPOs

- Allotment has to be made within 30 days of the closure of the Public issue and 42 days in case of Rights issue.
- Net offer to the general public has to be at least 25% of the total issue size for listing on a stock exchange. For listing an IPO on NSE firstly, paid up capital should be Rs. 20 crores, secondly the issuer or the promoting company should have a

- track record of profitability, and thirdly, the project should be appraised by a financial institution, bank or category 1 merchant banker. For knowledge based company like, IT the paid up capital should be Rs. 5 crores but the market cap should be at least 50 crores. It is mandatory for a company to get its shares listed at the regional stock exchange where the registered office of the company is located.
- A venture capital fund shall not be entitled to get its share listed on any stock exchange till the expiry of 3 years from the date of issue of the securities.
- In an issue of more than 100 crores the issuer is allowed to place the whole issue by book building
- Minimum of 50% of the net offer to the public has to be reserved for investors applying for less than 1000 shares.
- All the listing formalities for a public issue have to be completed within 70 days from the date of closure of the subscription list.
- There should be at least 5 investors for every 1 lakh of equity offered.
- Quoting of Permanent Account Number (PAN) or GIR number in application for allotment of securities is compulsory where monetary value of investment is Rs. 50000 or above.
- Firm allotment to the permanent and regular employees of the issuer is subject to the ceiling of 10% of the issue amount.
- Indian development financial institution and Mutual funds can be allotted securities upto 75% of the issue amount.
- Allotment to categories of FIIs and NRIs / OCBs is upto maximum of 24 % which can be further extended upto 30 % by an application to RBI – supported by a resolution passed in the general meeting.
- 10% individual ceiling for permanent employees and shareholding of the promoting companies.
- Securities issued to the promoter, his group companies by way of firm allotment and reservation have a lock in period for three years. However shares allotted to FIIs and certain Indian and multilateral development financial institutions and Indian Mutual funds are not subject to lock in period.
- The minimum period for which a public issue has to be kept open is 3 working days and the maximum is 10 working days. The minimum period for rights issue is 15 working days and the maximum is 60 working days.
- A public issue is affected if the issue is able to procure 90% of the total issue size within 60 days from the date of earliest closure of the Public issue. In case of over subscription, the company may have the right to retain the excess application money, and allot shares more than the proposed issue which is referred to as 'Green Shoe' option.
- A right issue has to procure 90% subscription in 60 days of the opening of the issue.
- 20% of the total issued capital, if the company is an unlisted one with a three year track record of consistent profitability else in all cases following slab rates will apply.

Size of Capital issued (Including Premium)	Contribution
< Rs. 100 crores	50%
> Rs. 100 crores and < Rs. 300 crores	40%
> Rs. 300 crores and < Rs. 600 crores	30%
> Rs. 600 crores	15%

- r. Refund orders have to be dispatched within 30 days of the closure of the public issue.
- s. Refunds of excess application money i.e. for un-allotted shares have to be made within 30 days of the closure of the public issue.

GDR and Its Feature

'Global Depository Receipts' means any instrument in the form of a depository receipt or certificate created by the overseas Depository bank outside India and issued to Non resident investors against the issue of ordinary shares or Foreign currency Convertible bonds of Issuing company. A GDR issued in America is an American Depository Receipts (ADR). Amongst the Indian companies Reliance Industries was the first to raise funds through a GDR issue.

Features of GDR

- a. The holder of GDR does not have voting rights
- b. The proceeds are collected in foreign currency thus enabling the issuer to utilize the same for meeting the foreign exchange component of project cost, repayment of foreign currency loans, meeting overseas commitments and for similar other purposes.
- c. It has less exchange risk as compared to foreign currency borrowings or foreign currency bonds.
- d. The GDRs are usually listed at the Luxemburg Stock Exchange and also traded at two other places besides the place of listing i.e. the OTC market in London and in the private placement market in USA.
- e. An investor who wants to cancel its GDR may do so by advising the depository to request the custodian to release his underlying shares and relinquishing his GDRs in lieu of shares held by the custodian. The GDR can be cancelled only after a cooling-period of 45 days. The depository will instruct the custodian about cancellation of GDR and release the corresponding shares, collect the same proceeds and remit the same abroad.
- f. Marketing of the GDR issue is done by the underwriters by organizing road shows that are presentations made to potential investors. During the road shows, an indication of the investor interest is obtained by the equity called the 'Book Runner'. The issuer fixes the range of the issue price and finally decides on the issue price after assessing the investor response at the road shows.

Sponsored ADR

It is an ADR created by a non – US company working directly with a depository bank. An unsponsored ADR is usually the

one created by a bank without the participation or consent of the non US Company. Unsponsored ADR can be traded only in the OTC market.

Levels of ADRs

a. Level I: Program the receipts issued in the US are registered with the SEC, but the underlying shares are held in the depository bank are not registered with the SEC. They must partially adhere to the Generally Accepted Accounting Principles (GAAP) used in the USA.

b. Level II: Are those in which both the ADRs and the underlying shares that already trade in the foreign company's domestic market are registered with the SEC. The must also partially adhere to the GAAP.

Level III: They must adhere fully to the GAAP and the underlying shares held at the Depository bank are typically new shares not those already trading in the foreign company's domestic market.

Notes

LESSON 7

FUNCTIONING OF SECONDARY MARKET

Secondary market is a market where securities that have been issued at some previous point of time are traded through the intermediaries in an organised exchange. These intermediaries may be stockbrokers or sub brokers.

Stock Exchange

Stock exchange is a place where the buyer and seller meet to trade in shares in an organised manner. There are at present 25 recognized stock exchanges in India and are governed by the Securities Contracts (Regulation) Act, 1956.

Stock Brokers

According to the Section 2 (e) of the SEBI rules, 1992, a stockbroker means a member of a recognized stock exchange. No stockbroker is allowed to buy, sell or deal in securities, unless he or she holds a certificate granted by SEBI.

A stockbroker applies for registration to SEBI through stock exchange/s of which he or she is admitted as a member. A stockbroker may take the form of sole proprietorship, partnership or corporation.

Sub Brokers

Sub broker is a person who intermediates between investor and the trading member. Stockbrokers of Indian Stock Exchanges are permitted to transact with the sub brokers.

Capital Adequacy Norms for Sub Brokers

Each stockbroker is subject to capital adequacy requirements consisting of two components, Base Minimum Capital and Additional or Optional Capital related to the volume of the business.

The amount of base minimum capital varies from exchange to exchange. A SEBI regulation requires the stockbrokers of BSE to maintain an absolute minimum of Rs. 500000. The form in which the base minimum capital has to be maintained is also stipulated by SEBI. Exchange may stipulate higher levels of base minimum capital at their own discretion.

National Stock Exchange

Ownership and Management

The National Stock Exchange has been set up as a public limited company, owned by the leading institutions of the country. IDBI is the major shareholder of NSE.

The ownership and management of the exchange is completely separated from the right to a trading member, to trade on the NSE. A board of Directors manages the exchange. Decisions related to the market operations are delegated by the board to an Executive Committee, which includes representatives from trading members, public and the management.

The NSE has an automated order driven trading system. Member workstations are spread out through the country and NSE's network is one of the largest interactive VSAT based

network. The NSE in its endeavor to provide transparency provides live quotes of all traded securities through web site.

NSE is the first exchange to set up a disaster recovery site. The disaster recovery site is located at Pune. NSE has promoted India's first Depository, the National Securities Depository Limited (NSDL) and the first Securities Clearing Corporation (NSCCL). It has along with the CRISIL and S&P promoted India Index Products & Services (IISL).

Membership

The exchange admits members separately to segment such as Wholesale Debt Market Segment and Capital Market Segment. Admission is a two way process with applicants requiring to go through a written examination followed by an interview. The Exchange has laid the admission standard, stress on factors such as capital adequacy, corporate structure, track record, education, experience etc.

Every trading member is allowed to trade on the exchange through trading terminals. Every trading member is allowed to specify a hierarchy of users with specified facilities, which can access the NEAT system. The corporate manager is at the top of the hierarchy, followed by the branch manager and the Dealer. In case of change in the structure, they have to notify the exchange. A change of this nature requires no payment to the exchange.

All the trading members of the exchange are also clearing members on the Capital market segment.

Eligibility Criteria

Wholesale Debt Market Segment

The eligibility criteria for trading membership on WDM segment of NSE are:

- The person eligible to become trading members are bodies corporate, companies, institutions including subsidiaries of banks engaged in financial services and such other persons or entities as may be permitted from time to time by RBI/SEBI.
- The whole-time Director should possess at least two years experience in any activity related to banking, financial services or treasury.
- The applicant must possess a minimum paid up capital of Rs. 30 lakhs and minimum net worth of Rs. 2 crores.
- The applicant must be engaged solely in the business of securities and must not be engaged in any fund-based activities.

Capital Market Segment

The eligibility criteria for trading membership on Capital market segment of NSE are:

- Individuals, registered firms, corporate bodies and such other person as may be permitted under the SCRR 1957.

- The applicant must be engaged solely in the business of securities and must not be engaged in any fund-based activities.
- The minimum net worth requirement for the individual and registered firms is Rs. 75 lakh and for corporate bodies (with minimum paid up capital of Rs. 30 lakhs) is Rs. 100 lakhs. In case of registered partnership firm, each partner should contribute at least 5% of the minimum net worth requirement of the firm.
- A corporate trading member should consist of, apart from other shareholders, only a dominant promoter group of individuals (maximum 4), who should directly hold 40% of the paid up capital in case of listed companies and in case of other companies at least 51%.
- The minimum prescribed qualification is graduation and two years experience of handling securities as broker, sub brokers, authorized assistant etc must be fulfilled by
 1. Minimum two directors, in case the applicant is a corporate, of which one should be a Wholesale Director.
 2. Minimum two partners in case of partnership firms.
 3. The individual in case of sole proprietary firms.

F&O Segment

The eligibility criteria for trading membership on Capital market segment of NSE are:

- Two types of members are given – Trading Members and Clearing Members.
- Initially membership for index futures sub segment in F&O segment will be offered.
- The net worth requirement for the trading member is Rs. 1 crore and that for clearing members it is Rs. 3 crores.
- The members in this segment have to meet all other requirements specified in the CM segment.

Capital Adequacy norms for Brokers

The capital adequacy requirement stipulated by the exchange is substantially in excess of the minimum statutory requirements as also in the comparison to those as stipulated by the other exchanges.

Base Minimum Capital

Base minimum capital is a requirement of the exchange subject to minimum stipulated by SEBI. The base minimum capital requirement prescribed by the NSE for the existing members is as follows:

Deposit Structure	WDM Segment	Capital Market Segment (in Rs. Lakh)	
	Corporates	Corporates	Individuals & Registered firms
Interest Fee Deposit	100	50	32.5
Collateral Security Deposit		25	17.5
Total	100	75	50

In case of WDM segment the deposits are acceptable in the form of cash only. In case of capital market segment, interest fee deposited is taken in the form of cash and the broker in the form of cash, FDR, bank guarantee or securities can give the collateral security deposit.

Bank guarantees towards the base capital are accepted in the prescribed format and issued by the banks. Approved specifically by the exchange in this regard. In case the bank guarantee is evoked, the bank is required to pay the guarantee amount within 24 hours. Replacement of fixed deposit receipts by bank guarantees and approved securities towards base capital involves no payment of money to the exchange.

The custodians maintain securities approved by the exchange. Securities deposited as a part of the base capital are periodically valued with a specified haircut. The exchange admits new members as corporates only; in case of new members the following deposit structure is available:

Deposit Structure	WDM Segment	CM Segment	F&O - Index Future Segment
With NSE (Rs. Lakh)			
Interest free Security Deposit	150	91	8
VSAT Deposit	-	3.25	-
With NSCCL (Rs. lakh)			
Interest free Security Deposit	-	9	25*
Collateral Security Deposit	-	25	25*

* Payable in case where the applicants opt to take up the clearing membership for the F&O segment as well.

Intra-Day Turnover Limit

Members are subject to intra-day trading limits. Gross turnover (buy + sell) intra-day of the member should not exceed twenty five (25) times the base capital (cash deposit and other deposits in the form of securities or bank guarantees with NSCCL and NSE).

Members violating the intra-day gross turnover limit at any time on any trading day are not being permitted to trade forthwith.

Gross Exposure Limit

Members are also subject to gross exposure limits. Gross exposure for a member, across all securities in rolling settlements, is computed as absolute (buy value - sell value), i.e. ignoring +ve and -ve signs, across all open settlements. Open settlements would be all those settlements for which trading has commenced and for which settlement pay-in is not yet

completed. The total gross exposure for a member on any given day would be the sum total of the gross exposure computed across all the securities in which a member has an open position.

Gross exposure limit would be:

Total Base Capital upto Rs.1 crore	Gross Exposure Limit
upto Rs.1 crore	8.5 times the total base capital
> Rs.1 crore	8.5 crores + 10 times the total base capital in excess of Rs.1 crore

Or any such lower limits as applicable to the members.

The total base capital being the base minimum capital (cash deposit and security deposit) and additional deposits, not used towards margins, in the nature of securities, bank guarantee, FDR, or cash with NSCCL and NSE.

Additional Base Capital

Members may provide additional margin/collateral deposit (additional base capital) to NSCCL, over and above their minimum deposit requirements (base capital), towards margins and/ or exposure / turnover limits. Members may submit such deposits in any one form or combination of the forms prescribed as Cash, FDRs, Bank Guarantee, Approved securities in the Demat form deposited with approved custodians, Government securities and units of schemes of liquid Mutual funds or Government securities.

Surrender of Trading Membership (All Segments)

The salient features are as follows:

- A Trading Member desirous of surrendering its membership of the Exchange is required to send its request in writing in the prescribed format.
 - The application for surrender of trading membership shall be in respect of the Trading Member's membership of the Exchange i.e. the surrender shall be composite in respect of all the segments to which the Trading Member had been admitted.
 - In respect of an application for surrender from a Trading Member,
 - Who has been suspended/ disciplinary action taken by the Exchange /SEBI,
 - In respect of whom any investigation/ action consequent to a default has been initiated by the Exchange /SEBI,
 - Who is falling within the category of "associates" as defined by SEBI,
 - Who owes dues to the Exchange/ NSCCL,
 - Against whom claims by investors of value of Rs.10 lakhs or more are pending or any claim for any amount is pending for a period more than 6 months,
 - Against whom any other claim /complaint is pending which, in the opinion of the Exchange/ NSCCL, needs to be resolved by the concerned trading member,
 - Whose turnover fees liability to SEBI is still outstanding,
- The Exchange has absolute discretion in dealing with such applications and if it decides to process/ accept the surrender application of such trading member, it may impose additional terms and conditions as it may deem fit.
- An application for surrender is not allowed to withdraw unless permitted by the Exchange at its discretion.
 - Trading Members is, at the time of submission of an application for surrender of membership, required to close out all their open positions, if any, by the end of the settlement cycle in which the application is made except in cases where they want to take/ give delivery of the shares.
 - The application of surrender of trading membership is subject to fulfillment of certain conditions, namely:
 - Submission of original SEBI registration certificate(s)
 - Submission of sub-broker registration certificate(s) of all the Sub-brokers associated with the trading member for onward transmission to the SEBI for cancellation.
 - Submission of computation chart of turnover fee liability payable to SEBI in accordance with the Annexure A.
 - Submission of details of Directors and shareholders.
 - Submission of an undertaking/ declaration that the trading member/ shareholders/ directors are not in any way associated/ connected with any defaulting member of any Stock Exchange.
 - Meeting /clearing all the dues of the trading member towards NSE and NSCCL as well as all the obligations in respect of Arbitration awards, investor complaints etc.
 - Surrender of VSATs and Leased Lines:
 - The trading member should request the Exchange through their surrender application to dismantle and recover all the Leased Line(s)/ VSAT(s) and other equipments given to them at their dealing offices.
 - The Exchange of a complete application for surrender or the usage of the VSAT shall levy charges in respect of VSATs only up to the date of receipt whichever is later. However, in case of any delay in removal of VSAT and/ or the related equipments on account of the inability/ failure on the part of the Trading Member to facilitate such removal/ recovery, the charges in respect of the said VSATs shall be levied up to the date of actual removal/ recovery. Leased Line charges would be as per the billing of MTNL/BSNL/ DOT and dependent on the work-order issued/ actual disconnection of the Leased Lines.
 - The Exchange would charge the Exchange's annual subscription on pro rata.
 - In case, a Trading Member desires to withdraw the application for surrender and the Exchange in its discretion permits such withdrawal, the application and levy of annual subscription, interest and penal charges would be as if the

Trading Member had not applied for the surrender of trading membership.

- Once the application for surrender of trading membership is approved, the interest-free security deposits of the trading member will be locked in with the Exchange/ NSCCL for specified durations.
- The trading members seeking to surrender trading membership must ensure that they maintain the stipulated levels of interest free security deposit before they apply for the surrender of trading membership. The refund of any part of the IFSD is subject to SEBI issuing the No Dues Certificate in respect of such trading member.
- Upon the application for surrender being approved, the Exchange shall notify to all the Trading Members the fact of such approval.
- A notice to the public by way of a publication in newspapers shall also be made by the Exchange except in cases where the trading member has not traded in any segments, through which a time period of 3 months (from the date of public notification) will be given to the investors, public etc. to lodge claims against the surrendering trading member.
- Upon acceptance/ approval of surrender of trading membership as aforesaid, the concerned Trading Members shall not be entitled to any rights or privileges accorded under the Bye-Laws, Rules and Regulations of the Exchange/ NSCCL, but shall continue to be liable to meet their liabilities/obligations under the Bye-Laws, Rules and Regulations of the Exchange/NSCCL.
- A Trading Member, whose application for surrender has been approved, has an option to seek substitution of the interest-free security deposits including the portion, which is not subject to the lock-in condition (i.e. which would be available for refund immediately upon receipt of No Dues Certificate from SEBI).
- Refund of any part component of the IFSD that is locked-in as well as that portion which could be released earlier is subject to the Trading Member:
 1. Making payment to SEBI of all the turnover fees, interest payable thereon etc. as may be applicable to such trading members in respect of all the segments they have been admitted to.
 2. Obtaining No Dues Certificate from SEBI.
 3. Redressing, to the satisfaction of the Exchange, all investors' complaints and other grievances pending against the trading member.
 4. Making, in respect of arbitration proceedings, suitable arrangements to the satisfaction of the Exchange so as to meet any obligation that may arise out of awards that may be made against them.
- FDRs/ Bank Guarantees furnished by the Trading Member in connection with surrender of trading membership would be returned to the Trading Member on the maturity/ expiry of the claim period subject to certain conditions.
- Upon a Trading Member, whose surrender application has been received / approved by the Exchange, being

subsequently declared a defaulter/ expelled by the Exchange, all the process applicable to that of a surrendered trading member shall cease ipso facto and the relevant process pertaining to a defaulter/ expelled trading member shall forthwith commence/ apply.

- No trading member, who has surrendered its trading membership, their partners (in case of partnership firm) and/ or dominant shareholders (in case of corporates) would be eligible to be readmitted to the Trading Membership of the Exchange in any form for a period of one year from the date of cessation of trading membership (i.e. from the date of expiry of the lock-in period of the deposits).
- Cessation of membership consequent upon surrender will become final and effective after expiry of the lock-in period provided all the terms and conditions stipulated by the Exchange/NSCCL are complied with in its entirety.

Margin Requirement

Margin is the amount of money, or collateral that a member will be required to lodge with the clearing corporation as a percentage of its total value of trade.

SEBI's Stock Watch System

For effective surveillance and monitoring of the securities markets it was felt that there is a need to have a system with a common framework across all the stock exchanges. The objective of this system, termed as Stock Watch System, is to give suitable indicators for the detection of the potential illegal or improper activity to protect investor confidence and integrity of the securities market and its players. The Stock watch system has standardized information available with all the stock exchanges. This standard information is stored in the form of databases, classified as:

1. Issuer Database
2. Securities Database
3. Trading Database
4. Members Database

In order to access information on a security from any of these databases, there is a unique identification number, which comprises of seven digits ISIN number issued by SEBI. In order to access information about any member, a unique identification code is been formulated on lines similar to the ISIN code for securities. Final objective of the uniform structure of these databases is to make these databases available on line to other stock exchanges. In order to detect any improper activity, the system has standardized alerts, classified as Online Real Time Alerts and Online Nonreal Time Alerts. These alerts are generated and stored in two separate databases, which are dynamically updated.

Online Real Time Alerts

These alerts are based on the order and trade related information during the trading hours. The objective of these alerts is to identify any abnormality as soon as it happens. These alerts include intra-day price movements related and abnormal order and trade quantity or volume related alerts.

Online Nonreal Time Alerts

These alerts are based on the traded related information at the end of the day and the available historical information. The objective of these alerts is to analyze the price, volume and value variation over a period.

Parameters for alert Generation

The parameters that are used for alert generation are explained below:

Price Band System

Daily price bands are applicable on the previous day's close price as follows

Category	Price Band
Less than Rs. 10	+ / - 50%
Rs. 10 to Rs. 19.95	+ / - 25%
Rs. 20 and above	+ / - 8%

There is no settlement price band. Maximum / Minimum prices calculated on the basis of price ranges applicable are rounded (ceiling) to Rs. 0.05.

Auction Market

Price bands are applicable over the previous day's close price and are as follows:

Category	Price Band
Less than Rs. 10	+ / - 50%
Rs. 10 to Rs. 19.95	+ / - 25%
Rs. 20 and above	+ / - 15%

Quantity Freeze Percentage

Any order, whose value is greater than or equal to around Rs. 50 crores subject to a ceiling of 1% of the issue size, results in a quantity freeze and does not go to order book directly. Such orders go into the book only after the exchange approval. Rejected quantity freeze results in the cancellation of orders.

Price Variation

It is defined as the variation between the last traded price (LTP) and the previous day's close price (P) of a security, expressed as the percentage of the previous close price (P) i.e.

$$\text{Price Variation} = \{(LTP - P) / P\} * 100$$

High - Low Variation

It is defined as the variation between the high price (H) and the low price (L) of a security, expressed as a percentage of previous close price (P), i.e.

$$\text{High - Low Variation} = \{(H - L) / P\} * 100$$

This parameter can also be expressed as a percentage of low prices, i.e.

$$\text{High - Low Variation over low price} = \{(H - L) / L\} * 100$$

Open Price Variation

It is defined as the variation between the Open Price (O) and the previous close price (P) of a security, expressed as a percentage of previous close price (P), i.e.

$$\text{Open Price Variation} = \{(O - P) / P\} * 100$$

Consecutive Trade Price Variation

It is defined as the variation between the last trade price (LTP) and the previous trade price (LTP_{t-1}) of a security, expressed as a percentage of the previous trade price (LTP_{t-1}), i.e.

$$\text{Consecutive Trade Price Variation (DLTP)} = \{(LTP_t - LTP_{t-1}) / LTP_{t-1}\} * 100$$

Quantity Variation

It is defined as the percentage variation between the total traded quantity (Q) and the average traded quantity (Q_{avg}), expressed as a percentage of the average traded quantity.

$$\text{Quantity Variation} = \{(Q - Q_{avg}) / Q_{avg}\} * 100$$

$$\text{Quantity Variation Ratio} = Q / Q_{avg}$$

Daily average traded Quantity = Total number of shares traded in the last 'n' trading days divided by n.

Price Movement in Relation to the Index

This is used to identify securities whose price movement is opposite to the index movement. The parameter is to be calculated, when a security moves opposite to the index, is the difference between the percentage change in index and the percentage price variation of the security.

Exercise

1. What are the means for raising capital in the primary market? Explain the steps involved in each of them.
2. What is the Stock Watch System? Explain the terms Online Real Time Alerts and Online Non-Real Time Alerts.
3. Close price of the security on the last day of the settlement is Rs. 22.00. The settlement consists of five trading days. The security witnesses' maximum possible price fall during this settlement and closes of the bandhit price on the lower side on all trading days. What is the close price of the security on the last day of the settlement? The tick size is Rs. 0.05. (Price band is fixed further by 4% for the security having base price of Rs. 20 and above).
4. Issue size of a security is 80000000. Close price of a security on the last day of a settlement is Rs. 25. A trading member enters an order to buy 850000 shares at a price of Rs. 25.25 on the first day of the next settlement. Will this order directly go into order books?
5. Following alerts have been configured on the Stock Watch System of the exchange.
 - Magnitude of the close price variation percentage as compared to the previous day's close price is greater than or equal to 4%.
 - Magnitude of High-Low variation percentage as compared to the previous day's close price is greater than or equal to 7%.
 - Magnitude of open price variation percentage as compared to the previous day's close price is greater than or equal to 3%.

- Magnitude of the price variation between the last trade and the previous trade is greater than or equal to 4%.
- Security hits the price band only on the high side.
- Security hits the price band only on the low side.
- Security hits the price band only on the high side and low side.
- Traded quantity has exceeded two times the two-month daily average traded quantity.
- Security moves opposite to the index and the difference between percentage index variation and percentage price variation is greater than 5.

The previous day close price of the security is Rs. 100. The security opens at Rs. 99, rises to a high of 99.50, touches a low of Rs. 92 and then closes at Rs. 93. Total traded quantity is 100000 shares. Two month average traded quantity is 75050 shares. Index closes at 1031 points over its previous close of 996. Which of the above alerts will be triggered on the stock watch system?

Notes

LESSON 8

INTERMEDIATION - BROKERAGE FIRM

Broker

A broker-trading member is a person (agency), who arranges the purchases and sale of an asset by acting as an intermediary between the purchaser and the seller at a stock exchange.

Agreements with Clients

The trading member should enter into an agreement in the specified format provided by NSE with the client before accepting orders on latter's behalf. The said agreement shall be executed on non-judicial stamp paper, duly signed by both the parties on all the pages. Copy of the said agreement is to be kept permanently.

In addition to the agreement, the trading member shall seek information from the client in the 'Client Registration Application Form' containing information like: investor risk profile, financial profile, social profile, investors identification details, family, employment, age, income, investments, other assets, financial liabilities, other responsibilities, social standings, investment horizons, risk taking abilities etc. The trading member shall obtain recent passport size photograph (three copies) of each of their clients in case of individual clients and of all partners in case of individual clients and of all the partners in case of a partnership firm and of the dominant promoter in case of corporate clients. The trading member shall also take proof of identification of the clients.

A stockbroker shall not deal knowingly, directly or indirectly, with a client who defaults to another stockbroker. There is no limit on maximum number of clients for a trading member.

Margins from the clients

It shall be mandatory for the trading member to collect margins from the in ll cases where the margin in respect of the client in the settlement would work out to be more than Rs. 50000. The margin so collected shall be kept separately in the client bank account and utilized for making payments to the clearing corporation for margin and settlement with respect to that client.

Execution of Orders

The trading member shall ensure that appropriate confirmed order instructions are obtained from the clients before placement of an order on the system. In order to execute a trade for a client, a broker must have a specific customer instructions as to name of the company, the precise number of shares and limit / market price condition.

He shall keep relevant records or documents of the same and of the completion or otherwise of these orders thereof. Where the client requires an order to be placed. Or any of his order to be modified after the orders has been entered in the system but has not been traded. The trading member shall ensure that he obtains order placement / modification details in writing from the client.

The trading member shall make available to his client, the order number and copies of the order confirmation slip / cancellation slip and a copy of the trade confirmation slip as generated on the trading system, forthwith on an execution of the trade. The trading member shall maintain copies of all instructions in writing from clients including participants for an order placement, order modification, order cancellation, trade modification, trade cancellation etc.

Accumulation of Orders

The trading member shall not accumulate client's order / unexecuted balances of order where such aggregate orders / aggregate of unexecuted balance is greater than the regular lot size, specified for that securities by the exchange. The trading member shall place forthwith all the accumulated orders where they exceed the regular lot size. Where the trading member has accumulated the orders of several clients to meet the requirements of the Regular Lot Quantity, he may give his own order number referred to as the reference number, together with a reference number to the NEAT order number, to the client.

Contract Notes

A stock broker shall issue a contract note to his client for trades (purchase / sale securities) executed with all relevant details as required therein to be filled in. A contract note shall be issued to a client within 24 hours of the execution of the contract duly signed by the Trading Member or his Authorized Signatory or client Attorney. No member of a recognized sock exchange shall in respect of any securities enter into any contract as a principal with any person other than a member of a recognised stock exchange, unless he has secured the consent or authority of such person and disclose sin the note, memorandum or agreement of sale or purchase that he is acting as a principal. The trading member is required to maintain the duplicate copy of the contract notes issued for 5 years.

The trading member shall insure that

- Contract notes are to be in the prescribed format
- Maintain details in the counterfoils of contract notes.
- Stamp duty is paid
- The service tax charged in the bill is shown in the contract note
- The authorised signatory signs contract notes.

Registered addresses as well as dealing office addresses of the corporate trading member are to be printed on the contract note. The clause "the clients will hold the security blank at their own risk" must be mentioned in every contract note. Stamp duty shall be paid as per the stamp Act of the relevant state.

Payments / Delivery of Securities to the Clients

Every trading member shall make payments to his clients or deliver the securities purchased within 48 hour of payout unless the client has requested otherwise. Trading members are advised

to exercise extreme caution in accepting deliveries of securities obtained by clients. This is to avoid introduction of any fake, forged, stolen shares into the market.

Brokerage

The trading member shall charged brokerage at rates not exceeding the rate prescribed by SEBI i.e. 2.5%. The brokerage shall be charged separately from the clients and shall be indicated separately from the price, in the contract note. The trading member may not share brokerage with a person who is a trading member or in employment of another trading member.

The trading member can charge the following levies / fee from the clients in addition to the brokerage:

- a. Service Tax (5% of brokerage)
- b. Stamp Duty
- c. SEBI turnover fee

Segregation of Bank Accounts

The trading member should maintain separate bank accounts for client's funds and own funds. It shall be compulsory for all trading members to keep the money of the clients in a separate account and their own money in a separate account. Funds shall be transferred from the client account to the clearing account for the purpose of funds pay-in obligations on behalf of the clients and vice-versa in case of funds payout. No payment for transaction in which the trading member is taking position as a principal, is allowed to make from the client's account.

Interest, Dividends, Rights and Call

The buyer shall be entitled to receive all vouchers, coupons, dividends, cash bonus, bonus issues, rights and other privileges which may pertain to securities bought cum voucher, cum coupons, cum dividends, cum cash bonus, cum bonus issues, cum rights etc. And the seller shall be entitled to receive all vouchers, coupons, dividends, cash bonus, bonus issues, rights and other privileges, which may pertain to securities sold ex-vouchers, ex-coupons, ex-dividends, ex-cash bonus, ex-bonus, ex-rights etc.

Sub Broker – Client Relations

Agreement

The sub broker shall enter into an agreement with the client, before placing orders. Such agreements shall include provisions specified by the exchange in this behalf. The said agreement is executed on Non-Judicial stamp paper. The client should provide information to the sub broker in the 'Client Registration Application Form'.

Orders

The sub broker shall ensure that appropriate confirmed order instructions are obtained from the clients before placement of an order on the system and shall keep relevant records or documents of the same and of the completion or otherwise of these orders thereof.

Purchase / Sale Note

The sub broker shall provide a purchase / sale note for all the transactions made within 24 hours of the execution of the contract. The broker shall ensure that:

- a. The sub broker pays stamp duty.

- b. The service tax charged in the bill is shown in the contract note.
- c. Purchase / sale note is signed by the authorised signatory.
- d. Purchase / Sale note is subject to jurisdiction of the courts of the concerned state.

Payments / Delivery of Securities

The sub broker shall make payments to his clients or deliver the securities purchased within 48 hours of payout unless the client has requested otherwise.

Brokerage

The sub broker shall charge his brokerage at rates not exceeding the rate prescribed by the SEBI i.e. 1.5%. The brokerage charged by the trading member and the suborder shall be indicated separately from the clients and shall be indicated separately from the price, in the purchase / sale note. The total brokerage that can be charged to a client is (max of 1.5% by sub broker of the traded value + 1% or more by the trading member) subject to an overall percentage of 2.5.

Disputes

In case of dispute between registered sub broker and his client, the sub broker himself should initially resolve the dispute.

Notes

LESSON 9

DEPOSITORY – THE TECHNOLOGY ADVANTAGE

The Indian Capital market was notorious for their outdated ways of doing business. It was a major relief when NSE and BSE had introduced on line trading that transformed the trading from screen based to screen based. But the clumsy procedures of handling share certificates and the recurring problem of bad deliveries made life horrendous, not for just an amateur investor but even for a professional broker. With the paper work nightmare looming large, securities business was never a pleasant job. That's till; the new method of holding stocks in the electronic form was introduced in 1996. The new system called a depository was put in place to hold stocks of all companies in electronic form on behalf of the investors and maintain a record of all "buy" and "sell" transactions.

Technology had made it possible to provide bank like ease and convenience. As it alleviated the hardships associated with handling physical stocks, investors experiencing the relief, have begun to slowly come back to the stock markets. Investing in stocks has now become much more convenient and safe.

The organization responsible for holding and handling securities on behalf of investors is known as a Depository. It caters to both large and small investors through a network of intermediaries called Depository Participants or DPs for short. It works more like a bank for securities where you can open a securities account, deposit all your stocks, withdraw your securities and instruct it to deliver or receive stocks on your behalf.

Depository is a technology driven electronic storage system. It completely does away with cumbersome paper work relating to share certificates, transfer forms etc., involved in securities business. It caters to investor's transactions with greater speed, efficiency and ease as it deals with all stocks in just a book entry mode and not in their physical form.

Well-developed capital markets all over the world have depositories. In India, National Securities Depository Limited (NSDL) as a joint venture between IDBI, UTI and the National Stock Exchange has set up the first depository. The second depository has been set up by Central Depository Services Limited (CDSL), which was promoted by the Mumbai Stock Exchange and Bank of India. Both the depositories have a network of Depository Participants (DPs) who are electronically connected to the depository and serve as contact points with the investors. Before we say more about depositories, let's have a quick look at some of the common terms used.

Depositories Glossary

Depository

A depository like a bank, safe keeps your securities in electronic form. Besides holding securities, it provides various services related to transactions in securities

Dematerialization

Dematerialization or Demat for short, is a process where securities held by you in physical form are cancelled and credited to your DP account in the form of electronic balances.

NSDL

NSDL stands for the National Securities Depository Limited, which is the first, and the largest depository presently operational in India. IDBI, UTI and the NSE promote it.

CDSL

CDSL or the Central Depository services Limited is the second Depository, which is permitted by SEBI to commence operations. Mumbai Stock Exchange and Bank of India promote CDSL.

Depository Participant (DP)

A depository participant is an intermediary between the investor and the Depository who is authorized to maintain your accounts of dematerialized shares. Presently, financial institutions, banks, custodians, clearing corporations, stockbrokers and nonbanking finance companies are permitted to become DPs. You can choose any of them as your DP. You can also have accounts with more than one DP like you may have accounts with more than one bank.

Book Entry Segment

For the stocks traded in the exchange, there are two segments. One is the physical segment where trades are settled by the physical delivery of stocks and the other is the book entry segment where trades are settled by making book entries in the electronically kept securities accounts with the Depositories. Normally in the physical segment, the same security is priced somewhat at a discount to the price it commands in the book entry segment. Book entry segment offers a complete counter party settlement guarantee for every trade.

Rolling Settlement

In the book entry segment, the settlements are done not weekly but on rolling basis. Each day's trades are settled keeping a gap between a trade and its settlement, of a specified number of working days, which at present is five working days after the trading day. The waiting period is uniform for all trades. The pay in and pay out of securities is done electronically on the same day. Hence the entire settlement process is completed much faster than in the physical segment.

There are several compelling advantages for keeping your shares in the Demat form:

- First and foremost, you don't have to chase errant brokers to rectify cases of bad deliveries, company objections or fake, forged or stolen shares.
- No tedious correspondence with the Registrars for transfer of shares in your name. All transfers would be done instantly by the depository itself.

- Your cost of transactions would be less, as you don't have to pay for the stamp duty on transfer of shares. As there are no bad deliveries, you need not waste time and money unlike in physical segment where shares keep coming back to the seller due to company Objections. You would save expenses associated with notarization and follow up.
- Even the brokerage you pay is less if you are buying or selling shares in Demat form. Brokers have no fear of bad delivery on selling dematerialized shares, so they would offer their services at reduced rates of brokerage.
- You will be rid of the hassles in handling and safekeeping volumes of paper. The pay in and pay out of securities is done electronically without the physical movement of paper.
- No nightmares like loss, theft, mutilation or forgery of share certificates.

For convenience, there is nothing like Demat holding. It offers you a host of possibilities just like a bank account does. You can convert your physical stock into electronic form (Dematerialization) or reconvert electronic holdings into physical certificates (Re materialization), transfer your shares to some other account and ensure settlement of all your trades through a single account by simply giving the necessary instructions to your Depository participant.

You can even pledge or hypothecate your dematerialized securities to avail loans, receive electronic credit for all shares you applied for in a public issue and get your noncash corporate benefits like bonus or rights as a book entry credit to your account.

Demat holding is now becoming more of a rule than an option. SEBI had made it compulsory for all categories of investors to settle trades in Demat form with respect to a select list of scrips since Jan 4th 1999. Presently, investors trading in these scrips would necessarily need a depository account to settle their trades.

There has been resistance however from certain quarters to SEBI efforts to progressively making it compulsory for companies to get into the Demat mode. They argue that SEBI is rushing into this without giving much of a thought to how retail investors in far away locations would avail Demat services.

But any reform would initially have its opponents. The benefits of Demat holding far out weigh the initial hiccups the system may be presently experiencing. In the beginning of electronic holdings, Demat shares suffered from lack of liquidity, but the opposite is the case now. The regulatory authority has a responsibility to give a strong direction to usher in necessary reforms so that the business would move towards paperless markets. If it doesn't happen, market players would take their own time to adjust to any new system.

Today, most of the DPs offering services to retail investors have large network of branches across the country reaching out to even farflung areas. As interest in Demat holdings catches up, DPs would spread their wings even wider to reach remote locations at much faster pace. This would trigger a process of capital markets integration like it had happened when NSE started online trading now there's hardly any city or town in India, which does not boast of an online NSE terminal.

NSDL figures reveal that as on January 1999, 76 DPs registered with it service over 1,50,000 investors across 600 centers in more than 160 cities and towns in the country -and these numbers are growing larger by the day.

There is a second objection raised to the Demat holding. Investors have to pay a custody charge for the Demat holdings, which are an extra cost, as he was not incurring any expenses if he himself safe keeps the certificates in his storage cabinets.

True, this is an extra cost, but what about the extra benefits and savings he would enjoy in a Demat mode? To clearly weigh the benefits and costs, we need to look at the overall picture:

- As against settlement costs and custodial charges you have to incur in Demat holding, you will save on stamp duty and transaction costs. This is not to speak of your reduced risk in holding stocks in electronic form. Table given below indicates how the savings out weigh costs if you were a longterm investor holding your stocks worth Rs. 10,000 for five years without any transactions:

Particulars	Physical (Rs.)	Demat (NSDL) (Rs.)	Savings (Rs.)
Brokerage	75-100	50-75	25-50
Stamp Duty	50 -----	50	
Postal Charges	10-30 -----	10-30	
Company Objection (Courier etc.)	10-30	10-30	
Settlement Charges		5-10	(5-10)
Custody (5 years)		10-15	(10-50)
Total		35-100	

- The savings are positive even when you decide to sell your stocks worth Rs.10, 000:

Particulars	Physical (Rs.)	Demat (NSDL) (Rs.)	Savings (Rs.)
Brokerage	75-100	50-75	25-50
Company Objection (Courier etc.)	10-30	10-30	
Settlement Charges	(5-10)	(5-10)	
Total		25-70	

- The benefits of Demat holding are significant if you were buying and selling very often as the following table reveals. Apart from savings in the transaction costs, you would also save on expenses in running a back office for handling physical paper. And the account statement would give you a ready record of all our transactions, which you can use for income tax purposes.
- Savings for an investor who turns over his portfolio worth Rs.10, 000 ten times in a year:

Particulars	Physical (Rs.)	Demat (NSDL) (Rs.)	Saving (Rs.)
Brokerage	750-1000	500-750	250-500
Settlement Charges			50-100(50-100)
Custody	2-10	(2-10)	
Total			140-390

There are other apparent advantages in keeping your stocks in Demat form. Let's consider them:

- You can get lower interest charges for loans taken against Demat shares as banks would find it safe and convenient to deal with Demat shares than physical stocks.
- When your physical shares are lost, destroyed or mutilated you need to spend up to Rs.500 to get duplicate shares. No such hassles in Demat holding.
- If you are holding physical stocks of several companies and your address changes, you need to write to all the companies informing them about change of address. In Demat account, you need to inform only your DP.

How does the Demat system work?

The operations of Demat holding is simple to understand if you compare your DP to a bank and your Demat account to your regular savings bank account. Here is a ready reckoner to explain how it works.

- Bear in mind, you cannot presently dematerialize all your physical stocks. Shares of only those companies, which have been registered either with NSDL or CDSL for participation, can be dematerialize. The good news is that most of the active scrips in the market including all the scrips of S&P CNX NIFTY and BSE SENSEX have already joined either of the depositories and the list is continuous-expanding.
- Once you ascertain that the shares you hold can be dematerialized; you should choose a DP with whom you want to open an account.
- Fill up an account opening form and execute the necessary documentation (a simple application form, a photograph and a power of attorney to act on your behalf).
- Hand over your share certificates to your DP along with a dematerialization request form. Make sure that before the shares are handed over, you mark them "submitted for dematerialization" on the face of the certificates.
- Remember, like a bank account you can open more than one DP account if you so wish. You can even open a DP account with a nil balance.
- Once you hand over your physical stocks, your DP sends them to the Company" concerned for dematerialization. The process of converting your shares into electronic form takes presently about 1530 days. Depending on the size of the lot submitted for Demat.
- Your Demat shares, unlike your physical certificates, will not have any distinctive or certificate numbers. These shares are fungible. Fungibility means that 100 shares of a security are the same as any other 100 shares of that security (just like in case of money, where one Rs. 100 note is equivalent and exchangeable with another Rs. 100 note).
- If you have odd lot shares, you can dematerialize them too. In the demat mode, you can also trade in odd lots as the marketable lot is just "one" share.
- Apart from the physical stocks, which you readily possess, you can also dematerialize the shares you sent for transfer or the shares you applied for in a public offer. In case of shares

sent for transfer, you only need to send a demat request along with the shares to the Registrar and Transfer Agent who will register the shares in your name in the demat form. As regards the shares you apply for in a public offer, you need to simply tick the appropriate box in the share application itself that you want to receive them in the demat mode and give details of your DP the shares on allotment would automatically be credited to your demat account.

- For any reason, you want to covert your demat shares back to physical form, you have to simply give a request and send it to the depository through your DP. The depository, after verifying balances to your credit, would convert your holdings into physical stock and dispatch the certificates to you. You may get different numbered folios and certificate numbers, however.
- How do you trade in case of shares that are dematerialized? Presently many stock exchanges have established electronic connectivity with the depositories to facilitate settlement. Five of the connected stock exchanges NSE, CSE, DSE and BSE have different trading segments one for the physical and the other for demat segment. Additionally, NSE and BSE have two sub segments in the depository segment viz., market lot (AE at NSE and BE at BSE) and odd lot (BE at NSE and BO at BSE). The stock exchanges, which are yet to establish connectivity with the depositories at a present, have only the physical segment. They cannot trade in shares in electronic form. Where shares are traded in the exclusive demat segments, settlement is done on rolling basis i.e., trades done every day are settled after a fixed number of days. Presently it is T+5, which means that trades are settled on the fifth working day from the date of trade. However, at NSE, trades executed on Wednesday in the AE segment are settled on T+3 basis.
- When you want to sell your shares in demat form what all you need to do is, instead of delivering physical shares to the broker, you instruct your DP to debit your account with the number of shares sold by you and credit your broker's clearing account. This delivery instruction has to be given to your DP in a standardized format available with your DP. Let's look at the activities involved:
 1. You sell shares in the stock exchanges linked to the depositories through a broker of your choice.
 2. You instruct your DP for debit of your account, and credit of your broker's clearing member pool account.
 3. On the pay in day, your broker gives instruction to his DP for delivery to clearing corporation of the relevant stock exchange.
 4. Your broker receives payment from the clearing corporation and pays you for shares sold in the same manner as in the physical mode.
- When you want to buy shares in the demat form the activity flow is similar to what you do in the normal physical segment with some minor changes.
 1. You place a buy order on your broker to buy shares in demat mode.
 2. Your broker executes the order.

3. You make payment to your broker.
 4. Your broker arranges payment to clearing corporation.
 5. Your broker receives credit in his clearing account with his DP on the pay out day.
 6. He gives instructions to his DP to debit his clearing account and credit your client's account.
 7. You instruct your DP to receive credit in your account.
 8. If the instructions match, your account with your DP is credited with the number of shares you bought.
- The important point here is since the stock exchanges connected to depositories have two separate trading segments one for physical and the other for demat shares you can not deliver physical shares to meet your obligations in demat segment or vice versa (but since last year, investors have been allowed to deliver dematerialized shares in the physical segment of only those stock exchanges that are connected to the depositories).
 - Moreover, in respect of a select basket of scrips (as on April 5, 1999. 60 companies are in the basket) all investors have to compulsorily settle their trades only in demat segment. It is expected that this number will be increased further to cover all actively traded securities. This compulsion is however applicable only to those stock exchanges which have established electronic connectivity with the depositories.
 - When you are holding shares in the demat form - all the benefits accruing to your shares in stock form (bonus shares) can be directly credited to your DP account while benefits in cash form like dividend and interest will be disbursed by the Registrar.
 - When you avail loans against your shares and want to pledge your holdings as a security, the process is very simple in the demat mode. You will also get loans at a better terms as banks may charge lower interest rates, give larger loans (Rs.20 lakhs as against Rs.10 lakhs limit for physical shares) and insist on smaller margins (25% against 50% in case of loan against physical securities). The process for creating a pledge is outlined below:
 1. Both you, as the borrower and the bank as the lender must have depository accounts.
 2. You should create the pledge by submitting a prescribed form to your DP.
 3. Your DP would confirm the pledge created on the securities.
 4. The securities remain pledged until the lender informs the DP about repayment of loan and requests for cancellation of the pledge
 - • When you are holding shares in electronic form, you would receive the account statement at periodic intervals with details of your current balances and the various transactions you have carried out through your depository account. You can also request for a statement at any time you wish before its normal due date. Once you receive the statement, you should check for any discrepancies. If you find any, you should immediately notify, your DP and if not resolved then the depository. As a matter of precaution, depositories also send statements directly to the account holders picked at

random. If you notice any differences in your balances in your account as indicated by your DP and the one sent by the depository, you should immediately clarify the matter with your DP and the depository concerned.

- The demat systems are made near foolproof with multiple levels of back up. It is much safer way to hold your securities than in physical form. Though no transaction can be effected in your account without your explicit authorization, as matter of precaution, if you are away for a long time, you should freeze your account to receive only credits and not debits.

How to choose the right DP?

As more and more scrips are getting into the compulsory demat mode, thousands of investors across the country are scrambling to open DP accounts to get their shares dematerialized as otherwise they might find it difficult to sell them at the best prices prevailing in the market. Triggering the rush is the marketing blitz launched by major DPs to woo as many clients as possible. Some of the DPs are unmindful of their own limited resources to handle this business. Demat business needs certain infrastructure to efficiently handle this new and complex system of trading.

Presently, there are more than 100 DPs run by banks, brokers and financial services companies in the market. Do all these DPs give the best services? Apart from costs, what are the aspects you should be careful about while dealing with Your DP? Here is a checklist:

- The first point is, to check which depository your DP is participating in. right now, two depositories - the National Securities Depository (NSDL) and the Central Depository Services (CDSL) are offering their services. NSDL had a head start, caters to a larger number of scrips and has established systems and procedures in place. CDSL, the new entrant is still grappling with some teething problems, but charges cheaper tariff for demat services. NSDL currently has 92 registered DPs and is linked to over 400 companies. CDSL has about 20 registered DPs and so far signed up with about 40 companies.
- In the demat business there are two levels of charges. One is what the Deposition- charges the DP, and the other is what the DP charges you. As what DP a charge to you is directly dependent on what it has to pay to the Depository, it's important to know which Depository's tariff is cheaper. Currently CDSL tariff is cheaper as it does not charge a custodial fee nor a fee for dematerializing the shares as NSDL does. Though charges do matter, if you are a frequent traded and have large holdings, you should carefully check many other factors.
- More critical than charges, is the level of service. While most of the DPs steadfastly vouch for offering the best of services, check what's their previous experience in handling this type of business. Successful track record in running Custodial services or Share registry business can be the right background for getting into DP services.
- Check whether the DP has a dedicated Client service unit and whether it's adequately staffed to handle the number of queries from account holders who are still unaccustomed to

these operations. The business of most DPs has increased manifold, but not many had increased the headcount of people handling the front and back offices.

- Does your DP have streamlined processes to securely handle your account? Like in case of a bank, a DP deals with your financial assets in a book entry form. Any wrong entries occurring either as a result of a genuine mistake or a premeditated fraud can cause severe financial losses. Issue of preprinted delivery instruction slips with clients name and identification number, insistence of written and not faxed instructions are some of the basic things a DP must do to safeguard your interests.
- Is your DP conveniently located to receive your instructions? Many banks offer demat services but have designated only a few of their branches to handle demat accounts. These branches may be far away from your home or work place and this causes hassles when you want to give any delivery instructions especially on a busy day. Some DPs have however, set up interconnectivity between their various branches so that you can walk into any of them and deal with your demat account. Choose one that has this facility of interconnectivity.
- Are there any hidden charges the DP may levy on the unsuspecting account holders? Check how frequently your DP sends you the account statements SEBI prescribes that it should be at least once in a quarter if there is no trading activity and weekly, if there are regular transactions. Check if the DP charges any thing extra to give you accounts statement on special request that is a very common hidden charge most DPs levy.

Exercise

1. What is the Depository system and how it is beneficial to the investor?
2. What is the rolling settlement cycle and how does it work in Demat system?
3. How does the Demat system works?
4. How to chose the right Depository Participants, explain in details.

Notes

LESSON 10

DERIVATIVES: TRADING, CLEARING AND SETTLEMENT

Introduction to Derivatives

A derivative is a product whose value is derived from the value of underlying asset, index, or reference rate. The underlying asset can be equity, Forex, commodity or any other asset. For example, wheat farmer may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. Such a transaction would take place through a forward or futures market. This market is the “derivative market”, and the prices of this market would be driven by the spot market price of wheat which is the “underlying”. The terms of “contracts” or “products” are often applied to denote the specific traded instruments.

In recent years, derivatives have become increasingly important in the field of finance. Futures and options are now actively traded on many exchanges. Forward contracts, swaps and many other derivative instruments are regularly traded both in the exchanges and in the over – the –counter markets.

The Development of Exchange Traded Derivatives

Derivatives have probably been around for as long, as people have been trading with one another. Forward contracting dates back at least to the 12th century and may well have been around before then. Merchants entered into contracts with one another for future delivery of specified amount of commodities at specified price. A primary motivation for prearranging a buyer or seller for a stock of commodities in early forward contracts was to lessen the possibility that large price swings would inhibit marketing the commodity after a harvest.

Although early forward contracts in the US addressed merchant’s concerns about ensuring that there were buyers and sellers for commodities, “credit risk” remained a serious problem. To deal with this problem, a group of Chicago businessmen formed the **Chicago Board of Trade (CBOT)** in 1848. The primary intention of the CBOT is to provide a centralized location known in advance for buyers and sellers to negotiate forward contracts. In 1865, the CBOT went one step further and listed the first “exchange traded” derivatives contracts in the US; these contracts were called “futures contracts”. In 1919 Chicago Butter and Egg Board a spin off of **Chicago Mercantile Exchange (CME)**. The CBOT and CME remain the two largest organised futures exchanges indeed, the two largest “financial” exchanges of any kind in the world today.

The first stock index futures contract was traded in Kansas City **Board of Trade**. Currently the most popular futures contract in the world is based on S&P 500 index, traded on Chicago Mercantile Exchange. During the mid eighties the financial futures became the most active derivatives instruments generating volumes many times more than the commodity futures. Index futures, futures on TBills and EuroDollar futures are the top three most popular futures contracts traded today. Other popular international exchanges that trade

derivatives are LIFFE in England, DTB in Germany, SIMEX in Singapore, TIFFE in Japan, MATIF in France etc

Forward Contracts

A forward contract is an agreement to buy or sell an asset on a specified date for a specified price. One of the parties to the contract assumes a long position and agrees to buy the underlying asset on a certain specified future date for a certain specified price. The other party assumes a short position and agrees to sell the asset on the same date for the same price. Other contract details like delivery date, price and quantity are negotiated bilaterally by the parties to the contract. The Forwards contracts are normally traded outside the purview of the exchange. Forward contracts are very useful in hedging and speculation.

The classic hedging application would be that of a wheat farmer forward selling his harvest at a known price in order to eliminate price risk. Conversely, a bread factory may want to buy bread forward in order to assist production planning without the risk of price fluctuations. Thus forwards provide a useful tool for both the farmer and the bread factory to hedge their risks.

If a speculator has information or analysis which forecasts an upturn in a price, then he can go long on the forward market instead of the cash market. The speculator would go long on the forward, wait for the price to raise and then take a reversing transaction to book the profits. The use of forward markets here supplies leverage to the speculator.

Limitations of forward markets

Forward markets worldwide are afflicted by several problems:

1. Lack of centralization of trading.
2. Illiquidity and
3. Counter party risk.

In the first two of these, the basic problem is that of too much flexibility, and generality. The forward market is like a real estate market in that any two consenting adults can form contracts against each other. This often makes them design terms of the deal, which are very convenient in that specific situation but makes the contracts nontradable. Also the “OTC market” here is unlike the centralization of price discovery that is obtained on all exchange.

Counter party risk in forward markets is a simple idea: When one of the two sides of the transaction chooses to declare bankruptcy, the other suffers. Therefore larger the time period of the contract larger the counter party risk. Even when forward markets trade standardized contracts and hence avoid the problem of liquidity, still the counter party risk remains a very large problem.

Introduction to Futures

Futures markets were designed to solve the problems that exist in forward markets. A futures contract is an agreement between

two parties to buy or sell an asset at a certain time in the futures at a certain price. Unlike forward contracts futures contracts are standardized and exchange traded contracts. To facilitate liquidity in the futures contracts, the exchange specifies certain standard features of the contract. Therefore, a future contract is a legally binding agreement between two parties to the contract. It is standardized contract with standard underlying instrument, a standard quantity and quality of the underlying instrument that can be delivered, (or which can be used for reference purposes in settlement) and a standard timing of such settlement. A futures' contract may be offset prior to maturity by entering into an equal and opposite transaction. More than 99% of futures transactions are offset this way.

The exchange traded futures are a significant improvement over the forward contracts as they eliminate counter party risk and offer more liquidity.

Index Futures

The index futures are the most popular futures contracts as various participants in the market can use them in a variety of ways. They offer different users different opportunities as we have discussed in the class how the index futures can be used to realise those objectives.

Introduction to Options

Options are one of the most popular derivatives. Options derive their value from the underlying capital market or forex or other form of assets. These are highly leveraged Instruments. They can be used for hedging, speculating and arbitrage purposes.

Types of options: Options are of two types. **Call and Put** option. A call option gives a buyer / holder a right but not an obligation to buy the underlying on or before a specified time at a specified price (usually called strike / exercise price) and quantity. Whereas a put option gives a holder of that option a right but not an obligation to sell the underlying on or before a specified time at a specified price and quantity. The buyer / holder of an option pays an upfront premium to the writer / seller of an option. In other words he pays the price of the option.

A writer / seller of an option undertakes an obligation to buy / sell the underlying on or before a specified time at specified price and quantity for a premium. This premium is collected upfront. Thus, the writer of an option has to price his option such a way that it takes all the possible scenarios into consideration and should be close to the fair price of the option.

Exercise style of options: Options are classified into two kinds depending on the exercise styles. They are American option and European option. In the American option the holder / buyer of an option is allowed to exercise the option any time during the life of the option. However in the European option exercise is allowed only at the maturity date of the option.

Strike price of Options: World over options are generally traded on different variety of strike prices. These strike prices are determined by the exchange. For example if a call option is traded at a strike price equal to that of the underlying spot price, then the option is called "**At – The -Money**" option, if the

strike price is lesser than the underlying spot price, it is called "**In –The -Money**" option and if the strike price is higher than the underlying spot price, it is called as "**Out - of Money**" option. In case of put option if the strike price is higher than the underlying spot price it is called "**InTheMoney**" and when the strike price is lower than the underlying spot price, it is called "**OutofMoney**" option. "**At the money**" option is same for both a call and put on the same underlying and the same strike price.

Option Premium: Option premium consists of two parts intrinsic value and Time value. The intrinsic value of a call option is the difference between the spot price and the strike price, whereas the intrinsic value of a put option is the difference between the strike price and the spot price. In – the money options have intrinsic value. However, At – the money and Out – of money options have no intrinsic value. Time value of an option is the price a holder of an option has to pay to the seller of an option because of the risk the seller of an option takes. This is over and above the intrinsic value that an option holder pays. Typically, the premium charged by the seller of an option is equal to the sum of both intrinsic value and the time value.

NSE has started index options based on S&P CNX NIFTY, which have the American style of exercise. The options are of onemonth, twomonth and threemonth maturities.

Trading, Clearing and Settlement

Trading

Initially, NSE has introduced trading in contracts having onemonth, twomonth and threemonth expiry cycles. As per the proposal of NSE all contracts would expire on the last Thursday of every month. Thus a January expiration contract would expire on the last Thursday in January and a February expiry contract would cease trading on the last Thursday of February. On the Monday following the last Thursday, a new contract having a threemonth expiry would be introduced for trading. Thus, at any point of time, three contracts would be available for trading with the first contract expiring on the last Thursday of that month. Depending on the time period for which you want to take an exposure in index futures contracts, you can place buy and sell orders in the respective contracts. All index futures contracts on NSEs future's trading system will be coded in the following manner:

Market Type	Instrument Type	Contract Symbol	Expiry Date
N	FUTIDX	NIFTY	30 th SEP 2004

Where the instrument type refers to "Futures contract on Index" and Contract Symbol NIFTY denotes a "Futures contract on S&P CNX NIFTY index" and the Expiry date represents the last date on which the contract will be available for trading.

Assuming that futures trading starts in September 2004, then the September contract (die near one month contract) will expire on 30th Sep, 2004, which is the last Thursday in September. The near two months contracts will expire on the last Thursday of October 2004 and the far month contract (three months contract) will expire on last Thursday of November 2004.

Each futures contract i.e. FLITIDX NIFTY 30th SEP 2004, 28th OCT 2004 and 25th NOV 2004 will have a separate limit order book. All passive orders will be stacked in the system in terms of Price time priority and trades will take place at the passive Order price (similar to the existing capital market trading system). The best buy order for a given futures contract will be the order to buy the index at the highest index level whereas the best sell order will be the order to sell the index at the lowest index level.

Trading will be for a minimum lot size of 200 units. Thus if the index level is around 1000 then the approximate value of a single Index futures contract would be Rs. 200000. The minimum tick size for an index future contract would be 0.05 units. Thus a single move in the index value would imply a resultant gain or loss of Rs. 10.00 (i.e. 0.05 tick * 200 units) on an open position of Units.

While entering orders on the trading system, members are required to identify orders as being either proprietary or client orders. Proprietary orders should be identified as "Pro" and those of clients should be identified as "Cli". Apart from this, in the case of "Cli" trades, the client account number should also be provided. Client orders should be marked as either:

- a. Buy 'Open'
- b. Sell 'Open'
- c. Buy 'Close'
- d. Sell 'Close'

Buy 'Open' Client orders are those wherein the client has first opened a buy position before sell. At the time the client wishes to close out this open position, the respective sell order should be entered as Sell 'Close'. Similarly, when a client sells prior to buying the sell order should be identified as Sell 'Open' and when the same sell open positions is to be closed out the respective buy order should be marked as a Buy 'Close' order.

The futures market is a zero sum game i.e. the total number of long in any contract always equals the number of short in any market. The total number of outstanding contracts (long / short) at any point in time is called the "Open interest". This openinterest figure is a good indicator of the liquidity in every contract. Based on studies carried out in international exchanges, it is found that open interest is maximum in near month expiry contracts.

Clearing and Settlement

Clearing Entities and their role: Clearing and settlement activities in the derivatives segment will be undertaken by the following entities:

- a. Clearing Members and
- b. Clearing Bank

Clearing Member: Depending on the functions undertaken. Clearing members can be further categorized as:

- a. Trading Members Clearing Members who can trade and settle only for their own trades.
- b. Professional Clearing Members who can clear and settle their own trades as well as those of other trading members.

Clearing Bank: Funds settlement will be through clearing banks. Clearing members can have a single bank account with one of the approved clearing banks, which can be common across the Capital Market and Futures and Options market segment.

Mark – to Market Settlement and Margin Determination: For the purpose of ensuring smooth settlement, all index futures contracts would be subject to margins by the Clearing Corporation viz.

- a. MarktoMarket settlement
- b. Initial margins

The daily settlement process called "marktomarket" would provide for collection of losses that have already occurred (historic losses) whereas initial margin would seek to safeguard against potential losses on outstanding positions.

MarktoMarket Settlement: All open positions in index contracts will be daily settled at the MarktoMarket settlement price. This process would ensure that the actual daily loss incurred on all open positions are paid up by the losing member and credited to the account of the gaining member on a T+1 (trade day + 1) basis. The settlement price would ordinarily be the closing price of the futures contract. However, on expiry, the settlement price would be the spot index value as on expiry of any futures contract the spot value and the futures value converge. Marktomarket settlement will be in cash.

Initial Margin

The computation of initial margin will be done using the concept of ValueatRisk (VAR). The initial margin amount will be large enough to cover a one-day loss that can be encountered on 99% of the days. VAR methodology seeks to measure the amount of value that a portfolio may stand to loss within a certain horizon time period (one day for the Clearing Corporation) due to potential changes in the underlying asset market price.

Initial margin amount computed using VAR is collected upfront i.e. based on the available margin with the clearing corporation, members are allowed to take up exposure. For a trading member, Initial Margin Is calculated on the basis of net out standing position of a trading member and gross out-standing position of all clients of the trading member. For a clearing member, VAR is computed as the total VAR of all trading members clearing and settling through it. Margin can be paid in terms of cash, bank guarantee or other acceptable collaterals.

LESSON 11 & 12

DERIVATIVES – TRADING STRATEGIES

Basically three strategies are used in Derivatives trading:

1. **Hedging:** These strategies are used to negate risk in an agreement.
2. **Speculating:** These strategies are used for making abnormal & quick profits by taking risk to some extent in an agreement.
3. **Arbitraging:** These strategies are used simultaneous purchase and sell of securities, essentially same, in two different markets to make use of advantageously different prices.

Hedging with Futures

1. Long Stock, Short Index Future (For Bearish view of Market, in Future)

Steps:

- a. Shyam adopts a possession of Rs. 1 million long ITC dated 5th May 2004. He plans to hold the possession till last Thursday i.e. 27th May.
- b. Beta of ITC is 1.2.
- c. Because of beta being 1.2, he needs a short possession of 1.2 million on the index future market to totally remove the risk.
- d. On the date 5th May, S&P CNX Nifty is at 980 and the nearest future contract is trading at 990. Hence each market lot of future is $990 * 100$ (99000). To sell 1.2 million of S&P CNX Nifty futures, you need to sell $1.2 \text{ million} / 990 = 1200$ market lots
- e. He sells 1200 market lots of S&P CNX Nifty to get the possession of long ITC 1 million, short S&P CNX Nifty 1.2 million.
- f. Ten days later index crashes due to US sanctions.
- g. On last Thursday (27th May), Shyam unwinds both possessions at a settlement price of 882. Therefore,

Gain on S&P CNX Nifty = $(990 - 882) * 1200 = 129600$

Percentage fall in Market = $\{(980 - 882) / 980\} * 100 = 10\%$

Percentage fall in ITC shares = 12%

Loss on ITC = 120000

Net Gain = 9600

2. Short Stock, Long Index Future (For Bullish view of Market, in Future)

Steps:

- a. Shyam adopts a position of 1 million short ITC on date 5th May 2004 and he plans to hold the position till last Thursday of this month.
- b. Beta of ITC is 1.2.
- c. Because of beta being 1.2, he needs a long position of 1.2 million on S&P CNX Nifty Futures.

- d. On date 5th May, S&P CNX Nifty is at 980 and the nearest month future contract is trading at 992. Hence market lot of future contract worth for $992 * 100$ (99200). To buy 1.2 million of S&P CNX Nifty, he needs to buy $(1.2 / 992)$ nearly 1200 lots.

- e. He buys 1200 market lots of S&P CNX Nifty to have a position of short ITC of 1 million.
- f. 20 days later index risen because of stable political outlook.
- g. On the last Thursday, he unwinds both positions at a settlement price of 1078. Therefore,

Loss on S&P CNX Nifty = $(1078 - 992) * 1200 = 103200$

Percentage rise in the market = $\{(1078 - 980) / 980\} * 100 = 10\%$

Percentage rise in ITC = 12%

Gain on ITC = 120000

Therefore, Net Gain = 16800

3. Have Portfolio, Short Index Future (For Bearish view of Market, in Future)

Steps:

- a) On May 5th Shyam have a portfolio of five securities
ITC Hotels – 100 shares @ Rs. 112
Oriental Bank – 200 shares @ Rs. 68.25
Cipla – 100 shares @ Rs. 857.65
Lupin Lab – 200 shares @ Rs. 149.85
L&T – 200 shares @ Rs. 237.50

Therefore, Total Portfolio value = 187085

Five Stocks have following weightage in the portfolio

ITC Hotels = 5.98%

Oriental Bank = 7.29%

Cipla = 45.31%

Lupin Lab = 16.02%

L&T = 25.40%

Shyam wants to simply not care about election related fluctuations from 5th May to 27th May 2004.

- b. The five stocks have respective betas 0.59, 0.90, 0.75, 1.13 and 1.10. Hence the portfolio beta works out to be 0.901.
- c. For complete hedging he needs to sell $0.901 * 187085$ (Rs. 168563) of the Futures. On 5th May S&P CNX Nifty is at 112.95 and S&P CNX Nifty nearest Future is trading at 1141. So, he'll sell nearly 200 units of Nifty ($168563 / 1141$). Hence, Shyam supplements his portfolio with short position on S&P CNX Nifty Futures which expires on last Thursday of May, worth for Rs. $200 * 1141 =$ Rs. 228200.
- d. On 15th of May S&P CNX Nifty is trading at 962.90 and S&P CNX Nifty futures are trading at 970.63 and thus ending his hedging.

Therefore,

$$\text{Gain on Index} = (1141 - 970.63) * 200 = 34074$$

$$\% \text{ Fall in Market} = \{(1122.95 - 962.90) / 1122.95\} = 14.25\%$$

$$\% \text{ Fall in Portfolio} = 12.84\%$$

$$\text{Loss on Portfolio} = 24021$$

$$\text{Therefore, Net Gain} = (34074 - 24021) = \text{Rs. } 10052.$$

4. Have Funds, Buy S&P CNX Nifty (For Bullish view of Market in Future)

Steps:

- Shyam obtain Rs. 5 million on 17th Feb. he made a list of 14 stocks to buy at 17th Feb prices totaling approximately Rs. 5 million.
- At that time index was at 991.70, he entered into a long index March Future position for 5100 Nifty.
- From 18th Feb to 9th March, he gradually acquired the stocks – one each day. He purchases on stock and sold off the same amount of Futures.

Date	Future Position	Stock Purchased	Future Sold Off	Future MTM (P / L)
17 th Feb	5000000	-	-	-
18 th Feb	4597074	2700 Asian Hotels	400	-17042
19 th Feb	4190807	2800 Bata India	400	38430
20 th Feb	3786330	5400 Bombay Dying	400	18801
23 rd Feb	3375976	55500 SAIL	400	55828
24 th Feb	2964000	6050 Escorts	400	13975
25 th Feb	2648488	1600 Dabur	300	65300
26 th Feb	2330165	500 Cipla	300	25290
27 th Feb	2007454	1150 Cadbury	300	35112
2 nd March	1673850	4700 Apollo Tyres	300	76248
3 rd March	1350948	5100 SBI	300	-64214
4 th March	1019453	2150 ITC	300	42968
5 th March	690853	2100 Lakme	300	-11582
6 th March	362993	700 Pfizer	300	-2220
9 th March	29828	6300 Titan	300	10611
Total				Profit = 287325

Getting invested inequities is easy but there are few problems involved that is why this strategy is used.

- A person may need time to research stocks and carefully pick stocks that are expected to do well. This process take time, for that time, the investor has partly invested in cash and partly in stocks. He is exposed to the risk of market index going up.
- A person may have made up this mind on what portfolio he seeks to buy but going to the market and placing market orders would generate large impact cost. The execution would be improved significantly, if he instantly place limited orders and gradually accumulate the portfolio at the favorable prices, this takes time and during this time he is exposed to risk of index going up.
- In some cases, such as a person selling the land, may simply not have cash to immediately buy shares, hence he is forced to wait even if he feels that index is unusually cheap. Again he is exposed to the risk of index moving north.

Speculating with Futures

1. Bullish Index, Long Index Future

Steps:

- On 1st July, Shyam felt that Index would rise.
- He bought 100 Nifty Futures with expiration date on last Thursday of July.
- At this time, the index July future contract cost Rs. 960 and he has apposition of 96000.
- On 14th July index risen to 967.25 and index future contract has risen to 975.60
- Shyam unwinds both the position.

$$\text{Therefore, Net Profit} = (975.60 - 960) * 100 = \text{Rs. } 1560$$

2. Bearish Index, Short Index Future

Steps: Same as Previous.

Artibraging with Futures

1. Have Securities, Lend them to the Market

Assumptions:

- The index is at 1100 and two months Future is trading at 1110.
- Securities can be invested risk free at 1% per month over two month.
- Funds invested at 1% per month, it yields to 2.01% in two months.
- Hence the total return that can be obtained in the stock lending at 0.4% brokerage & impact cost etc, spot future basis is 0.9% $[\{(1110 / 1100) * 100\} - 100] = 0.9\%$, is $(2.01 - 0.9 - 0.4) = 0.71\%$ over a period of two months.
- Shyam has Rs. 4 million of portfolio, which he wants to lend to the market.

Steps:

- Shyam puts in sell order for Rs. 4 million of index using the features of NEAT system to rapidly place 50 market orders in quick succession.
- The seller always suffers an impact cost, suppose he contains the actual execution at Rs. 1098.

- c. A moment later, Shyam puts in a market order to buy Rs. 4 million of index futures. The order executes at 1110. At this point, he is completely hedged.
- d. Few days later, Shyam makes delivery of shares and receives Rs. 3.99 million (assuming that impact cost is 0.198%).
- e. Suppose, Shyam lends this out at 1% per month for two months.
- f. At the end of two months, the money comes back to him as Rs. 4072981 (Because of yield of 2.01%).
- g. Translated in terms of index. This comes out to be $1098 * (1.01)^2 = 1120$
- h. On the expiration date of the future, he puts in 50 orders using NEAT, placing market orders to buy back his Nifty Portfolio.
- i. Suppose index has moved upto 1150 by this time. This makes shares costlier in buying back but the difference is exactly offset by profits on the future contract.
- j. Suppose, he ends up paying at 1153 and not 1150 due to impact cost.
- k. He has funds in hand at 1120 and the future contract pays him $(1150 - 1110) = 40$. So he ends up with a clean profit on the entire transaction $(1120 + 40) - 1153 = 7$, which comes out to be .63% of 1100 and on the base of 4 million, 0.63% gives a profit of Rs. 25200.

2. Have Funds, Lend them to the Market

Steps:

- a. On August 1st index is 1200. A future contract is trading with 1230 i.e. with the return of 2.5% ($30 / 1200$). He buys 3 million of Index on the spot market. In doing this, he places 50 market orders and ends up paying slightly more. His average cost of purchase is 0.3% higher.
- b. He sells Rs. 3 million of Future at 1230. The future market is extremely liquid, so the market order for 3 millions goes through near zero impact cost, he takes delivery on shares and waits.
- c. While waiting a few dividends have come into his hands. Say, the dividends works out to be Rs. 7000. On 27th of August at 3.15 pm, he put in the market order to sell off his Nifty portfolio, putting 50 orders to sell off all the shares.
- d. Nifty happens to have closed at 1210 and his sell order has suffered impact cost, goes through at 1207. The future positions simultaneously expire on 27th August; spot basis is equal to future price.
- e. He has gained Rs. 3 on spot Nifty and Rs. 20 on future. For a return of near 1.88%, in addition he gained Rs. 7000 or 0.23%. On the investment a total of 2.11%, he gained for 27 days vis-a-vis risk free.

Hedging with Options

1. Have Portfolio, Buy Put Option (For a Bearish view of Market in Future)

Owners of equity portfolio often experience discomfort about the overall stock market movement. One way to protect your portfolio from this movement is to buy portfolio insurance.

Index option is a cheap and easily implacable way of seeking this insurance. The idea is simple, to protect the value of our portfolio from falling below a particular level. Buy the right number of Put option with the right strike price so that when the index falls, your portfolio will lose value but the put options bought by you will gain. Efficiently ensuring that the value of your portfolio does not fall below a particular level. This level depends on the strike price chosen by you.

Case I: When Portfolio beta is 1. Steps:

- a. Assume you have well diversified portfolio of beta 1. Which you would like to ensure against the fall of the market.
- b. Now, you need to choose the strike price on which you would buy puts. This is largely a function of how safe you want to play. Assuming that spot Nifty is at 1250 and you decide to buy puts at a strike price of 1125. This will ensure your portfolio against the index falling lower than 1125.
- c. When portfolio beta is 1, then the number of puts you need to buy is simply equal to the portfolio divided by the spot index. Assume your portfolio worth 1 million, hence the number of puts you need to buy to protect your portfolio from a fall in index is $(1000000 / 1250)$, 800. At a market lot of 200 you need to buy 4 market lots of two months put.
- d. Buying two months Nifty puts with a strike price of 1125, you ensure that the value of your portfolio does not decline below 0.9 million (10% fall in index will effect 10% fall in your portfolio). During the two month period, suppose Nifty drops to 1080 (i.e. 13% fall in index will effect the portfolio value to decline upto 0.864 million. However, the option provides the payoff of Rs. 36000 $\{(1125 - 1080) * 800\}$ and this is the amount needed to bring the portfolio back to 0.9 million.
- e. The upside of portfolio is potentially unlimited. For instance, Nifty risen to 1280 then the investor will simply leave the puts expires. He would of course lose the put premium paid, which is the cost of buying insurance.

Case II: When Portfolio beta is not equal to 1. Steps:

- a. Assume portfolio beta is 1.2, which you would like to ensure against the fall in the market.
- b. Now, you need to choose the right strike price at which you buy the puts. Assume that the spot Nifty is at 1200 and you decided to buy puts with a strike price of 1140. This will ensure your insurance of Portfolio against the index falling below 1140.
- c. For a beta not equal to 1,
 Number of puts to buy = $\{(Portfolio Value * Portfolio Beta) / Index\}$
 Assuming,
 Portfolio Value = 1 million
 Portfolio Beta = 1.2, therefore,
 Number of puts to buy = $\{(1 million * 1.2) / 1200\} = 1000$
 So, for a lot size of 200, you need to buy 5 lots.

Speculating with Options

1. Bullish Index, Buy Nifty Calls or Sell Nifty Puts

There are times when investor believes that the market is going to rise. To benefit from the upward movement in the index, you have two choices: Buy Call option on the Index or Sell put option on the Index. Say, for instance, having decided to buy calls, the critical question is which one should you buy, given that there are number of one month calls trading, each with a different strike price.

Nifty	Strike Price	Call Premium	Put Premium
1250	1200	80.10	18.15
1250	1225	63.75	26.50
1250	1250	49.45	37.00
1250	1275	37.50	49.80
1250	1300	27.50	64.80

Assumption:

The current Index is at 1250

$R_f = 12\%$

Index Volatility = 30%

Which of these option you choose depends largely on how you feel about the likelihood of the upward movement of the index and how much you are willing to lose, if this upward movement does not come about.

The call with a strike price of 1200 is deep in the money and hence trades at a higher premium. The call of 1275 is out of money and thus trades at a lower premium. The call with 1300 is deep out of money, hence its execution depends upon the unlikely event of index rising by more 50 points on the expiration date and thus buying this call is a gamble.

As a person who wants to speculate on the hunch that the market may rise, you can also do so by selling or writing puts. As a writer of puts you limit the upside movement and unlimit the downside movement. If the index does rise, the buyer of the put will let the option expire and you will earn the premium. If however your hunch about the upward movement of market proves to be wrong and the index actually fall then your losses directly with the falling index. For instance, if the index falls to 1230 and you have sold on put with an exercise of 1300. The buyer of the put will exercise the option and you will end up losing Rs. 70. Taking into account the premium earned, the net loss will be Rs. 5.20.

2. Bearish Index, Sell Call option, Buy Put Option

Steps: Same as the Previous one

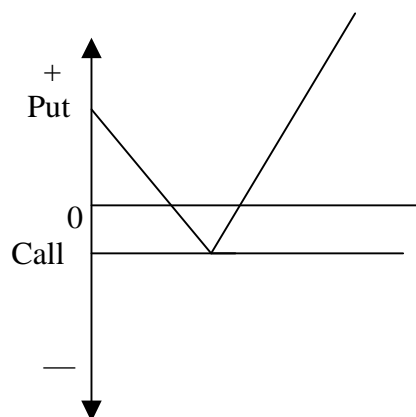
3. Anticipate Volatility by buying a Put and a Call (Straddle Strategy)

How does one implement a trading strategy to benefit from market volatility. Combination of call and put option provide an excellent way to trade in volatility and this is what you need to do.

- Buy call option on the index at a strike price, let's say, K, and maturity 'T'.
- Buy put option on the index at the same strike K and maturity T.

This combination of option often referred to as 'Straddle' and is an approximate strategy for investor, who expects a large move in the index but does not know, in which direction the move will be.

Consider an investor who feels that the index, which currently stands at 1252, would move significantly in next three months. The investor could create a straddle by buying both put and call with a strike price close to 1252 and with an expiration date of three months. Say, a three months call is at a strike price of 1250, cost Rs. 95 and three month put at the same strike price cost Rs. 57. To enter into this position, the investor faces a cost of (95+57), 152. If at the end of three months, the index remains at 1252, the strategy cost the investor Rs. 150. If at the expiration date the index settles around 1252, the investor incurs loss. However, if as expected by the investor, climbs or falls significantly, he makes profit. For a straddle to be an effective strategy, the investor belief about the market movement must be different from most of those other market participants, if the general view as that the market will climb, it will reflect in the prices of the option. It behaves in the following manner



4. Bull Spreads, Buy a call and sell another

There are times when you think that the market is going to rise, say, over the next two months. However, in the events that the market does not rise, you would like to limit your downside. One way you could do this entering into a spread. A spread strategy involves taking a position into two or more options of the same type. A spread that is designed to profit, if the prices go up, it is called bull spread.

The buyer of a bull spread buys a call with an exercise price below the current index level and sells a call option with an exercise price above the current index level. The spread is a bull spread because the trader hopes to profit by rise in the index. The trade is a spread because it involves buying one option and selling a related one.

Introduction

Corporate bonds (also called corporates) are debt obligations, or IOUs, issued by private and public corporations. They are typically issued in multiples of Rs.1000 and/or Rs.5000. Companies use the funds they raise from selling bonds for a variety of purposes, from building facilities to purchasing equipment to expanding the business. When you buy a bond, you are lending money to the corporation that issued it. The corporation promises to return your money, or principal, on a specified maturity date. Until that time, it also pays you a stated rate of interest, usually semiannually. The interest payments you receive from corporate bonds are taxable. Unlike stocks, bonds do not give you an ownership interest in the issuing corporation.

Benefits of Investing in Bond Market

Investors buy corporates for a variety of reasons:

- 1. Attractive yields.** Corporates usually offer higher yields than comparable- maturity government bonds or CDs. This high-yield potential is generally accompanied by higher risks.
- 2. Dependable income.** People who want steady income from their investments, while preserving their principal, include corporates in their portfolios.
- 3. Safety.** Corporate bonds are evaluated and assigned a rating based on credit history and ability to repay obligations. The higher the rating, the safer the investment.
- 4. Diversity.** Corporate bonds provide the opportunity to choose from a variety of sectors, structures and credit-quality characteristics to meet your investment objectives.
- 5. Marketability.** If you must sell a bond before maturity, in most instances you can do so easily and quickly because of the size and liquidity of the market.

Types of Issuers

There are five main classifications of issuers representing various sectors that issue Corporate bonds:

1. Public utilities
2. Transportation companies
3. Industrial corporations
4. Financial services companies
5. Conglomerates

Such issuers may be Indian companies or foreign companies. Foreign governments are also frequent issuers in the Indian markets.

Basic Terminology

Maturity

One of the key investment features of any bond is its maturity. A bond's maturity tells you when you should expect to get your principal back and how long you can expect to receive interest payments. (However, some corporates have "call," or redemp-

tion, features that can affect the date when your principal is returned). Corporate bonds, in general, are divided into three groups: Short-term notes Maturities of up to 5 years Medium-term notes/bonds Maturities of 5–12 years Long-term bonds Maturities greater than 12 years.

Structure

Another important fact to know about a bond before you buy is its structure. With traditional debt securities, the investor lends the issuer a specified amount of money for a specified time. In exchange, the investor receives fixed payments of *interest* on a regular schedule for the life of the bonds, with the full principal returned at maturity. In recent years, however, the standard, fixed interest rate has been joined by other varieties. The three types of rates you are most likely to be offered are these:

- 1. Fixed-rate.** Most bonds are still the traditional fixed-rate securities described above.
- 2. Floating-rate.** These are bonds that have variable interest rates that are adjusted periodically according to an index tied to short-term Treasury bills or money markets. While such bonds offer protection against increases in interest rates, their yields are typically lower than those of fixed-rate securities with the same maturity.
- 3. Zero-coupon.** These are bonds that have no periodic interest payments. Instead, they are sold at a deep discount to face value and redeemed for the full face value at maturity. (One point to keep in mind: Even though you receive no cash interest payments, you must pay income tax on the interest accrued each year on most zero-coupon bonds. For this reason, zeros may be most suitable for IRAs and other tax sheltered retirement accounts.

Understanding Interest Rate Risk

Like all bonds, corporates tend to rise in value when interest rates fall, and they fall in value when interest rates rise. Usually, the longer the maturity, the greater the degree of price volatility. By holding a bond until maturity, you may be less concerned about these price fluctuations (which are known as interest-rate risk, or market risk), because you will receive the par, or face, value of your bond at maturity. Some investors are confused by the inverse relationship between bonds and interest rates — that is, the fact that bonds are worth less when interest rates rise. But the explanation is essentially straightforward:

- When interest rates rise, new issues come to market with higher yields than older securities, making those older ones worth less. Hence, their prices go down.
- When interest rates decline, new bond issues come to market with lower yields than older securities, making those older, higher-yielding ones worth more. Hence, their prices go up.

As a result, if you have to sell your bond before maturity, it may be worth more or less than you paid for it. Various economic

forces affect the level and direction of interest rates in the economy. Interest rates typically climb when the economy is growing, and fall during economic downturns. Similarly, rising inflation leads to rising interest rates (although at some point, higher rates themselves become contributors to higher inflation), and moderating inflation leads to lower interest rates. Inflation is one of the most influential forces on interest rates.

Understanding Yields

Yield is a critical concept in bond investing, because it is the tool you use to measure the return of one bond against another. It enables you to make informed decisions about which bond to buy. In essence, yield is the rate of return on your bond investment. However, it is not fixed, like a bond's stated interest rate. It changes to reflect the price movements in a bond caused by fluctuating interest rates. Here is an example of how yields works: You buy a bond, hold it for a year while interest rates are rising and then sell it. You receive a lower price for the bond than you paid for it because, as indicated above under "Understanding Interest-Rate Risk," no one would otherwise accept your bond's now lower-than-market interest rate.

Although the buyer will receive the same rupees amount of interest you did and will have the same amount of principal returned at maturity, the buyer's yield, or rate of return, will be higher than yours was — because the buyer paid less for the bond. There are numerous ways of measuring yield, but two — current yield and yield to maturity — are of greatest importance to most investors.

Current yield

The current yield is the annual return on the rupees amount paid for a bond, regardless of its maturity. If you buy a bond at par, the current yield equals its stated interest rate. Thus, the current yield on a par value bond paying 6% is 6%.

However, if the market price of the bond is more or less than par, the current yield will be different. For example, if you buy a Rs. 1,000 bond with a 6% stated interest rate after prevailing interest rates have risen above that level, you would pay less than par. Assume your price is Rs.900. The current yield would be 6.67% ($\text{Rs.}1000 \times .06 / \text{Rs.}900$).

Yield to maturity

A more meaningful figure is the yield to maturity, because it tells you the total return you will receive if you hold a bond until maturity. It also enables you to compare bonds with different maturities and coupons. Yield to maturity includes all your interest plus any capital gain you will realize (if you purchase the bond below par) or minus any capital loss you will suffer (if you purchase the bond above par). Ask your Financial Consultant to provide you with the precise yield to maturity of any bond you are considering. Don't buy on the basis of the current yield alone, because it may not represent the bond's real value to you.

Yield to call

The yield to call tells you the total return you will receive if you were to buy and hold the security until the call date. As an investor, you should be aware that this yield is valid only if the bond is called prior to maturity. The calculation of yield to call is based on the coupon rate, the length of time to the call date, and the market price of the bond.

Understanding Call and Refunding Risk

One of the most difficult risks for investors to understand is that posed by "call" and refunding provisions. If the bond's indenture (the legal document that spells out its terms and conditions) contains a "call" provision, the issuer retains the right to retire (that is, redeem) the debt, fully or partially, before the scheduled maturity date. For the issuer, the chief benefit of such a feature is that it permits the issuer to replace outstanding debt with a lower interest-cost new issue. A call feature creates uncertainty as to whether the bond will remain outstanding until its maturity date. Investors risk losing a bond paying a higher rate of interest when rates have declined and issuers decide to call in their bonds. When a bond is called, the investor must usually reinvest in securities with lower yields. Calls also tend to limit the appreciation in a bond's price that could be expected when interest rates start to slip. Because a call feature puts the investor at a disadvantage, callable bonds carry higher yields than non-callable bonds, but higher yield alone is often not enough to induce investors to buy them. As further inducement, the issuer often sets the call price (the price investors must be paid if their bonds are called) higher than the principal (face) value of the issue. The difference between the call price and principal is the call premium. Generally, bondholders do have some protection against calls. An example would be a bond that has a 15-year final maturity, non-call two years. This means the investor is protected from a call for two years, after which time the issuer has the right to call the bonds.

Sinking-fund provisions

A sinking fund is money taken from a corporation's earnings that is used to redeem bonds periodically, before maturity, as specified in the indenture. If a bond issue has a sinking-fund provision, a certain portion of the issue must be retired each year. The bonds retired are usually selected by lottery. One investor benefit of a sinking fund is that it lowers the risk of default by reducing the amount of the corporation's outstanding debt over time. Another is that the fund provides price support to the issue, particularly in a period of rising interest rates. However, the disadvantage — which usually weighs more heavily on investors' minds, especially in a falling rate environment — is that bondholders may receive a sinking-fund call at a price (often par) that may be lower than the current market price of the bonds.

Other types of redemptions

Bond investors should be aware of the possibility of certain other kinds of calls. Some bonds, especially utility securities, may be called under what are known as *Maintenance and Replacement* fund provisions (which relate to upgrading plant and equipment). Others may be called under *Release and Substitution* clauses (which are designed to maintain the integrity of assets pledged as collateral for some bonds) and *Eminent Domain* clauses (which have to do with paying off bonds when a governmental body confiscates or otherwise takes assets of the issuer). Ask about these and any other special redemption provisions that may apply to bonds you are considering. You can avoid the complications and uncertainties of calls altogether by buying only non-callable bonds without sinking fund provisions. If you do buy a callable bond and it is called, be

aware that its actual yield will be different than the yield to maturity you were quoted. So ask your Financial Consultant to tell you what the yield to call is as well.

Puts

Just as some issuers have the right to call your bond prior to maturity, there is a type of bond — known as a put bond — that is redeemable at *your* option prior to maturity. At specified intervals, you may “put” the bond back to the issuer for full face value plus accrued interest. In exchange for this privilege, you will have to accept a somewhat lower yield than a comparable bond without a put feature would pay.

Understanding Colateralization

In the event a corporation goes out of business or defaults on its debt, bondholders, as creditors, have priority over stockholders in bankruptcy court. However, the order of priority among all the vying groups of creditors depends on the specific terms of each bond, among other factors. One of the most important factors is whether the bond is secured or unsecured. If a bond is secured, the issuer has pledged specific assets (known as collateral) that can be sold, if necessary, to pay the bondholders. If you buy a secured bond, you will “pay” for the extra safety by receiving a lower interest rate than you would have received on a comparable unsecured bond.

Debenture bonds

Most corporate bonds are debentures — that is, unsecured debt obligations backed only by the issuer’s general credit and the capacity of its cash flow to repay interest and principal. However, even unsecured bonds usually have the protection of what is known as a negative pledge provision. This requires the issuer to provide security for the unsecured bonds in the event that it subsequently pledges its assets to secure other debt obligations. Credit ratings are a key tool for the investor who wants to know how strong a company’s unsecured bonds are.

Mortgage bonds

These are bonds for which real estate or other physical property has been pledged as collateral. They are mostly issued by public utilities. There are various kinds of mortgage bonds, including the following: first, prior, overlying, and junior, second, third and so on. The designation reflects the priority of the lien, or legal claim, you have against the specified property. Any time you invest in mortgage bonds, you should find out how much other debt of the issuer is secured by the same collateral and whether the lien supporting that other debt is equal or prior to your bond’s lien.

Collateral trust bonds

A corporation may deposit stocks, bonds and other securities with a trustee to back its bonds. The collateral must have a market value at the time of issuance at least equal to the value of the bonds.

Equipment trust certificates

Railroads and airlines have issued this type of bond as a way to pay for new equipment at relatively low interest rates. A trustee holds the title to the equipment until the loan is paid off, and the investors who buy the certificates usually have a first claim on the equipment.

Subordinated debentures

Debt that is subordinated, or junior, has a priority lower than that of other debt in terms of payment (but like all bonds, it ranks ahead of stock). Only after secured bonds and debentures are paid off can holders of subordinated debentures be paid. In exchange for this lower status in the event of bankruptcy, investors in subordinated securities earn a higher rate of interest than is paid on senior securities.

Guaranteed bonds

Another form of security is a guarantee of one corporation’s bonds by another corporation. For example, the parent corporation may guarantee bonds issued by a subsidiary. Or both parent corporations may guarantee bonds issued by a joint venture between two companies. Guaranteed bonds become, in effect, debentures of the guaranteeing corporation and benefit from its presumably better credit.

Understanding Credit Risk

Credit ratings

A bond issuer’s ability to pay its debts — that is, make all interest and principal payments in full and on schedule — is a critical concern for investors. Checking a bond’s rating before buying is not only smart but also simple: Just ask your Financial Consultant. Bonds rated BBB or higher by Standard & Poor’s and Fitch Ratings, and Baa or higher by Moody’s, are widely considered “investment grade.” This means the quality of the securities is high enough for a prudent investor to purchase them. Some bonds are not rated, but this does not necessarily mean they are unsafe. Before buying such a security, however, ask your Financial Consultant for other evidence of its quality.

High-yield bonds

Bonds with a rating of BB (Standard & Poor’s, Fitch Ratings) or BA (Moody’s) or below are speculative investments. They are called high-yield, or junk, bonds. Such bonds are issued by newer or start-up companies, companies that have had financial problems, companies in a particularly competitive or volatile market and those featuring aggressive financial and business policies. They pay higher interest rates than investment-grade bonds to compensate for the extra risk. (However, if they were issued before the company’s financial difficulties, the risk may not be offset by a higher yield.) For those who do not mind taking substantial risk, such securities can provide exceptional returns. For the less adventurous who still want to participate in this market, high-yield bond mutual funds are a way to spread the risk over many issues.

Event risk

In recent years, the managements of many corporations have tried to boost shareholder value by undertaking leveraged buyouts, restructurings, mergers and re-capitalization. Such events can push bond values down, sometimes very suddenly, because they may greatly increase a company’s debt load. Although some corporations have now established bondholder protections, these are neither widespread nor foolproof. All bonds are subject to this potential risk. An individual investor should see if the rating agencies have written commentaries on a company’s vulnerability to event risk before buying its bonds.

Bond Funds

Many investors who want to reap the good returns available in the corporate bond market buy shares in bond mutual funds instead of individual bonds — or in addition to individual bonds. They do so for the same reasons investors have flocked to mutual funds of all kinds in recent years — diversification, professional management, modest minimum investments, automatic dividend reinvestment and other convenience features. Diversification is an especially important advantage of bond funds. Many investors in individual bonds buy only a few securities, thus concentrating their risk. A fund manager, by contrast, spreads credit risk, interest-rate risk and, indeed, all other kinds of risk, over many bonds. Different issuers, sectors, credit ratings, coupons and maturities are all represented in a diversified portfolio. However, lower risk does not mean no risk. All the underlying risks that affect bonds affect bond funds — but not as sharply. You should be aware that prices of bond fund shares fluctuate inversely with interest rates, just as individual bonds' prices do, and when you sell fund shares, they may be worth more or less than you paid for them.

How Corporate Bonds are Taxed

The following basic information addresses the tax aspects for individuals of investing in corporate bonds. For advice about your specific situation, you should consult your tax adviser.

Interest

The interest you receive from corporate bonds is subject to federal and state income tax. (If you own shares in bond mutual funds, your interest income will come to you in the form of “dividends” from the fund, but these are fully taxable and are not eligible for the maximum 15% tax rate that otherwise applies to dividends.)

Gains and losses

You may generate capital gains on a corporate bond if you sell it at a profit before it matures. If you sell it up to a year from purchase, the gains are taxed at your ordinary rate. If you sell it more than a year from purchase, your capital gains are considered long-term and are currently taxed at a maximum rate of 15%. Conversely, if you sell a bond for less than you paid, you may incur a capital loss. You may offset an unlimited amount of such losses dollar for dollar against capital gains you have realized on other investments (bonds, stocks, mutual funds, real estate, etc.). If your losses exceed your gains, you may currently deduct up to Rs. 3000 of net capital losses annually from your ordinary income. Any capital losses in excess of Rs. 3000 are carried forward and can be used in future years. (These rules apply to the sale of shares in bond funds as well as to individual bonds.)

Original-issue discount

When bonds are issued at substantially less than par (face) value, the difference between the face amount and the initial offering price is known as original-issue discount. Zero-coupon bonds are the best-known variety of this category of bonds. The tax treatment of original-issue-discount bonds is particularly complicated, so if you plan to invest in them, it is essential to consult your tax attorney or adviser. During the time you own original-issue-discount bonds, you will pay tax each year

on a portion of the discount (even though you do not receive it in cash). However, if you hold them to maturity, you do not pay capital gains or other taxes on the amount by which the face value you receive exceeds the discounted amount you paid for the bonds. The reason is that you paid taxes on that excess incrementally each year that you held the bonds.

Other Basic Facts

Interest payments

Corporate bond interest is usually paid semiannually. Zero-coupon bonds pay no periodic interest.

Forms of issuance

Corporate bonds are issued in several forms:

- **Registered bonds.** Some corporate bonds are issued as certificates, with the owner's name printed on them. There are no coupons attached for the owner to submit for payment of interest. The issuer's agent or trustee sends the interest to the bondholder at the proper intervals and forwards the principal at maturity.
- **Bearer bonds.** These are bonds that have no name printed on them and do have coupons attached. Anonymous and highly negotiable, bearer bonds are virtually equivalent to cash. The Tax Reform Act of 1982 ended the issuance of such bonds, but many remain in circulation.
- **Book-entry bonds.** These are bonds without certificates. Just as registered bonds have largely supplanted bearer bonds, book entry is replacing certificates as the prevailing form of issuance. With book-entry securities, a bond issue has only one master, or global, certificate, which is kept at a securities depository. The ownership of book entry bonds is recorded in the investor's brokerage account. All interest and principal payments are forwarded to the brokerage account.

Minimum investment

For OTC bonds, the minimum investment is usually Rs.5000. Listed bonds are issued and sold in Rs.1000 denominations.

Payment terms

When you buy a corporate bond (or other security), you must make sure that payment arrives at the broker's office within three business days. Some brokers require that you have your payment on deposit before they will execute your purchase. If you sell a bond, you will receive the broker's payment in approximately three business days.

Marketability

How quickly and easily a particular bond can be bought or sold determines its marketability. To the extent the term “marketability” is used interchangeably with “liquidity,” it also implies that the price of the security will not change much under normal market conditions. In general, for a bond to enjoy high marketability, there must be a large trading volume and a large number of dealers in the security.

Costs

Brokers often sell bonds from their firms' inventory, in which case investors do not pay an outright commission. Rather, they pay a markup that is built into the price quoted for the bond. If a broker has to go out into the market to find a particular bond for a customer, a commission may be charged. Each brokerage

firm establishes its own markups and commissions, which may vary depending on the size of the transaction and the type of bond you are purchasing.

Glossary

Collateral: Assets pledged by a borrower to secure repayment of a loan or bond.

Coupon: A bond's stated interest rate.

Default: A borrower's failure to make timely payments of interest and principal when due or to meet other requirements related to the bonds, such as maintenance of collateral or financial covenants.

Face value: The value that appears on the front, or face, of a bond, which represents the amount the issuer promises to repay at maturity. Also known as **par** or **principal amount**.

Interest: Compensation paid or to be paid for the use of money, generally expressed as an annual percentage rate. The rate may be constant over the life of the bond (fixed-rate) or may change from time to time by reference to an index (floating-rate).

Liquidity: Capacity of a market to absorb a reasonable level of selling without significant losses.

Maturity: The date when the principal amount of a bond becomes due and payable.

Security: Collateral pledged by a bond issuer (debtor) to an investor (lender) to secure repayment of the loan.

Volatility: The propensity of a security's price to rise or fall sharply.

Exercise

1. What are corporate debts? What are the benefits of investing in bond market?
2. Who are the issuers of corporate bonds? What is the interest rate risk explain?
3. How the yields are calculated for the different bonds available?
4. Explain Collateralization and what do you understand by Credit risk?
5. How corporate bonds are taxed?

Notes

LESSON 14

A MULTI-FACTOR RISK MODEL FOR THE INDIAN STOCK MARKET

Introduction

Multi factor models for returns generation

Multi factor models attempt to describe asset price returns and their covariance matrix as a function of a limited number of risk attributes. Factor models are thus based on one of the fundamental tenets of financial theory: no reward without risk. The Capital Asset Pricing Model (CAPM) first presented by Sharpe (1964), Linter (1965) and Mossin (1966) is a single factor model and remains one of the most popular empirical models of the return generation process. This model uses stock beta as the only relevant risk measure. But empirical studies could not confirm this restrictive statement. Ross (1976) posited a more general multiple factor structure for the returns generating process, known as the Arbitrage Pricing Theory (APT). However, he was unable to explain the nature or specify the number of factors. Further work carried out in this field by Chen et al (1986) attempts to explain some of these factors. Fama and French (1992) find that the main prediction of the CAPM is violated for the US stock market. Exposures to two other factors, a size-based factor and a book-to-market-based factor, often called a "value" factor, explain a significant part of the cross-sectional dispersion in mean returns. Their paper was the foundation for a number of empirical studies in this direction.

General structure of multi factor models

In their general form, factor models posit that the period returns of different assets are explained by common factors in a linear model. The asset returns are influenced by the factors as per the sensitivity of the individual securities to the factors. These sensitivities thus play the role of the beta in CAPM. In addition, the asset return is also influenced by the specific return, which is assumed to be independent of the other factors. A multiple factor model for $i=1..n$ securities of a market can be represented in the form of an equation

$$R_i = \alpha_i + \beta_{i1}F_1 + \dots + \beta_{ik}F_k + \epsilon_i$$

Where

R_i = returns to security i

α_i, β_{ij} = sensitivity of security i to factor j

F_1, \dots, F_k = the k factors

ϵ_i = specific return to security i

There are three broad assumptions behind the model. The first is that the specific returns are not correlated with each other. This implies that the correlation between the returns on two different securities is solely determined by their common dependence on the factors F_1, F_2, \dots, F_n . The second is that the expected specific return is zero. The third is that the specific returns are independent of the factors.

Methodologies for estimation of multi factor models

There are three different methodologies to estimate factor models. The time series analysis is the most intuitive among all the techniques. In this analysis, a linear regression is performed over different time periods, with the assumption that the factor sensitivities are constant across time. Typical factors that are considered relevant in many studies, as for instance in the studies of Berry et al (1988), are excess returns on long term bonds, exchange rates, price changes of raw material and inflation. Cross sectional analysis is the second methodology and is less intuitive than time series analysis. In this we take factor exposures as given. A regression is then performed over all securities for a single time period, rather than over one security over all time periods. The process is then repeated over several other time periods to obtain a time series for factor values. Fama and French used this technique to explain the size and value effect in the US market. The main drawback of this technique is that it assumes exposures to be given. The third common methodology for estimating factor models is statistical factor analysis. The statistical factor models obtain both the factors and the sensitivities to these factors simultaneously. The advantage of this approach is its "objectivity", as neither the factors nor the sensitivities are defined in advance, but rather estimated from the data. However factor analysis requires constancy of factors. Further, the economic interpretation of the factors is very difficult. This technique was employed by Ross to formulate the APT. Elton and Gruber (1989) used this technique to find the evidence of a multi factor risk model for the Japanese context.

Factor models in the Indian market

In the Indian context, there has been limited empirical research in the area of multi factor models. Amanullah and Kamaiah (1998) showed that the CAPM may not be relevant in the Indian market. Most of the research in multi factor models in India has been done using the technique of cross sectional regression. Connor and Sehgal (2001) tested the Fama and French model in India using this technique. Mohanty (2000) tested the Indian market for efficiency in pricing small stocks, using a similar technique. This paper attempts to find the evidence of a multi factor model in the Indian context. To investigate this, we make use of the technique of statistical factor analysis. In section two, we describe the data sample used in the study. We then identify the number of factors sufficient to explain the return generation process and attempt to explain the individual factors. In section four, we examine the efficacy of this multi factor model vis a vis the single factor market model. In section five, we describe some of the limitations of our multi factor model. The conclusion in section six summarizes the results.

Data Sample

For the purpose of our study, we used the securities constituting the BSE 100 index. Though there are over 5000 listed securities in the various Indian stock markets, most of them are very thinly traded. Hence, we considered only the top 100 stocks as identified in the BSE 100 index. The BSE 100 is a broad-based and value-weighted stock market index. The sample companies constitute the major proportion of the total market capitalization and liquidity in the Indian equities market. Another important reason for using the stocks constituting BSE 100 as opposed to an even broader index was the limitation of the statistical package in handling greater number of variables. The share price data for a three years period between November 1999 and October 2002 was obtained from Prowess, a highly normalized database maintained by the Center for Monitoring the Indian Economy (CMIE). This database is widely used by researchers and practitioners to obtain financial information on Indian companies and security markets. The price data has been adjusted for capitalization changes such as stock splits and bonus issues. This share price data was then converted into weekly logarithmic returns. We have used weekly returns instead of daily returns to reduce the number of outliers in the data, as factor analysis is very sensitive to statistical outliers. The weekly returns were computed using the capitalization data only, and the dividends were ignored. However, this should not have a significant impact on the study, as the average dividend yield across these companies is very low.

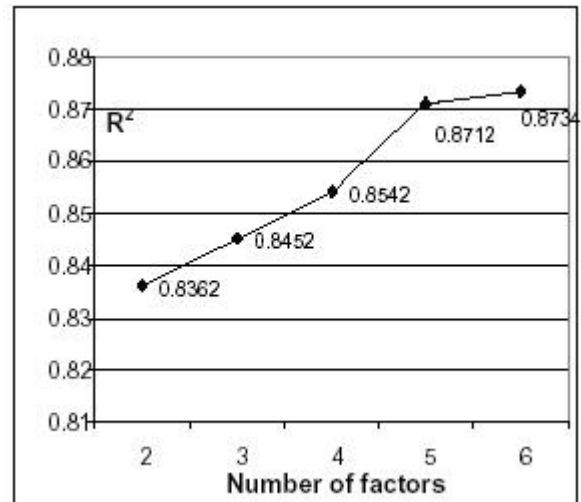
Statistical Analysis Technique

In this study we have used Principal Component Factor Analysis to estimate the factors and the loadings on the factors. Principal component factor analysis estimates both these parameters simultaneously. The factor solution was then rotated orthogonally using a Varimax rotation to maximize the variance of the squared elements in the columns of a factor matrix.

Obtaining the Multi Factor Model

The first stage in determining a multi-factor return generating process was an estimation of the number of factors that might be present. There is a trade-off between a parsimonious description of the return process (fewer number of factors) and a 'better' description of the variance in returns (which generally implies more number of factors). Our objective was to determine that number of factors which would sufficiently describe the returns process, without adding too much to the complexity. This was achieved by performing a 'Correlation Test'. We first grouped the 100 stocks into five portfolios constructed in descending order of market capitalization. The returns on each of the five portfolios as estimated by the multifactor model were regressed against the factor returns. This was done for multi-factor models with 2, 3, 4, 5 and 6 factors. The average R² across the five portfolios was compared as shown in the chart below.

Figure 1
R² for various factor solutions



We see that there is no significant addition in the explanatory power of the model by increasing the number of factors from 5 to 6. This suggests that five factors are sufficient to define the return generating process for the Indian Stock Market. A 5-factor principal component analysis was performed on the three-year weekly returns of the stocks constituting the BSE 100 index. The factor loadings of each of the 100 stocks are as shown in Appendix A. Interpreting these five factors is the toughest part of statistical factor analysis. Since these five factors are not unique to a linear transformation, there is infinite number of five factor models that could serve equally well. Nevertheless, the examination of the factor output matrix does provide us an insight into the possible explanation for some of the factors.

Table 1
Stocks with loadings > 0.5 on respective factors

Factor 1 'Pharma' Factor	Factor 2 'Technology' Factor	Factor 3 'Old Economy' Factor	Factor 4 'FMCC' factor	Factor 5 Unknown
Dabur	Satyam	BPCL	Asian Paints	Corporation Bank
Abbott	Global Telesystems	HPCL	HLL	Aventis
Pfizer	S S I	Neyveli Lignite	Escorts	Wockhardt
Titan	Silverline	SCI	Britannia	Ranbaxy
Novartis	Pestamedia Graphics Infosys	IPCL	CSK Consumer Healthcare	MTNL
	Digital Globalsoft	Tata Power	Nestle	Dr. Reddy's
	Wipro	Bank Of India	Colgate-Palmolive	
	Vistaalsoft	Tata Chemicals		
	HPCL	Gujarat Ambuja		
	Hughes Software	Grasim		
	HCL Infosystems	TISCO		
	Zee	India Cements		
	HCL	L & T		
	N I I T	ACC		

As shown in Table 1 above, it is only Pharma stocks that have a high loading (loading greater than 0.5) on factor 1. Thus, Factor 1 appears to be highly correlated to variables that affect the stock price of pharmaceutical companies in India. Similarly, it is only the technology stocks that have a high loading on Factor 2. This is a pointer to the possibility that there is a 'technology factor' underlying the Indian stock market. This factor could be highly correlated to technology related variables such as returns on the Nasdaq Index. Almost all the stocks which have a high loading on Factor 3 are the typical 'old economy' stocks belonging to heavy industries such as cement (ACC, India Cement, Gujarat Ambuja), petrochemicals (IPCL, IOC, HPCL), heavy engineering (L & T), shipping (SCI), power (Tata Power) etc. This suggests that there is an 'old economy' factor underlying the returns generation process in the Indian stock markets. Most of the stocks that have a high loading (0.5 and above) on Factor 4 are stocks of consumer non-durables (HLL, Nestle, Britannia). This factor can thus be postulated to be an 'FMCG factor'. This factor must be highly correlated to variables that impact the performance of FMCG companies such as Consumer Price Index, growth in per-capita income, performance of monsoon etc. While the loadings on Factor 5 seems to high for pharmaceutical companies (Ranbaxy, Aventis, Wockhardt and Dr.Reddy Labs), the presence of stocks such as MTNL and Corporation Bank in this list complicates the possible explanation for this factor. Also, it is not clear as to how this factor is different from Factor 1.

Model Explanatory Power

In this section, we examine how much of the total returns are explained by the five factors and compare this to the amount explained by the more conventional single index model. To examine this, we divided the 100 stocks into five equally weighted portfolios of 20 stocks each. These portfolios were constructed on the basis of descending order of size, based on the average monthly market capitalization of the stocks over the three-year period. Elton and Gruber (1989) suggest that such grouping of the stocks would increase the amount explained by any model. Also, it creates a manageable set of data, which not only allows us to examine average explanatory power, but also explanatory power across set of stocks. Table 2 shows the sensitivities and the R² when the returns on each of the five portfolios are regressed on the factor returns over the three-year period from November 1999 to October 2002.

Table 2

Sensitivities and explanatory power of five factor model

	<i>F1</i>	<i>F2</i>	<i>F3</i>	<i>F4</i>	<i>F5</i>	<i>R²</i>
P1	.017*	.324	.211	.118	.275	.906
P2	.169	.225	.325	.166	.135	.758
P3	.201	.378	.206	.189	.145	.930
P4	.317	.182	.269	.171	.206	.925
P5	.29	.206	.316	.172	.189	.837
Average:						0.871

Average: 0.871

* denotes insignificance at 5% level The average adjusted R² across the five portfolios is 0.871. Moreover, the sensitivities are highly significant. Of the 25 different sensitivity estimates, all but two are significant at the 5% level. As a standard of comparison, we use the BSE 100 index. This index is a value-weighted index, made of the same 100 securities that we are analyzing. Thus, the relationship between our five portfolios and the index is likely to be higher than if we had chosen another market index. Table 3 presented below shows the results.

Table 3

Sensitivities and explanatory power for the single index model

	<i>Beta</i>	<i>R²</i>	<i>Avg. return</i>
P1	0.693	0.746	0.24%
P2	0.510	0.595	0.41%
P3	0.734	0.395	0.06%
P4	0.493	0.391	0.25%
P5	0.448	0.388	0.38%
Average		0.503	

The explanatory power of the single index model is much less than that of the multi factor model. The average adjusted R² of 0.503 is much less than the average R² of 0.871 of the multi factor model. Hence, the multi factor model explains considerably more of the time series of stock price returns in the Indian market.

Returns of Small Stocks

In the US market, empirical studies have shown that beta coefficients increase as size decreases (Elton and Gruber, 1988). This suggests that smaller firms are perceived be riskier than the bigger firms. We tried to examine if this was true in the Indian context. Based on our analysis, we could not find any real evidence in this direction. As per table 3, except for portfolio 3, which has the highest market beta of 0.734, the betas have actually declined from the largest to the smallest portfolio. An examination of our results (table 3) indicates that beta may not be a sufficient metric for capturing risk. Portfolio 3, which has the highest beta (0.734) among the five portfolios, gives the lowest average weekly return (0.06%) over the three years. Similarly, though portfolio 2 has a lower beta (0.51) as compared to portfolio 1 (0.69), it gives higher average weekly returns of 0.41% as compared to 0.24% for portfolio 1. The third important observation was that the R² across the 5 portfolios declines significantly in case of the single factor model (by nearly 50%). On the other hand the multi factor model is able to explain a significant proportion of the variance even in case of the smaller stock portfolios. This only supports the postulate by Fischer (1988) that CAPM may be inadequate in explaining returns of certain small stocks.

Introduction

Portfolio is nothing but the combination of various stocks in it. Understanding the dynamics of Market is the essence of Portfolio Management. This means Portfolio Management basically deals with three critical questions of investment planning.

1. Where to Invest?
2. When to Invest?
3. How much to Invest?

Portfolio is the combination of assets. Modern portfolio theory suggest that the traditional approach to portfolio analysis, selection, and management may well yield less than optimal results – that a more scientific approach is needed, based on estimates of risk and return of the portfolio and the attitudes of the investor towards a risk return trade off stemming from the analysis of the individual securities.

The return of the portfolio is nothing more than the weighted average of the returns of the individual stocks. The weights are based on the percentage composition of the portfolio. The total risk of the portfolio is more complex. Here we need only point that when securities combined may have a greater or lesser risk than the sum of their component risk. This fact arises from the fact that the degree to which the return of individual securities move together or interact.

Portfolio Management Process

Portfolio management is a complex activity which may be broken down into following steps:

1. **Specification of Investment Objectives & Constraints:** The typical objectives sought by investors are current income, capital appreciation and safety of principal. The relative importance of those objectives should be specified. Further, the constraints arising from liquidity, time horizon, tax and special circumstances must be specified.
2. **Choice of the Asset Mix:** The most important decision in the portfolio management is the asset mix decision. Very broadly, this is concerned with the proportion of the stocks and bonds in the portfolio. The appropriate 'stock-bond' mix depends mainly on the risk tolerance and investment horizon of the investor.
3. **Formulation of Portfolio Strategy:** Once a certain asset mix is chosen, an appropriate portfolio strategy has to be formulated. Two broadly classified strategies are: an active portfolio strategy or a passive portfolio strategy. An active portfolio strategy strives to earn superior risk-adjusted return by resorting to market timing or sector adjustment or security selection or some combination of these. A passive portfolio strategy involves, on the other hand, holding a broadly diversified portfolio and maintaining a pre-defined level of risk exposure.

4. **Selection of Securities:** Generally, investors pursue an active stance with respect to security selection: for stock selection, investors commonly go by Fundamental Analysis and/or Technical Analysis. The factors that are considered in selecting bonds are yield to maturity, credit rating, term to maturity, tax shelter and liquidity.
5. **Portfolio Execution:** This is the phase of portfolio management which is mainly concerned with the implementation of Portfolio plan by actually buying or selling the securities in given amount.
6. **Portfolio Revision:** The value of portfolio as well as its composition – the relative proportion of bond and stock components – may change as stock and bond fluctuates. Of course, the fluctuation in stocks is often dominant factor underlying the change. In response to such changes, periodic rebalance of the portfolio is required. This primarily involves a shift from stocks from bonds or vice-versa. In addition, it may call for sector rotation as well as security switches.
7. **Portfolio Evaluation:** The performance of the portfolio should be evaluated periodically. The key dimensions of portfolio performance evaluation risk and return and the key issue is whether the portfolio return is commensurate with its risk exposure. Such a preview may provide useful feedback to improve quality of the portfolio management process on a continuing basis.

Common Errors in Portfolio Management

Investors appear to be prone to the following errors in managing their investments:

- Inadequate comprehension of risk and return.
- Vaguely formulated Investment policy.
- Naïve extrapolation of the past.
- Cursory decision-making.
- Simultaneous switching.
- Misplaced love for cheap stocks.
- Over-diversification & under-diversification.
- Buying shares of familiar companies.
- Wrong attitude towards losses & profits.
- Tendency to speculate.

Inadequate Comprehension of Risk and Return

What returns can one expect from different investment? What are the risks associated with these investments? Answers to these questions are crucial before you invest. Yet investors often have nebulous ideas about risks and returns. Many investors have unrealistic and exaggerated expectations from investments, in particular from equity shares and convertible debentures. One often comes across investors who that they hope to earn a return of 25% to 30% per year with virtually no risk exposure

or even double their investment in a year or so. They have apparently been misled by one or more of the following:

- Tall and Unjustified claim made by people with vested interest.
- Exceptional performance of some portfolio they have seen or managed, which may be attributable to the fortuitous factors.
- Promises made by tipsters and others.

In most of the cases, such expectations reflect the investor's naiveté and gullibility.

By setting unrealistic goals, investors may do precisely the things that give poor results. They may churn their portfolio too frequently; they may buy dubious stories from the Dalal Street; they may pay huge premium for speculative and fashionable shares; they may discard sound companies because of temporary stagnation in earnings; they may try to outguess short term market swings.

Vaguely Formulated Investment policy

Often investors do not clearly spell out their risk disposition and investment policy. This tends to create confusion and impairs the quality of investment decisions. Ironically, conservative investor turn aggressive when the bull market is near its peak in the hope of reaping a bonanza; likewise in the wake of sharp losses infected by a bear market. Aggressive investor turns unduly cautious and overlooks opportunities before them. Naess puts it this way: "The fear of losing capital when the prices are low and declining and the greed for more capital gains when the prices are rising, are probably, more than any other factors, responsible for poor performances". If you know what your risk attitude is and why you are investing, you will learn how to invest well. A well articulated investment policy, adhered to consistently over a period of time, saves a great deal of disappointment.

Naïve Extrapolation of the Past

Investors generally believe in a simple extrapolation of past trends and events and do not effectively incorporate changes into expectations. As Aurther Zeikel says:

"People generally and investors particularly, fail to appreciate the working of the countervailing forces; change and momentum are largely misunderstood concept. Most investor tends to cling to the course to which they are currently committed, especially at turning points".

The apparent comfort provided by extrapolation too far, however, is dangerous. As Peter Bernstein says:

"Momentum causes things to run further and longer than we expect. The very familiarity of a force in motion reduces our ability to see things when it is losing its momentum. Indeed, that is why extrapolation is present into the future so frequently turns out to be the genesis of an embarrassing forecast".

Cursory Decision Making

Investment decision-making is characterized by a great deal of cursoryness. Investors tend to:

- Base their decision on partial evidence, unreliable hearsay or casual tips given by brokers, friends and others.

- Cavalierly brush aside various kinds of investment risks (market risk, business risk and interest rate risk) as greed overpowers them.
- Uncritically follow others because of the temptation to ride the bandwagon or lack of confidence in their own judgment.

Simultaneous Switching

When investors switch over from one stock to another, they often buy and sell simultaneously. For example, an investor may sell stock A and simultaneously buy stock B. such actions assume that the right time for selling stock A is also the right time for buying stock B. this may not often be so. While it may be the right time to sell stock A but might not be the right time to buy B and vice-versa. Hence when you contemplate switching you should first sell (if you feel it is the right time to do so) or buy and make the other deal at the appropriate time.

Misplaced Love for Cheap Stocks

Investors often have a weakness for stocks, which look apparently cheap. This is revealed in the following behaviour:

- They buy a stock that is on its way down because somehow a falling share looks a good bargain.
- They tend to average down; this means they buy more of the same stock when its prices fall in a bid to lower their average price.
- They like to buy a stock that is quoting low as they feel comforted when they buy 1000 shares of a company that is quoting at Rs. 10 rather than 100 shares of a company that is quoting at Rs. 100.

Over-Diversification and Under-Diversification

I have seen a number of individual portfolios, which are either over-diversified or under-diversified. Many individuals have portfolio consisting of thirty to sixty or even more different stocks. Managing such portfolios is such an unwieldy task. And as R. J. Jenrette puts it: "Over-diversification is probably the greatest enemy of portfolio performance. Most of the portfolios we look at have too many names. As a result the impact of a good idea is negligible".

Perhaps as common as over-diversification is under-diversification. Many individuals do not apparently understand the principle of diversification and its benefit in terms of risk reduction. A number of individual portfolios seem to be highly under-diversified, carrying an avoidable risk exposure.

Buying Shares of Familiar Companies

Investors are often tempted to buy shares of companies with which they are familiar. Medical practitioner, for example, may prefer to buy shares of Pharma companies. Perhaps they believe in the adage "A known devil is better than an unknown God" and derive psychological advantage from investing in familiar or well-known companies. Those who have such tendencies however must realize that in the stock market there is hardly any correlation between the fame of the company products and its return on the equity stocks.

Wrong Attitude towards Losses and Profit

Typically the investor has an aversion to his mistakes and cut losses short. If the price falls, contrary to his expectation at the time of purchase, he somehow hopes that it will rebound and

he can break even. He may even buy some more shares at a lower price in a bid to reduce his average price. Surprisingly, such a belief persists even when the prospect look dismal and there may a greater possibility of further decline. This perhaps arises out of a disinclination to admit mistakes. The pain of regret accompanying the realization of losses is sought to be postponed. And if the prices recovered due to favorable condition, there is a tendency to dispose of the share when its prices are more equal to the actual purchase prices, even though there may be a fair chance of further increases. The psychological relief experienced by an investor from recovering losses seems to motivate such behaviour. Put differently, the tendency is to let the losses run and cut profit short rather than to cut the losses short and let the profit run. As R. D. Naess says: "in fact, it is curious that a feeling of apprehension or fear usually accompanies the execution of any policy that proves to be sound and profitable, whereas very often the easy and comfortable action turn out to be a mistake".

Tendency to Speculate

The tendency to speculate is common, particularly when the market is buoyant and ecstatic. Try to avoid this. You may find it difficult to follow this advice. Yet in the long run you are likely to be better off if you refrain your speculative instincts.

Difference between Investor & Speculator

Investor	Speculator
Interested in long-term holding.	Interested in short-term holding.
Assume moderate risk.	Assume high risk.
Interested in dividend, interest income as well as capital gains.	Primarily interested in capital gains.
Moderate rate of return.	High rate of return
Decision to buy is made after careful analysis of the past performance	Decision to buy is based on intuitions, rumor, charts or market analysis.
Use own money	Usually borrowed money.

Three Approaches to Succeed as an Investor

There are three different ways of earning superior risk-adjusted return on the stock market. The first one is physically difficult, the second one is intellectually difficult and the third one is psychologically difficult.

Physically difficult Approach

Many investors seem to follow this approach, wittingly or unwittingly. They look at newspaper and financial periodicals to learn about new issues, they visit the offices of broker to get advice and application forms and they regularly apply in the primary market. They follow the budget announcement intently; they read CMIE reports to learn about the develop-

ments in the economy and various industrial sectors. They read investment columns by the experts, they follow developments in companies, and they solicit information from company executives, they read the columns in technical analysis and they attend seminars and conferences. In a nutshell, they apply themselves assiduously, diligently and even doggedly. They operate on the premise that if they can be a step ahead of others, they will outperform the market.

The physically difficult approach seems to have worked reasonably well for most of the investors in India since the late seventies to early nineties for three prime reasons.

1. Typically, issues in primary market have been priced very attractively.
2. The secondary market, thanks to the limited competition till almost 1991, was characterized by numerous inefficiencies that provided rewarding opportunities to the diligent investors.
3. An advancing price-earning multiple, in general, bailed out even inept investors.

Things however have changed from mid 1995. The opportunities for subscribing to the issues in the primary market have substantially dried up as companies, quite understandably, are placing securities with institutional investors at prices that are fairly close to the prevailing market prices. Likewise, the scope for earning superior returns in the secondary market has diminished as the degree of competition and efficiency is increasing, thanks to the emergence of hundreds of new institutional players (mutual funds, foreign institutional investors, merchant banking organisations, corporate bodies) and millions of new individual investors. Finally, the prospects of a fluctuating price-earning multiple seem to be greater than the prospects of a rise in the price-earnings multiple.

Intellectually Difficult Approach

Intellectually difficult approach to successful investing calls for developing a profound understanding of the nature of investments and hammering out a strategy based on superior insights. Mainly the highly talented investors, who have an exceptional ability or a rare perceptiveness or an unusual skill or a touch of clairvoyance, have followed the approach. The investors like, Benjamin Graham, John Maynard Keynes, John Templeton, Gorge Soros, Warren Buffett, Phil Fisher, Peter Lynch and others have displayed such a gift.

Benjamin Graham, widely acclaimed as father of modern security analysis, was an exceptionally gifted quantitative navigator who relied on hard financial facts and religiously applied the 'Margin of Safety' principle. John Maynard Keynes, arguably the most influential economist of 20th century, achieved considerable investment success on the basis of his sharp insights into market psychology. John Templeton had an unusual feel for bargain stocks and achieved remarkable success with the help of bargain stock investing. Warren Buffett, the most successful stock market investor of our times, is a quintessential long-term value investor. George Soros, a phenomenally successful spectator developed and applied a special insight on which he labels as the 'Reflexivity' principle. Phil Fisher, a prominent growth stock advocate, displayed a rare

The ultimate decisions to be made in investments are:

1. What securities should be held?
2. How many rupees should be allocated to each?

First, estimates are prepared of the return and the risk associated with available securities over a forward holding period. This step is known as Security Analysis. Second, risk-return estimates must be compared in order to decide how to allocate available funds among these securities on a continuing basis and this step comprises portfolio analysis, selection and management. In effect security analysis provides the necessary input for analyzing and selecting portfolios.

Security analysis is built around the idea that investors are concerned with two principle properties inherent in securities; the return that can be expected from holding a security, and the risk that the return that is achieved will be less than the return that was expected.

Security Return

Investors want to maximize expected returns subjected to their tolerance for risk. Return is the motivating force and the principle reward in the investment process and it is the key method available to the investor in the comparing alternative investments. You need to distinguish between *Realized Return* and *Expected Return*.

Realized return is after the factual return – return that was earned or that could have been earned. Realized return is always a history. Expected return is the return from an asset that an investor anticipates they will earn over some future period. It is a predicted return. It may or may not occur. Investor should be willing to purchase an asset, if the expected return is adequate but they must understand that their expectation may not materialized.

Elements in Return

Return on a typical investment consists of two components. The basic component is the periodic cash receipt (or income) on the investment, either in the form of interest and dividend. The second component is the change in the price of the asset – commonly called the capital gains or losses. This element of return is the difference between the purchase price and the price at which the asset can be or is sold; therefore it can be a capital gain or loss.

The income from an investment consists of one or more cash payments paid at specified interval of time. Interest payments on most bonds are paid semiannually, whereas dividends on common stocks are paid quarterly. The distinguishing feature of these payments is that they are paid in cash by the issuer to the holder of the asset.

The term *Yield* is often used in connection with this component of return. Yield refers to the income component in relation to some price for a security. For our purpose the price that is

relevant is the purchase price of the security. The yield on a Rs. 1000 par value, 6% coupon bond purchased for Rs. 950 is 6.31% (60/950). The yield on a common stock paying Rs. 2 in dividends per year and purchased for Rs. 50 per share is 4%. One must remember that yield is not, for most purposes, the proper measure of return from a security. The capital gain or loss must also be considered.

Total return = Income + Price change (+/-)

This equation is a conceptual statement for total return. The important point is that a security's total return consists of the sum of two components, income and price change. Note that either component can be zero for a given security over any given time period. A bond purchased at par and held to maturity provides a stream of income in the form of interest payments. A bond purchased for Rs. 800 and held to maturity provides both income and a price change. The purchase of a non-dividend paying stock that is sold six months later produces either a capital gain or a capital loss, but no income.

Return Measurement

The correct measurement must incorporate both income and price change into a total return. Returns across time or from different securities can be measured and compared using the total return concept. The total return for a given holding period relates all the cash flows received by an investor during any designated time period to the amount of money invested in the asset. It is defined as

$$\text{Total Return} = \frac{\text{Cash Payment Received} + \text{Price Changes over the Period}}{\text{Purchase Price of the Asset}}$$

The price change over the period is the difference between the beginning (or purchase) price and the ending (or sales) price. This number can be either positive (sales price exceeds purchase price) or negative (purchase price exceeds sales price)

Return Applications

As an illustration of the calculation and use of total returns, consider following table, which shows the S&P 500 Stock Index average for 1960-89. Included in the table are year-end values for the index and dividends on the index, which permit calculating capital gains and losses, and dividends on the index permits determination of the income component of total return. The total returns for each year can be calculated as shown at the bottom of the table. In 1981 the S&P had a total return of -4.85 percent. In 1989, in contrast, the same market index showed a total return of 31.23 percent.

The total return is an acceptable measure of return for a specified period of time. For example, investing in a particular stock for ten years or a different stock in each of ten years could result in 10 total returns, which must be described mathematically.

TABLE
S&P 500 Composite Index Total
Returns and
Dividends in Index Form, 1960-89

YEAR	INDEX* [YEAR-END]	DIVIDEND	Total RETU
1960	58.11	1.95	28.40
1961	71.55	2.02	26.60
1962	63.10	2.13	-8.83
1963	75.02	2.28	22.50
1964	84.75	2.50	16.30
1965	92.43	2.72	12.27
1966	80.33	2.87	-9.99
1967	96.47	2.92	23.73
1968	103.86	3.07	10.84
1969	92.06	3.16	-8.32
1970	92.15	3.14	3.51
1971	102.09	3.07	14.12
1972	118.05	3.15	18.72
1973	97.55	3.38	-14.50
1974	68.56	3.60	-26.03
1975	90.19	3.68	36.92
1976	107.46	4.05	23.64
1977	95.10	4.67	-7.16
1978	96.11	5.07	6.39
1979	107.94	5.70	18.24
1980	135.76	(j.16	31.48
1981	122.55	6.63	-485
1982	140.64	6.87	20.37
1983	164.93	7.09	22.31
1984	167.24	7.53	5.97
1985	211.28	7.90	31.06
1986	242.17	8.28	18.54
1987	247.08	8.81	5.67
1988	277.72	9.73	16.34
1989	353.40	11.05	31.23

*1941 - 43 = 10

1966: $\frac{(80.33 - 92.43) + 2.87}{92.43} = -9.99\%$

Risk in a Traditional Sense

Risk in holding securities is generally associated with the possibility that realized returns will be less than the returns that were expected. The source of such disappointment is the failure of dividends (interest) and/or the security's price to materialize as expected.

Forces that contribute to variations in return-price or dividend (interest)-constitute elements of risk. Some influences are external to the firm, cannot be controlled, and affect large numbers of securities. Other influences are internal to the firm and are controllable to a large degree. In investments, those forces that are uncontrollable, external, and broad in their effect are called *sources of systematic risk*. Conversely, controllable,

internal factors somewhat peculiar to industries and/or firms are referred to as *sources of unsystematic risk*.

The words *risk* and *uncertainty* are used interchangeably. Technically, their meanings are different. Risk suggests that a decision maker knows the possible consequences of a decision and their relative likelihoods at the time he makes that decision. Uncertainty, on the other hand, involves a situation about which the likelihood of the possible outcomes is not known.

Systematic risk refers to that portion of total variability in return caused by factors affecting the prices of all securities. Economic, political, and sociological changes are sources of systematic risk. Their effect is to cause prices of nearly all individual common stock and/or all individual bonds to move together in the same manner. For example, if the economy is moving toward a recession and corporate profits shift downward, stock prices play decline across a broad front. On the average, 50 percent of the variation in a stock's price can be explained by variation in the market index. In other words, about one-half the total risk in an average common stock is systematic risk.

Unsystematic risk is the portion of total risk that is unique to a firm or industry. Factors such as management capability, consumer preferences, and labor strikes cause systematic variability of returns in a firm. Unsystematic factors are largely independent of factors affecting securities markets in general. Because these factors affect one firm, they must be examined for each firm.

Systematic Risk

Market Risk

Finding stock prices falling from time to time while a company's earnings are rising, and vice versa, is not uncommon. The price of stock may fluctuate widely within a short span of time even though earnings remain unchanged. The causes of this phenomenon are varied, but it is mainly due to change in investors' attitudes toward equities in general, or toward certain types or groups of securities in particular. Variability in return on most common stocks that is due to basic sweeping changes in investor expectations is referred to as *market risk*.

Market risk is caused by investor reaction to tangible as well as intangible events. Expectations of lower corporate profits in general may cause the larger body of common stocks to fall in price. Investors are expressing their judgment that too much is being paid for earnings in the light of anticipated events. The basis for the reaction is a set of real, tangible events-political, social, or economic.

Intangible events are related to market psychology. Market risk is usually touched off by a reaction to real events, but the emotional instability of investors acting collectively leads to a snowballing overreaction. The initial decline in the market can cause the fear of loss to grip investors, and a kind of herd instinct builds as all investors make for the exit. These reactions to reactions frequently culminate in excessive selling, pushing prices down far out of line with fundamental value. With a trigger mechanism such as the assassination of a politician, the threat of war, or an oil shortage, virtually all stocks are adversely affected. Like-wise, stocks in a particular industry group can be hard hit when the industry goes "out of fashion."

Interest Rate Risk

Interest-rate risk refers to the uncertainty of future market values and of the size of future income, caused by fluctuations in the general level of interest rates.

The root cause of interest-rate risk lies in the fact that, as the rate of interest paid on government securities rises or falls, the rates of return demanded on alternative investment vehicles, such as stocks and bonds issued in the private sector, rise or fall. In other words, as the cost of money changes for nearly risk-free securities, the cost of money to more risk-prone issuers (private sector) will also change.

The direct effect of increases in the level of interest rates is to cause security prices to fall across a wide span of investment vehicles. Similarly, falling interest rates precipitate price markups on outstanding securities.

In addition to the direct, systematic effect on bonds, there are indirect effects on common stocks. First, lower or higher interest rates make the purchase of stocks on margin more or less attractive. Higher interest rates, for example, may lead to lower stock prices because of a diminished demand for equities by speculators who use margin. Ebullient stock markets are at times propelled to some excesses by margin buying when interest rates are relatively low.

Second, many firms such as public utilities finance their operations quite heavily with borrowed funds. Others, such as financial institutions, are principally in the business of lending money. As interest rates advance, firms with heavy doses of borrowed capital find that more of their income goes toward paying interest on borrowed money. This may lead to lower earnings, dividends, and share prices. Advancing interest rates can bring higher earnings to lending institutions whose principal revenue source is interest received on loans. For these firms, higher earnings could lead to increased dividends and stock prices.

Purchasing Power Risk

Market risk and interest-rate risk can be defined in terms of uncertainties as to the amount of current rupees to be received by an investor. *Purchasing-power risk* is the uncertainty of the purchasing power of the amounts to be received. In more everyday terms, purchasing-power risk refers to the impact of inflation or deflation on an investment.

If we think of investment as the postponement of consumption, we can see that when a person purchases a stock, he has foregone the opportunity to buy some good or service for as long as he owns the stock. If, during the holding period, prices on desired goods and services rise, the investor actually loses purchasing power. Rising prices on goods and services are normally associated with what is referred to as *inflation*. Falling prices on goods and services are termed *deflation*. Both inflation and deflation are covered in the all-encompassing term *purchasing-power risk*. Generally, purchasing-power risk has come to be identified with inflation (rising prices); the incidence of declining prices in most countries has been slight.

Rational investors should include in their estimate of expected return an allowance for purchasing-power risk, in the form of an expected annual percentage change in prices. If a cost-of-

living index begins the year at 100 and ends at 103, we say that the rate of increase (inflation) is 3 percent $[(103-100)/100]$. If from the second to the third year, the index changes from 103 to 109; the rate is about 5.8 percent $[(109-103)/103]$.

Just as changes in interest rates have a systematic influence on the prices of all securities, both bonds and stocks, so too do anticipated purchasing-power changes manifest themselves. If annual changes in the consumer price index or other measure of purchasing power have been averaging steadily around 3.5 percent, and prices will apparently spurt ahead by 4.5 percent over the next year, required rates of return will adjust upward. This process will affect government and corporate bonds as well as common stocks.

Market, purchasing power, and interest-rate risk are the principle sources of systematic risk in securities; but we should also consider another important category of security risks—unsystematic risks.

Unsystematic Risk

Unsystematic risk is that portion of total risk that is unique or peculiar to a firm or an industry, above and beyond those affecting securities markets in general. Factors such as management capability, consumer preferences, and labor strikes can cause unsystematic variability of returns for a company's stock. Because these factors affect one industry and/or one firm, they must be examined separately for each company.

The uncertainty surrounding the ability of the issuer to make payments on securities stems from two sources: (1) the operating environment of the business, and (2) the financing of the firm. These risks are referred to as business risk and financial risk, respectively. They are strictly a function of the operating conditions of the firm and the way in which it chooses to finance its operations.

Business Risk

Business risk is a function of the operating conditions faced by a firm and the variability these conditions inject into operating income and expected dividends. In other words, if operating earnings are expected to increase 10 percent per year over the foreseeable future, business risk would be higher if operating earnings could grow as much as 14 percent or as little as 6 percent than if the range were from a high of 11 percent to a low of 9 percent. The degree of variation from the expected trend would measure business risk.

Business risk can be divided into two broad categories: external and internal. *Internal business risk* is largely associated with the efficiency with which a firm conducts its operations within the broader operating environment imposed upon it. Each firm has its own set of internal risks, and the degree to which it is successful in coping with them is reflected in operating efficiency.

To a large extent, *external business risk* is the result of operating conditions imposed upon the firm by circumstances beyond its control. Each firm also faces its own set of external risks, depending upon the specific operating environmental factors with which it must deal. The external factors, from cost of money to defense-budget cuts to higher tariffs—to a downswing in the business cycle, are far too numerous to list in detail, but the most pervasive external risk factor is probably the business

cycle. The sales of some industries (steel, autos) tend to move in tandem with the business cycle, while the sales of others move counter cyclically (housing). Demographic considerations can also influence revenues through changes in the birthrate or the geographical distribution of the population by age, group, race, and so on. Political policies are a part of external business risk; gov-ernment policies with regard to monetary and fiscal matters can affect revenues through the effect on the cost and availability of funds. If money is more expen-sive, consumers who buy on credit may postpone purchases, and municipal gov-ernments may not sell bonds to finance a water-treatment plant. The impact upon retail stores, television manufacturers, and producers of water-purification sys-tems is clear.

Financial Risk

Financial risk is associated with the way in which a company finances its activities. We usually gauge financial risk by looking at the capital structure of a firm. The presence of borrowed money or debt in the capital structure creates fixed pay-ments in the form of interest that must be sustained by the firm. The presence of these interest commitments - fixed-interest payments due to debt or fixed-divi-dend payments on preferred stock-causes the amount of residual earnings avail-able for common-stock dividends to be more variable than if no interest payments were required. Financial risk is avoidable risk to the extent that managements have the freedom to decide to borrow or not to borrow funds. A firm with no debt fi-nancing has no financial risk.

By engaging in debt financing, the firm changes the characteristics of the earnings stream available to the common-stock holders. Specifically, the reliance on debt financing, called *financial leverage*, has at least three important effects on com-mon-stock holders.” Debt financing (1) increases the variability of their re-turns, (2) affects their expectations concerning their returns, and (3) increases their risk of being ruined.

Assigning Risk Allowances (Premiums)

One way of quantifying risk and building a required rate of return (r), would be to express the required rate as comprising a risk less rate plus compensation for individual risk factors previously enunciated, or as:

$$r = i + p + b + f + m + o$$

Where:

i = real interest rate (risk less rate)

p = purchasing-power-risk allowance

b = business-risk allowance

f = financial-risk allowance

m = market-risk allowance

o = allowance for “other” risk-

The first step would be to determine a suitable risk less rate of interest. Unfor-tunately, no investment is risk-free, The return on Treasury bills or an insured savings account, whichever is relevant to an individual investor, can be used as an approxi-mate risk less rate. Savings accounts possess purchasing-power risk and are subject to interest-rate risk of income but not principal government bills are subject to interest-rate risk of principal. The risk less rate might by 8 percent.

To quantify the separate effects of each type of systematic and unsystematic risk is difficult because of overlapping effects and the sheer complexity involved.

Stating Predictions “Scientifically”

Security analysts cannot be expected to predict with certainty whether a stock’s price will increase or decrease or by how much. The amount of dividend income may be subject to more or less uncertainty than price in the estimating process. The reasons are simple enough. Analysts cannot understand political and socioeco-nomic forces completely enough to permit predictions that are beyond doubt or error.

This existence of uncertainty does not mean that security analysis is value-less. It does mean that analysts must strive to provide not only careful and rea-sonable estimates of return but also some measure of the degree of uncertainty associated with these estimates of return. Most important, the analyst must be prepared to quantify the risk that a given stock will fail to realize its expected return.

The quantification of risk is necessary to ensure uniform interpretation and comparison. Verbal definitions simply do not lend themselves to analysis. A deci-sion on whether to buy stock A or stock B, both of which are expected to return 10 percent, is not made easy by the mere statement that only a “slight” or “minimal” likelihood exists that the return on either will be less than 10 percent. This sort of vagueness should be avoided. Although whatever quantitative measure of risk is used will be at most only a proxy for true risk, such a measure provides analysts with a description that facilitates uniform communication, analysis, and ranking.

Pressed on what he meant when he said that stock A would have a return of 10 percent over some holding period, an analyst might suggest that 10 percent is, in a sense, a “mid-dling” estimate or a “best guess.” In other words, the return could be above, below, or equal to 10 percent. He might express the degree of confidence he has in his estimate by saying that the return is “very likely” to be between 9 and 11 percent, or perhaps between 6 and 14 percent.

A more precise measurement of uncertainty about these predictions would be to gauge the extent to which actual return is likely to differ from predicted re-turn-that is, the dispersion around the expected return. Suppose that stock A, in the opinion of the analyst, could provide returns as follows:

Return (%)	Likelihood
7	1 chance in 20
8	2 chance in 20
9	4 chance in 20
10	6 chance in 20
11	4 chance in 20
12	2 chance in 20
13	1 chance in 20

This is similar to weather forecasting. We have all heard the phrase a 2-in-10 chance of rain. This likelihood of outcome can be stated in fractional or decimal terms. Such a figure is referred to as a probability. Thus, a 2-in-10 chance is equal to $2/10$, or

0.10. A likelihood of four chances in twenty is 4/20, or 0.20. When individual events in a group of events are assigned probabilities, we have a probability distribution. The total of the probabilities assigned to individual events in a group of events must always equal 1.00 (or 10/10, 20/20, and so on). A sum less than 1.00 indicates that events have been left out. A sum in excess of 1.00 implies incorrect assignment of weights or the inclusion of events that could not occur. Let us recast our “likelihoods” into “probabilities.”

Return (%)	Probability
7	0.05
8	0.10
9	0.20
10	0.30
11	0.20
12	0.10
13	0.05

Based upon his analysis of economic, industry, and company factors, the analyst assigns probabilities subjectively. The number of different holding-period returns to be considered is a matter of his choice. In this case, the return of 7 percent could mean “between 6.5 and 7.5 percent.” Alternatively, the analyst could have specified 6.5 to 7 percent and 7 to 7.5 percent as two outcomes, rather than just 7 percent. This fine-tuning provides greater detail in prediction.

Security analysts use the probability distribution of return to specify expected return as well as risk. The expected return is the weighted average of the returns. That is, if we multiply each return by its associated probability and add the results together, we get a weighted-average return or what we call the expected average return.

Return (%) – (1)	Probability – (2)	(1) X (2)
7	0.05	0.35
8	0.10	0.80
9	0.20	1.80
10	0.30	3.00
11	0.20	2.20
12	0.10	1.20
13	0.05	0.65
	1.00	10.00%

The expected average return is 10 percent. The expected return lies at the center of the distribution. Most of the possible outcomes lie either above or below it. The “spread” of possible returns about the expected return can be used to give us a proxy of risk. Two stocks can have identical expected returns but quite different spreads, or dispersions, and thus different risks. Consider stock B:

(1)	(2)	
RETURN (%)	PROBABILITY	(1) X (2)
9	0.30	2.7
10	0.40	4.0
11	0.30	3.3
	1.00	10.0%

Stocks A and B have identical expected average returns of 10 percent. But the spreads for stocks A and B are not the same. For one thing, the range of outcomes from high to low return is wider for stock A (7 to 13). For stock B, the range is only 9 to 11. However, a wider range of outcomes does not necessarily imply greater risk; the range as a measure of dispersion ignores the relative probabilities of each of the outcomes.

The spread or dispersion of the probability distribution can also be measured by the degree of variation around the expected return. The deviation of any outcome from the expected return is:

Outcome — Expected return

Because outcomes do not have equal probabilities of occurrence, we must weight each difference by its probability:

Probability X (Outcome - Expected return)

For purposes of computing a *variance*, we will square the deviations or differences before multiplying them by the relative probabilities:

Probability X (Outcome - Expected return)²

The value of the squaring can be seen in a simple example. Assume three returns- 9, 10, and 11 percent, each equally likely to occur. The expected return is thus (9%) * 0.33 + (10%) * 0.33 = 0.10. Because 10 percent is the expected return, the other values must lie equally above and below it. If we took an average of the deviations from 10 percent, we would get:

$$\begin{aligned} \text{Weighted deviation} &= 0.33 \times (9 - 10) = -0.33 \\ &= 0.33 \times (10 - 10) = 0 \\ &= .33 \times (11 - 10) = + 0.33 \end{aligned}$$

The sum of the deviations or differences, multiplied by their respective probabilities, equals +0.33, (-.33), or zero. Squaring the differences eliminates the plus and minus signs to give us a better feel for the deviation. The *variance* is the weighted average of the squared deviations, with each weighted by its probability.

The calculation of the variance for stocks A and B is given below. The larger variation about the expected return for stock A is indicated in its variance relative to stock B (2.10 versus 0.60). Also shown is the *standard deviation*, the square root of the variance.

Calculation of Variance & Standard Deviation for Two Stocks, A and B							
Stock A				Stock B			
(Return – Expected Return) (1)	Difference Squared (2)	Probability (3)	(2) X (3)	(Return – Expected Return) (4)	Difference Squared (5)	Probability (6)	(5) X (6)
(7-10)	9	0.05	0.45				
(8-10)	4	0.10	0.40				
(9-10)	1	0.20	0.20	(9-10)	1	0.30	0.30
(10-10)	0	0.30	0.00	(10-10)	0	0.40	0.00
(11-10)	1	0.20	0.20	(11-10)	1	0.30	0.30
(12-10)	4	0.10	0.40				
(13-10)	9	0.05	0.45				
Total		1.00	2.10			1.00	0.60
Variance			2.10				0.60
Standard Deviation			1.45				0.77

In general, the expected return, variance, and standard deviation of outcomes can be shown as:

$$R = \sum_{i=1}^n P_i O_i$$

$$s^2 = \sum_{i=1}^n P_i (O_i - R)^2$$

$$s = (s^2)^{1/2}$$

Where,

R = expected return

σ^2 = variance of expected return

σ = standard deviation of expected return

P = probability

O = outcome

n = total number of different outcomes

The variability of return around the expected average is thus a quantitative description of risk. Moreover, this measure of risk is simply a proxy or surrogate for risk because other measures could be used. The total variance is the rate of return on a stock around the expected average that includes both systematic and unsystematic risk.

Risk in a Contemporary Mode

Much time and effort has been expended on developing a measure of risk and a system for using this measure in assessing returns. The two key components of that have emerged from this theoretical effort are beta, which is a statistical measure of risk, and the capital asset pricing model (CAPM), which links risk (beta) to the level of required return.

The total risk of an investment consists of two components: diversifiable and non-diversifiable risk. Diversifiable, or unsystematic, risk represents the portion of an investment's risk that can be eliminated by holding enough stocks. This risk results from uncontrollable or even random events that tend to be unique to an industry and/or a company such as management changes, labor changes, labor strikes, lawsuits, and regulatory actions. Non-diversifiable, or systematic, risk is external to an industry and/or business and is attributed to broad forces, such as war, inflation, and political and even sociological events. Such forces impact all investments and are therefore not unique to a given vehicle. The relationship between total risk, diversifiable risk, and non-diversifiable risk is given by the equation:

Total risk = Diversifiable risk + Non-diversifiable risk

Because any knowledgeable investor can eliminate diversifiable risk by holding a large enough portfolio of securities, the only relevant risk to be concerned about is non-diversifiable risk. Non-diversifiable risk is unavoidable, and each security possesses its own level of non-diversifiable risk, measured using the beta coefficient.

What Beta Means

Beta measures non-diversifiable risk. Beta shows how the price of a security responds to market forces. In effect, the more responsive the price of a security is to changes in the market, the higher will be its beta. Beta is calculated by relating the returns on a security with the returns for the market. Market return is measured by the average return of a large sample of stocks, such as the S&P CNX Nifty Stock Index. The beta for the overall market is equal to 1.00 and other betas are viewed in relation to this value.

Betas can be positive or negative. However, nearly all betas are positive and most betas lie somewhere between 0.4 and 1.9.

Investors will find beta helpful in assessing systematic risk and understanding the impact market movements can have on the return expected from a share of stock. For example, if the market is expected to provide a 10 percent rate of return over the next year, a stock having a beta of 1.80 would be expected to experience an increase in return of approximately 18 percent (1.80 x 10%) over the same period. This particular stock is much more volatile than the market as a whole.

Decreases in market returns are translated into decreasing security returns -and this is where the risk lies. In the preceding example, if the market is expected to experience a negative return 10 percent, then the stock with a beta of 1.8 should experience a 18 percent decrease in its return [1.8 times -10]. Stocks having betas of less than 1 will, of course, be less responsive to changing returns in the market, and therefore are considered less risky.

Calculating Beta

Beta measures the sensitivity degree at which company has the effectiveness according to market forces. We use co-variance theory to measure the degree of sensitivity.

Beta of a company = $\frac{\{\text{Return}_{\text{company}} - \text{Return}_{\text{Market Forces}}\}}{\text{Variance of Return on Market Index}}$

Using Beta to Estimate Return

CAPM uses beta to link formally the notions of risk and return. CAPM was developed to provide a system whereby investors are able to assess the impact of an investment in a proposed security on the risk and return of their portfolio. We can use CAPM to understand the basic risk-return tradeoffs involved in various types of investment decisions. CAPM can be viewed both as a mathematical equation and, graphically, as the security market line (SML).

Capital Asset Pricing Model

Using beta as the measure of non-diversifiable risk, the capital asset pricing model (CAPM) is used to define the required return on a security according to the following equation:

$$R_s = R_f + B_s (R_m - R_f)$$

Where:

R_s = the return required on the investment

R_f = the return that can be earned on a risk-free investment

R_m = the average return on all securities

It is easy to see that the required return for a given security increases with increases in its beta.

Application of the CAPM can be demonstrated. Assume a security with a beta of 1.2 is being considered at a time when the risk-free rate is 4 percent and the market return is expected to be 12 percent. Substituting these data into the CAPM equation, we get

$$\begin{aligned} R_s &= 4\% + [1.20 \times (12\% - 4\%)] \\ &= 4\% + [1.20 \times 8\%] \\ &= 4\% + 9.6\% = 13.6\% \end{aligned}$$

The investor should therefore require a 13.6 percent return on this investment as compensation for the non-diversifiable risk assumed, given the security's beta of 1.2. If the beta were lower, say 1.00, the required return would be 12 percent $[4\% + [1.00 \times (12\% - 4\%)]]$; and if the beta had been higher, say 1.50, the required return would be 16 percent $[4\% + [1.50 \times (12\% - 4\%)]]$. CAPM reflects a positive mathematical relationship between risk and return, since the higher the risk (beta) the higher the required return.

Evaluating Risk

In the end investors must somehow relate the risk perceived in a given security not only to return but also to their own attitudes toward risk. Thus, the evaluation process is not one in which we simply calculate risk and compare it to a maximum risk level associated with an investment offering a given return. The individual investor typically tends to want to know if the amount of perceived risk is worth taking in order to get the expected return and whether a higher return is possible for the same level of risk (or a lower risk is possible for the same level of return).

Because of differing investor preferences, specifying a general acceptable level of risk is impossible. However, most investors are assumed to be risk-averse. For the risk-averse investor, the required return increases for an increase in risk. Conversely the

risk-taking investor the required return decreases for an increase in risk. Of course, the amount of return required by each investor for a given increase in risk will differ depending upon how the investor trades risk for return—a kind of degree of risk aversion. Although in theory the risk disposition of each investor can be measured, in practice individual investors tend to accept only those risks with which they feel comfortable.

Exercise

- Identify the risk normally associated to the following:
 - Investor Panic
 - Cost of Living
 - Labor Strike
 - Increased debt-to-equity ratio
 - Product obsolescence
- Of those risks normally associated with the holding of securities
 - What three risks are commonly classified as systematic in nature?
 - What risks are most prevalent in holding common stocks?
- A stock costing Rs. 100 pays no dividend. The possible prices that the stock might sell for at year end and the probability of each are:

Year-End Price	Probability
90	0.1
95	0.2
100	0.4
110	0.2
115	0.1

- What is the expected return on stock?
 - What is the standard deviation of the stock?
- Compute the expected Return for each of the following stocks when the risk free rate 0.08 and the expected return on the market is 0.15:

Stock	Beta
Green	1.72
Blue	1.14
Black	0.76
Brown	0.44
Orange	0.03
Red	-0.79

- The following statistics result from correlating the rate of return on PepsiCo stock and the rates of return on the S&P CNX Nifty stock index:

	PepsiCo	Nifty
Average Return (%)	9.80	3.53
Total Variance	127.32	42.26
Alpha	5.87	
Beta	1.11	
Correlation	0.62	

LESSON 17

CHAPTER 10
EFFICIENT MARKET THEORY

“I’d be a bum in the street with a tin cup if the markets were efficient.”

Warren Buffett

Imagine a world in which:

1. All investors have easy costless access to currently available information about future.
2. All investors are good analyst.
3. All investors pay close attention to market prices and adjust your holdings accordingly.

In such a market a security’s price will be a good estimate of its investment value. So an efficient market can now be defined as: An (perfectly) efficient market is one in which every security’s price equals its investment value all the time.

That is each security sells for its fair value at all the times. Hence, any attempt to identify mispriced security is futile. The concept of market efficiency can be expressed in three forms – Weak form, Semi strong form and strong form.

The Initial Euphoria and Subsequent Discontentment

The EMH has provided the theoretical basis for much of the financial market research during the seventies and the eighties. In the past, most of the evidence seems to have been consistent with the EMH. Prices were seen to follow a random walk model and the predictable variations in equity returns, if any, were found to be statistically insignificant.

Even though there is considerable evidence regarding the existence of efficient markets, one has to bear in mind that there are no universally accepted definitions of crucial terms such as abnormal returns, economic value, and even the null hypothesis of market efficiency. To this list of caveats, one could add the limitations of econometric procedures on which the empirical tests are based.

The early euphoric research of the seventies was followed by a more cautioned and critical approach to the EMH in the eighties and nineties. Researchers repeatedly challenged the studies based on EMH by raising critical questions such as: Can the movement in prices be fully attributed to the announcement of events? Do public announcements affect prices at all? And what could be some of the other factors affecting price movements? For example, Roll (1988) argues that most price movements for individual stocks cannot be traced to public announcements. In their analysis of the aggregate stock market, Cutler, Poterba and Summers (1989) reach similar conclusions. They report that there is little, if any, correlation between the greatest aggregate market movement and public release of important information. More recently, Haugen and Baker (1996) in their analysis of determinants of returns in five countries conclude, “None of the factors related to sensitivities to macroeconomic variables seem to be important determinants of expected stock returns”.

Weak Form

The weak form says that the current prices stocks already fully reflected all the information contained in the historical sequence of prices. Therefore there is no benefit – as far as forecasting the future is concerned – in examining the historical sequence of prices. This form of efficient market hypothesis is also commonly known as Random-Walk theory. So, if this hypothesis is true then this is the direct replica of Technical Analysis. If there is no value in studying past values then there is no value in Technical analysis.

Semi strong Form

The semi strong form efficient-market hypothesis says that current prices of stocks not only not only reflect all informational content of historic prices but also reflect all publicly available information about the company. Furthermore, the semi strong form says that the efforts by analysts and investors to acquire and analyze public information will not yield consistently superior returns to the analyst. The publicly available information include corporate reports, corporate announcements, information regarding corporate dividend policy, balance sheet, P&L statements, forthcoming stock splits etc.

In effect, the semi strong form if the efficient market hypothesis maintains that as soon as the corporate announcement comes, immediately it gets reflected in the respective stock prices. So virtually you have no time to adjust your holdings accordingly; even if you adjust your holdings in that short span of time then there is a fair bit of probability that either you under-adjust or over-adjust. Therefore, you will not be able to develop a trading strategy based on these quick adjustments to new publicly available information.

While the semi-strong form of EMH has formed the basis for most empirical research, recent research has expanded the tests of market efficiency to include the weak form of EMH. There continues to be disagreement on the degree of market efficiency. This is exacerbated by the joint hypothesis problem. Tests of market efficiency must be based on an asset-pricing model. If the evidence is against market efficiency, it may be because the market is inefficient, or it may be that the model is incorrect.

Strong Form

The strong form efficient-market hypothesis says that current prices of stocks not only reflect all informational content of historic prices and publicly available price as in semi strong form but also reflect all privately available information about the company. But this form also is not of a great use to the investor, since most the privately available informations are market rumors. So in all, we can say that no information that is available be it public or private, can be used to earn consistently superior investment returns.

The strong form suggests that securities prices reflect all available information, even private information. Seyhun (1986, 1998) provides sufficient evidence that insiders profit from trading on information not already incorporated into prices. Hence the strong form does not hold in a world with an uneven playing field. The semi-strong form of EMH asserts that security prices reflect all publicly available information. There are no undervalued or overvalued securities and thus, trading rules are incapable of producing superior returns. When new information is released, it is fully incorporated into the price rather speedily. The availability of intra-day data enabled tests, which offer evidence of public information impacting stock prices within minutes. The weak form of the hypothesis suggests that past prices or returns reflect future prices or returns. The inconsistent performance of technical analysts suggests this form holds. However, Fama (1991) expanded the concept of the weak form to include predicting future returns with the use of accounting or macroeconomic variables.

The more general efficient market model acknowledges that the market may have some imperfections like transaction cost, information cost etc but they do not prevail to such an extent that it is possible to formulate a trading strategy on the basis of those returns that can fetch consistently abnormal returns in relation to normal equilibrium profits. Thus we see that the random-walk model represents a special, restrictive case of the efficient market model.

What the Random-walk Model Says

Our generalization of the random-walk model says that previous price changes or changes in return are useless in predicting future prices or return changes. That is, if you attempt to predict future prices in absolute terms using only historical price-change information, you will not be successful.

Note that random walk says nothing more than that successive price changes are independent. This independence implies that prices on any time will on the average reflect the intrinsic value of the security. Furthermore, a stock's price deviates from its intrinsic value because, among other things, different investors evaluate the available information differently or have different insights on future prospects of the firm.

What the Random-walk Model does not Says

The random-walk model says nothing about relative price movements – that is, about selecting securities that may or may not perform better than other securities. It says nothing about decomposing price movements into such factors as *market*, *industry* or *firm factors*. It should be emphasized that the empirical results came first, to be followed by theory to explain the results, therefore any discussions about outside informations are all in reality not part of random-walk theory.

Also, there seems to be a misunderstanding by many to the effect that believing in random walk means that one must also believe that analyzing stocks and consequently stock prices, is a useless exercise, for if indeed stock prices are random, there is no reason for them to go up or down over any period of time. This is very wrong. The random-walk hypothesis is entirely consistent with upward or downward movement in price and

the hypothesis supports fundamental analysis and certainly does not attack it.

Evidence Against EMH and Alternate Theories of Market Behavior

1. Market Anomalies

The EMH became controversial especially after the detection of certain anomalies in the capital markets. Some of the main anomalies that have been identified are as follows:

- A. **The January Effect:** Rozeff and Kinney (1976) were the first to document evidence of higher mean returns in January as compared to other months. Using NYSE stocks for the period 1904-1974, they find that the average return for the month of January was 3.48 percent as compared to only 0.42 percent for the other months. Later studies document the effect persists in more recent years: Bhardwaj and Brooks (1992) for 1977-1986 and Eleswarapu and Reinganum (1993) for 1961-1990. The effect has been found to be present in other countries as well (Gultekin and Gultekin, 1983). The January effect has also been documented for bonds by Chang and Pinegar (1986). Maxwell (1998) shows that the bond market effect is strong for non-investment grade bonds, but not for investment grade bonds. More recently, Bhabra, Dhillon and Ramirez (1999) document a November effect, which is observed only after the Tax Reform Act of 1986. They also find that the January effect is stronger since 1986. Taken together, their results support a tax-loss selling explanation of the effect.
- B. **The Weekend Effect (or Monday Effect):** French (1980) analyzes daily returns of stocks for the period 1953-1977 and finds that there is a tendency for returns to be negative on Mondays whereas they are positive on the other days of the week. He notes that these negative returns are “caused only by the weekend effect and not by a general closed-market effect”. A trading strategy, which would be profitable in this case, would be to buy stocks on Monday and sell them on Friday. Kamara (1997) shows that the S&P 500 has no significant Monday effect after April 1982, yet he finds the Monday effect undiminished from 1962-1993 for a portfolio of smaller U.S. stocks. Internationally, Agrawal and Tandon (1994) find significantly negative returns on Monday in nine countries and on Tuesday in eight countries, yet large and positive returns on Friday in 17 of the 18 countries studied. However their data do not extend beyond 1987. Steeley (2001) finds that the weekend effect in the UK has disappeared in the 1990s.
- C. **Other Seasonal Effects:** Holiday and turn of the month effects have been well documented over time and across countries. Lakonishok and Smidt (1988) show that US stock returns are significantly higher at the turn of the month, defined as the last and first three trading days of the month. Ariel (1987) shows that returns tend to be higher on the last day of the month. Cadsby and Ratner (1992) find similar turn of month effects in some countries and not in others. Ziemba (1991) finds evidence of a turn of month effect for Japan when turn of month is defined as the last five and first two trading days of the month. Hensel and Ziemba (1996) and Kunkel and Compton (1998) show how

abnormal returns can be earned by exploiting this anomaly. Lakonishok and Smidt (1988), Ariel (1990), and Cadsby and Ratner (1992) all provide evidence to show that returns are, on average, higher the day before a holiday, than on other trading days. The latter paper shows this for countries other than the U.S. Brockman and Michayluk (1998) describe the pre-holiday effect as one of the oldest and most consistent of all seasonal regularities.

D. Small Firm Effect: Banz (1981) published one of the earliest articles on the 'small-firm effect', which is also known as the 'size-effect'. His analysis of the 1936-1975 period reveals that excess returns would have been earned by holding stocks of low capitalization companies. Supporting evidence is provided by Reinganum (1981) who reports that the risk adjusted annual return of small firms was greater than 20 percent. If the market were efficient, one would expect the prices of stocks of these companies to go up to a level where the risk adjusted returns to future investors would be normal. But this did not happen.

E. P/E Ratio Effect: Sanjoy Basu (1977) shows that stocks of companies with low P/E ratios earned a premium for investors during the period 1957-1971. An investor who held the low P/E ratio portfolio earned higher returns than an investor who held the entire sample of stocks. These results also contradict the EMH. Campbell and Shiller (1988) show P/E ratios have reliable forecast power. Fama and French (1995) find that market and size factors in earnings help explain market and size factors in returns. Dechow, Hutton, Meulbroek and Sloan (2001) document that short-sellers position themselves in stocks of firms with low earnings to price ratios since they are known to have lower future returns.

F. Value-Line Enigma: The Value-Line organization divides the firm into five groups and ranks them according to their estimated performance based on publicly available information. Over a five-year period starting from 1965, returns to investors correspond to the rankings given to firms. That is, higher-ranking firms earned higher returns. Several researchers (e.g. Stickel, 1985) find positive risk-adjusted abnormal (above average) returns using value line rankings to form trading strategies, thus challenging the EMH.

G. Over/Under Reaction of Stock Prices to Earnings Announcements: There is substantial documented evidence on both over and under-reaction to earnings announcements. DeBondt and Thaler (1985, 1987) present evidence that is consistent with stock prices overreacting to current changes in earnings. They report positive (negative) estimated abnormal stock returns for portfolios that previously generated inferior (superior) stock price and earning performance. This could be construed as the prior period stock price behavior overreacting to earnings developments (Bernard, 1993). Such interpretation has been challenged by Zarowin (1989) but is supported by DeBondt and Thaler (1990). Bernard (1993) provides evidence that is consistent with the initial reaction being too small, and being completed over a period of at least six months. Ou and

Penman (1989) also argue that the market underutilizes financial statement information. Bernard (1993) further notes that such anomalies are not due to research design flaws, inappropriate adjustment for risk, or transaction costs. Thus, the evidence suggests that information is not impounded in prices instantaneously as the EMH would predict.

H. Standard & Poor's (S&P) Index effect: Harris and Gurel (1986) and Shleifer (1986) find a surprising increase in share prices (up to 3 percent) on the announcement of a stock's inclusion into the S&P 500 index. Since in an efficient market only information should change prices, the positive stock price reaction appears to be contrary to the EMH because there is no new information about the firm other than its inclusion in the index.

I. Pricing of Closed-end Funds: The Investment Company Act of 1940 regards all investment funds that do not continuously issue and redeem their shares as closed-end funds. Unlike open-end funds, closed-end funds do not stand ready to sell or repurchase their securities at the net asset value per share. They float a fixed number of shares in an initial public offering and after that, investors wishing to buy or sell shares of closed-end funds must do so in the secondary market. The prices in the secondary market are dictated by the market forces of demand and supply which may not be directly linked to the fund's fundamental or net asset value. Malkiel (1977) argues that the market valuation of closed-end investment company shares reflects mispricing. As he notes, "The pricing of closed-end funds does then seem to provide an illustration of market imperfection in capital-asset pricing." [Malkiel, 847] In general, the funds have been shown to trade at a discount relative to their net asset values (See Malkiel, 1977; Brickley and Schallheim, 1985; Lee, Shleifer and Thaler, 1991). Between 1970 and 1990, the average discount on closed-end funds ranged between 5 to 20 percent. The existence of discounts clearly contradicts the value additivity principle of efficient and frictionless capital markets. Reports from the popular press have also commented on mispricing in the closed-end fund market. As Laderman notes in *Business Week* (March 1, 1993), "America's financial markets are the most efficient in the world. But there's one corner where pockets of inefficiency still exist: closed-end funds".

J. The Distressed Securities Market: While the academic literature largely suggests that stocks in the distressed securities market are efficiently priced (e.g. Ma and Weed [1986], Weinstein [1987], Fridson and Cherry [1990], Blume, Keim and Patel [1991], Cornell and Green [1991], Eberhart and Sweeney [1992], Altman and Eberhart [1994], Buell [1992]) the popular press has frequently conjectured that the stock pricing may be inefficient during the bankruptcy period. For example, the shares of Continental Airlines continued to trade on the AMEX at or about \$1.50 per share even after the company had negotiated a plan with its creditors that would provide no distribution to the pre-petition equity holders (*WSJ*, 1992). Investors have always sought superior returns in the securities market and vulture investors have

attracted a substantial amount of risk-oriented money by offering the possibility of high returns by exploiting the *apparent* pricing inefficiencies or anomalies in the market for distressed securities. As Philip Schaeffer of Robert Fleming Inc. puts it:

“Returns are attractive because of market’s abundant inefficiencies. Investors who find themselves owners of distressed securities do not understand or want to participate in the market and frequently sell at prices substantially below the investments’ cost. Distressed investing requires skills involving bankruptcy law, experience and knowledge of the bankruptcy process, and personal contacts. Consequently, the relatively small number of experienced distressed security investors has a significant advantage over other investors who do not have such expertise, knowledge and experience”. [Dalal Street Journal, 1991]

K. The Weather: Few would argue that sunshine puts people in a good mood. People in good moods make more optimistic choices and judgments. Saunders (1993) shows that the New York Stock Exchange index tends to be negative when it is cloudy. More recently, Hirshleifer and Shumway (2001) analyze data for 26 countries from 1982-1997 and find that stock market returns are positively correlated with sunshine in almost all of the countries studied. Interestingly, they find that snow and rain have no predictive power!

These phenomena have been rightly referred to as anomalies because they cannot be explained within the existing paradigm of EMH. It clearly suggests that information alone is not moving the prices. [Roll, 1984] These anomalies have led researchers to question the EMH and to investigate alternate modes of theorizing market behavior. Such a development is consistent with Kuhn’s (1970) route for progress in knowledge. As he states, “Discovery commences with the awareness of anomaly, i.e., with the recognition that nature has somehow violated the paradigm induced expectations...” [Kuhn, 52]

2. Volatility Tests, Fads, Noise Trading

The greatest stir in academic circles has been created by the results of volatility tests. These tests are designed to test for rationality of market behavior by examining the volatility of share prices relative to the volatility of the fundamental variables that affect share prices. The first two studies applying these tests were by Shiller (1981) and LeRoy and Porter (1981). Shiller tests a model in which stock prices are the present discounted value of future dividends. LeRoy and Porter use a similar analysis for the bond market. These studies reveal significant volatility in both the stock and bond markets. Shiller infers fluctuations in actual prices greater than those implied by changes in the fundamental variables affecting the prices as being the result of fads or waves of optimistic or pessimistic market psychology. Schwert (1989) tests for a relation between stocks return volatility and economic activity. He finds increased volatility in financial asset returns during recessions, which might suggest that operating leverage increases during recessions. He also finds increased volatility in periods where the proportion of new debt issues to new equity issues is larger

than a firm’s existing capital structure. This may be interpreted as evidence of financial leverage affecting volatility. However neither of these factors plays a dominant role in explaining the time-varying volatility of the stock market. The volatility tests of Shiller spawned a series of articles. The results of excess volatility in the stock market have been confirmed by Cochrane (1991), West (1988), Campbell and Shiller (1987), Mankiw, Romer, and Shapiro (1985). The tests have been criticized, largely on methodological grounds, by Ackert and Smith (1993), Marsh and Merton (1986), Kleidon (1986) and Flavin (1983).

The empirical evidence provided by volatility tests suggests that movements in stock prices cannot be attributed merely to the rational expectations of investors, but also involve an irrational component. The irrational behavior has been emphasized by Shleifer and Summers (1990) in their exposition of noise trading.

Shleifer and Summers (1990) posit that there are two types of investors in the market: (a) rational speculators or arbitrageurs who trade on the basis of information and (b) noise traders who trade on the basis of imperfect information. Since noise traders act on imperfect information, they will cause prices to deviate from their equilibrium values. It is generally understood that arbitrageurs play the crucial role of stabilizing prices. While arbitrageurs dilute such shifts in prices, they do not eliminate them completely. Shleifer and Summers assert that the assumption of perfect arbitrage made under EMH is not realistic. They observe two types of risk limit that arbitrage: (a) fundamental risk and (b) unpredictability of future resale price. Given limited arbitrage, they argue that securities prices do not merely respond to information but also to “changes in expectations or sentiments that are not fully justified by information.” [Shleifer and Summers, 23]

An observation of investors’ trading strategies (such as trend chasing) in the market provides evidence for decision making being guided by “noise” rather than by the rational evaluation of information. Further support is provided by professional financial analysts spending considerable resources in trying to predict both the changes in fundamentals and also possible changes in sentiment of other investors. “Tracking these possible indicators of demand makes no sense if prices responded only to fundamental news and not to investor demand. They make perfect sense, in contrast, in a world where investor sentiment moves prices and so predicting changes in this sentiment pays.” [Shleifer and Summers, 26]

Black (1986) also argues that noise traders play a useful role in promoting transactions (and thus, influencing prices) as informed traders like to trade with noise traders who provide liquidity. So long as risk is rewarded and there is limited arbitrage, it is unlikely that market forces would eliminate noise traders and maintain efficient prices.

3. Models of Human Behavior

In a market consisting of human beings, it seems logical that explanations rooted in human and social psychology would hold great promise in advancing our understanding of stock market behavior. More recent research has attempted to explain the persistence of anomalies by adopting a

psychological perspective. Evidence in the psychology literature reveals that individuals have limited information processing capabilities, exhibit systematic bias in processing information, are prone to making mistakes, and often tend to rely on the opinion of others.

The damaging attacks on the assumption of human rationality have been spearheaded by Kahneman and Tversky (1986) in their path-breaking article on prospect theory. The findings of Kahneman and Tversky have brought into question expected utility theory, which has been used descriptively and predictively, in the finance and economics literature. They argue that when faced with the complex task of assigning probabilities to uncertain outcomes, individuals often tend to use cognitive heuristics. While useful in reducing the task to a manageable proportion, these heuristics often lead to systematic biases.

Using simple decision tasks, Kahneman and Tversky are able to demonstrate consistent decision inconsistencies by manipulating the decision frame. While expected utility theory would predict that individuals would evaluate alternatives in terms of the impact on these alternatives on their final wealth position, it is often found that individuals tend to violate expected utility theory predictions by evaluating the situation in terms of gains and losses relative to some reference point. The usefulness and validity of Kahneman and Tversky's propositions have been established by several replications and extensions for situations involving uncertainty by researchers in the fields of accounting, economics, finance, and psychology. Rabin and Thaler (2001) show that expected utility theory's explanation of risk aversion is not plausible by providing examples of how the theory can be wrong and misleading. They call for a better model of describing choice under uncertainty. It is now widely agreed that the failure of expected utility theory is due to the failure to recognize the psychological principles governing decision tasks.

The literature on cognitive psychology provides a promising framework for analyzing investors' behavior in the stock market. By dropping the stringent assumption of rationality in conventional models, it might be possible to explain some of the persistent anomalous findings. For example, the observation of overreaction is consistent with the finding that subjects, in general, tend to overreact to new information (and ignore base rates). Also, agents often allow their decision to be guided by irrelevant points of reference, a phenomenon discussed under "anchoring and adjustment". Shiller (1984) proposes an alternate model of stock prices that recognizes the influence of social psychology. He attributes the movements in stock prices to social movements. Since there is no objective evidence on which to base their predictions of stock prices, it is suggested that the final opinion of individual investors may largely reflect the opinion of a larger group. Thus, excessive volatility in the stock market is often caused by social "fads" which may have very little rational or logical explanation.

Shiller (1991, ch.23) also investigates investor behavior during the October 1987 crash by surveying individual investors, institutional investors and stockbrokers. The survey results indicate that most investors traded because of price changes rather than due to news about fundamentals. There appear to have been no major economic developments at that time that

triggered the crash. He concludes that it would be wrong to interpret the crash as being due to a change in public opinion about some fundamental economic factor. Seyhun (1990) shows that the 1987 crash was a surprise to corporate insiders. Bates (1991) tests for market expectations prior to the crash by looking at S&P 500 futures options prices. Standard pricing models imply that out of the money (OTM) puts trade at a slight discount to OTM calls. However, OTM puts were, at various times in 1987, priced higher than OTM calls. This overpricing of OTM puts could only imply an expectation of market crash or increased market volatility if the market fell. The prices reveal that the market expected a crash at the beginning of 1987 or in mid-August, when in fact the market actually peaked, and that there was no expectation of a crash in the two months before October 19.

Research into investor behavior in the securities markets is rapidly expanding with very surprising results, again, results that are often counter to the notion of rational behavior. Hirshleifer and Shumway (2001) find that sunshine is strongly correlated with daily stock returns. Using a unique data set of two years of investor behavior for almost the entire set of investors from Finland, Grinblatt and Keloharju (2001) find that distance, language, and culture influence stock trades. Huberman and Regev (2001) provide an example of how and not when information is released can cause stock price reactions. They study the stock price effect of news about a firm developing a cure for cancer. Although the information had been published a few months earlier in multiple media outlets, the stock price more than quadrupled the day after receiving public attention in the *New York Times*. Although there was no new information presented, the form in which it was presented caused a permanent price rise.

The efficient market view of prices representing rational valuation of fundamental factors has also been challenged by Summers (1986), who views the market to be highly inefficient. He proposes that pricing should comprise a random walk plus a fad variable. The fad variable is modeled as a slowly mean-reverting stationary process. That is, stock prices will exercise some temporary aberrations, but will eventually return to their equilibrium price levels.

One may argue that market mechanisms may be able to correct the individual decision biases, and thus individual differences may not matter in the aggregate. However, the transition from micro behavior to macro behavior is still not well established. For example, in their study of price differences among similar consumer products, Pratt, Wise and Zeckhauser (1979) demonstrate the failure of the market to correct individual biases.

All arguments aside, the stock market crash of 1987 continues to be problematic for the supporters of EMH. Any attempt to accommodate a 22.7 percent devaluation of the stocks within the theoretical framework of EMH would be a formidable challenge. It seems reasonable to assume that the decline did not occur due to a major shift in the perceived risk or expected future dividend. The crash of 1987 provides further credence to the argument that the market includes a significant number of speculative investors who are guided by "non-fundamental"

factors. Thus, the assumption of rationality in conventional models needs to be rethought and reformulated (to conform to reality).

Keynes and EMH

The EMH and John Maynard Keynes' (1936) philosophy represent two extreme views of the stock market. EMH is built on the assumptions of investor rationality. This image is in stark contrast to Keynes' philosophy in which he pictures the stock market as a "casino" guided by "animal spirit". He argues that investors are guided by short-run speculative motives. They are not interested in assessing the present value of future dividends and holding an investment for a significant period, but rather in estimating the short-run price movements.

In the EMH, investors have a long-term perspective and return on investment is determined by a rational calculation based on changes in the long-run income flows. However, in the Keynesian analysis, investors have shorter horizons and returns represent changes in short-run price fluctuations. As Crotty (1990) notes in his comparison of Keynes, Tobin, and Minsky, stockholders are increasingly concerned with short-term gains and thus have very short-term planning horizons.

If we regard the rational decision making process of the EMH as one that is guided by a complete knowledge of factors governing the decision, it is immediately seen that the EMH is flawed. It fails to provide a realistic framework for the formation of expectations. It is difficult to argue for investor decision-making being rational under EMH, given the uncertainty factor. To make a rational decision would involve knowledge of future income flows and also the appropriate discount factor, both of which are unknowable. Like Keynes, many people would agree that few, if any, have sufficient knowledge to make it possible to forecast investment yields.

Thus, in the real world, the investor is not faced with risk (as in EMH analysis), but rather uncertainty, a factor that is given a central role by Keynes. He argues that the future is uncertain and can never be determined. He is also clear in emphasizing that uncertainty is different from probability. The difference can be illustrated with Keynes' own example. There is risk in the game of roulette where there is a known set of possible outcomes. The risk is that the player does not know which will eventuate, but it is possible to calculate the probability of each outcome occurring. There is, however, uncertainty in knowing the prospect of a future European war. While possible, there is no basis on which to form any calculable probability.

Without objective evidence on which to base their expectation of prices, it becomes intuitively appealing that individuals would base their opinions on other members of their group, an idea emphasized by Keynes. In his analogy of the stock market as a "beauty contest", Keynes notes that the goal of the investor is often to pick the girl that others would consider prettiest rather than choosing the one he/she thinks is prettiest. Keynes proposes that individuals tend to conform to the behavior of the majority or the average. What is irrational at the individual level becomes conventional and realistic in Keynesian analysis. Thus the stock market can be subject to waves of optimistic or pessimistic sentiment when no solid basis exists for such sentiment, and movements in stock prices are caused

largely by changes in the perception of ignorant speculators. He also observes that, while on the one hand, decision-making is individualistic; a significant degree of order and coherence is infused by the institutional and social structures.

Capital markets have evolved as highly 'liquid institutions' wherein individual investors can transact at will. Given that transactions occur in an uncertain environment, it is legitimate to hypothesize an element of speculation (gambling spirit) in trading. It is evident that many investors do not buy stocks for "keeps" but rather to resell them in the very near future in the hope of making a gain. Will such investors be guided primarily by changes in fundamental values? Probably not. Anecdotal evidence abounds with day trading as a prime example. While one cannot conclude that the market consists merely of speculators, it is plausible that they may form a substantial group, even with the enormous growth of institutional investors. And, if we agree with that, we will have to concede the debate to Keynes. Keynes' provocative observations such as "casino", "animal spirits", musical chair", "beauty contest", "mass psychology of ignorant speculators", made in the thirties seem to fit in very well with the stock market behavior of today.

Exercise

1. What is the connection between efficient-market hypothesis and studies of mutual fund performance?
2. What are the factors that should be considered by a portfolio manager even in an efficient market? Why would these be relevant to consider in advising a client?
3. If a firm consistently reports higher earning per share, is this evidence of a problem with the efficient-market hypothesis?
4. Must the return of all securities be equal if the stock market is efficient? Explain your answer.
5. Does the fact that small firms' risk-adjusted returns may outperform larger firms' risk-adjusted returns refute the semi-strong form of efficient-market hypothesis? Explain your answer.

Notes

LESSON 18

FUNDAMENTAL ANALYSIS

The two primary approaches of analyzing currency markets are fundamental analysis and technical analysis. Fundamentals focus on financial and economic theories, as well as political developments to determine forces of supply and demand. Technical analysis looks at price and volume data to determine if they are expected to continue into the future. Technical analysis can be further divided into 2 major forms: Quantitative Analysis: uses various statistical properties to help assess the extent of an overbought/oversold currency, Chartism: which uses lines and figures to identify recognizable trends and patterns in the formation of currency rates. One clear point of distinction between fundamentals and technical is that fundamental analysis studies the causes of market movements, while technical analysis studies the effects of market movements.

What is Fundamental Analysis

Fundamental analysis is the examination of the underlying forces that affect the well being of the economy, industry groups, and companies. As with most analysis, the goal is to derive a forecast and profit from future price movements. At the company level, fundamental analysis may involve examination of financial data, management, business concept and competition. At the industry level, there might be an examination of supply and demand forces for the products offered. For the national economy, fundamental analysis might focus on economic data to assess the present and future growth of the economy. To forecast future stock prices, fundamental analysis combines economic, industry, and company analysis to derive a stock's current fair value and forecast future value. If fair value is not equal to the current stock price, fundamental analysts believe that the stock is either over or under valued and the market price will ultimately gravitate towards fair value. Fundamentalists do not heed the advice of the random walkers and believe that markets are weak-form efficient. By believing that prices do not accurately reflect all available information, fundamental analysts look to capitalize on perceived price discrepancies.

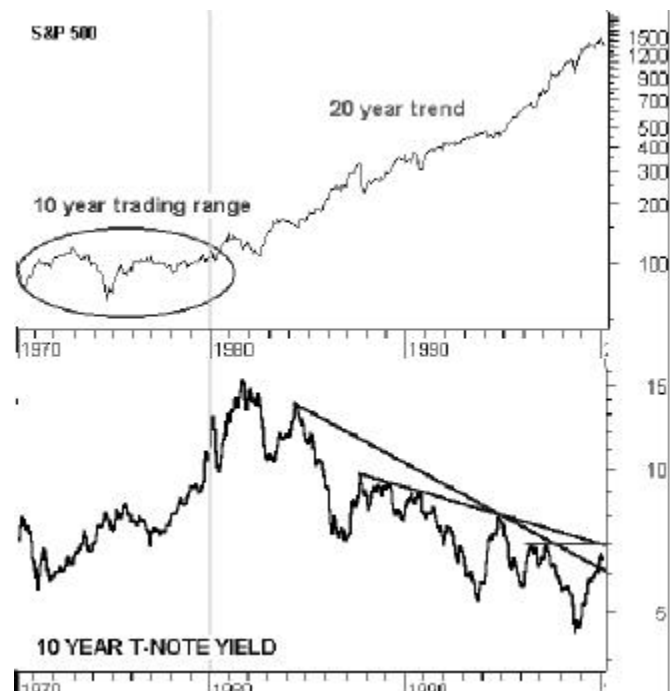
General Steps to Fundamental Evaluation

Even though there is no one clear-cut method, a breakdown is presented below in the order an investor might proceed. This method employs a top-down approach that starts with the overall economy and then works down from industry groups to specific companies. As part of the analysis process, it is important to remember that all information is relative. Industry groups are compared against other industry groups and companies against other companies. Usually, companies are compared with others in the same group. For example, a telecom operator would be compared to another telecom operator, not to an oil company.

Economic Forecast

First and foremost in a top-down approach would be an overall evaluation of the general economy. The economy is like the tide and the various industry groups and individual companies are

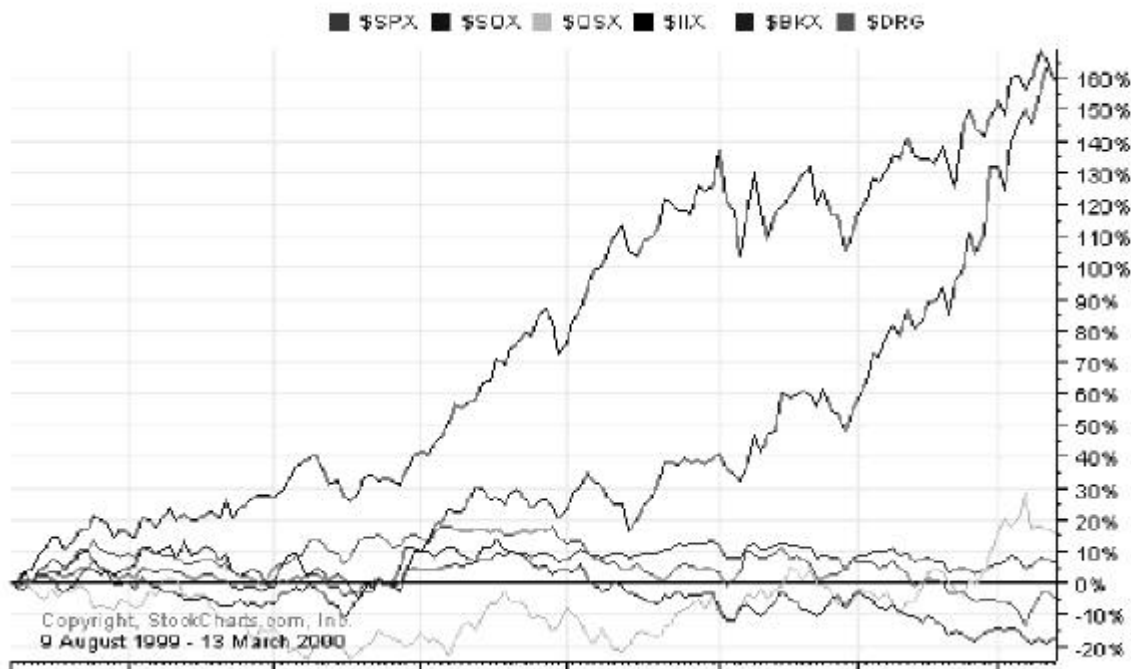
like boats. When the economy expands, most industry groups and companies benefit and grow. When the economy declines, most sectors and companies usually suffer. Many economists link economic expansion and contraction to the level of interest rates. Interest rates are seen as a leading indicator for the stock market as well. Below is a chart of the S&P 500 and the yield on the 10-year note over the last 30 years. Although not exact, a correlation between stock prices and interest rates can be seen. Once a scenario for the overall economy has been developed, an investor can break down the economy into its various industry groups.



Group Selection

If the prognosis is for an expanding economy, then certain groups are likely to benefit more than others. An investor can narrow the field to those groups that are best suited to benefit from the current or future economic environment. If most companies are expected to benefit from an expansion, then risk in equities would be relatively low and an aggressive growth-oriented strategy might be advisable. A growth strategy might involve the purchase of technology, biotech, semiconductor and cyclical stocks. If the economy is forecast to contract, an investor may opt for a more conservative strategy and seek out stable income-oriented companies. A defensive strategy might involve the purchase of consumer staples, utilities and energy-related stocks.

To assess an industry groups potential, an investor would what to consider the overall growth rate, market size, and importance to the economy. While the individual company is still important, its industry group is likely to exert just as much, or more, influence on the stock price. When stocks move, they usually move as groups; there are very few lone guns out there. Many times it is more important to be in the right industry than in the right stock! The chart below shows that relative performance of 5 sectors over a 7-month time frame. As the chart illustrates, being in the right sector can make all the difference.



Business Plan

The business plan, model or concept forms the bedrock upon which all else is built. If the plan, model or concepts stink, there is little hope for the business. For a new business, the questions may be: Does its business make sense? Is it feasible? Is there a market? Can a profit be made? For an established business, the questions may be: Is the company's direction clearly defined? Is the company a leader in the market? Can the company maintain leadership?

Management

In order to execute a business plan, a company requires top-quality management. Investors might look at management to assess their capabilities, strengths and weaknesses. Even the best-laid plans in the most dynamic industries can go to waste with bad management (AMD in semiconductors). Alternatively,

even strong management can make for extraordinary success in a mature industry (Alcoa in aluminum). Some of the questions to ask might include: How talented is the management team? Do they have a track record? How long have they worked together? Can management deliver on its promises? If management is a problem, it is sometimes best to move on.

Narrow Within the Group

Once the industry group is chosen, an investor would need to narrow the list of companies before proceeding to a more detailed analysis. Investors are usually interested in finding the leaders and the innovators within a group. The first task is to identify the current business and competitive environment within a group as well as the future trends. How do the companies rank according to market share, product position and competitive advantage? Who is the current leader and how will changes within the sector affect the current balance of power? What are the barriers to entry? Success depends on an edge, be it marketing, technology, market share or innovation. A comparative analysis of the competition within a sector will help identify those companies with an edge, and those most likely to keep it.

Company Analysis

With a shortlist of companies, an investor might analyze the resources and capabilities within each company to identify those companies that are capable of creating and maintaining a competitive advantage. The analysis could focus on selecting companies with a sensible business plan, solid management and sound financials.

Financial Analysis

The final step to this analysis process would be to take apart the financial statements and come up with a means of valuation. Below is a list of potential inputs into a financial analysis.

Accounts Payable	Good Will
Accounts Receivable	Gross Profit
Acid Ratio	Margin
Amortization	Growth
Assets - Current	Industry
Assets - Fixed	Interest Cover
Book Value	International
Brand	Investment
Business Cycle	Liabilities - Current
Business Idea	Liabilities - Long-term
Business Model	Management
Business Plan	Market Growth
Capital Expenses	Market Share
Cash Flow	
Cash on hand	

Current Ratio	Net Profit Margin
Customer Relationships	Page view Growth
Days Payable	Page views
Days Receivable	Patents
Debt	Price/Book Value
Debt Structure	Price/Earnings
Debt: Equity Ratio	PEG
Depreciation	Price/Sales
Derivatives-Hedging	Product
Discounted Cash Flow	Product
Dividend	Placement
Dividend Cover	Regulations
Earnings	R & D
EBITDA	Revenues
Economic Growth	Sector
Equity	Stock Options
Equity Risk Premium	Strategy
Expenses	Subscriber
	Growth
	Subscribers
	Supplier
	Relationships
	Taxes
	Trademarks
	Weighted Average
	Cost of Capital

There are many different valuation metrics and much depends on the industry and stage of the economic cycle. A complete financial model can be built to forecast future revenues; expenses and profits or an investor can rely on the forecast of other analysts and apply various multiples to arrive at a valuation. Some of the more popular ratios are found by dividing the stock price by a key value driver.

Ratio	Company Type
Price/Book Value	Oil
Price/Earnings	Retail
Price/Earnings/Growth	Networking
Price/Sales	B2B
Price/Subscribers	ISP or cable
Price/Lines	company
Price/Page views	Telecom
Price/Promises	Web site Biotech

This methodology assumes that a company will sell at a specific multiple of its earnings, revenues or growth. An investor may rank companies based on these valuation ratios. Those at the high end may be considered overvalued, while those at the low end may constitute relatively good value.

Conclusion

After all is said and done, an investor will be left with a handful of companies that stand out from the pack. Over the course of the analysis process, an understanding will develop of which companies stand out as potential leaders and innovators. In addition, other companies would be considered laggards and unpredictable. The final step of the fundamental analysis process is to synthesize all data, analysis and understanding into actual picks.

Strengths of Fundamental Analysis

Long Term Trends

Fundamental analysis is good for long-term investments based on long-term trends, very long-term. The ability to identify and predict long-term economic, demographic, technological or consumer trends can benefit patient investors who pick the right industry groups or companies.

Value Spotting

Sound fundamental analysis will help identify companies that represent good value. Some of the most legendary investors think long-term and value. Graham and Dodd, Warren Buffett and John Neff are seen as the champions of value investing. Fundamental analysis can help uncover companies with valuable assets, a strong balance sheet, stable earnings and staying power.

Business Acumen

One of the most obvious, but less tangible, rewards of fundamental analysis is the development of a thorough understanding of the business. After such painstaking research and analysis, an investor will be familiar with the key revenue and profit drivers behind a company. Earnings and earnings expectations can be potent drivers of equity prices. Even some technicians will agree to that. A good understanding can help investors avoid companies that are prone to shortfalls and identify those that continue to deliver. In addition to understanding the business, fundamental analysis allows investors to develop an understanding of the key value drivers and companies within an industry. Its industry group heavily influences a stock's price. By studying these groups, investors can better position themselves to identify opportunities that are high-risk (tech), low-risk (utilities), growth oriented (computer), value driven (oil), non-cyclical (consumer staples), cyclical (transportation) or income oriented (high yield).

Knowing Who's Who

Stocks move as a group. By understanding a company's business, investors can better position themselves to categorize stocks within their relevant industry group. Business can change rapidly and with it the revenue mix of a company. This happened to many of the pure Internet retailers, which were not really Internet companies, but plain retailers. Knowing a company's business and being able to place it in a group can make a huge difference in relative valuations.

Weaknesses of Fundamental Analysis

Time Constraints

Fundamental analysis may offer excellent insights, but it can be extraordinarily time consuming. Time-consuming models often produce valuations that are contradictory to the current price prevailing on Dalal Street. When this happens, the analyst basically claims that the whole street has got it wrong. This is not to say that there are not misunderstood companies out there, but it is quite rash to imply that the market price, and hence Dalal Street, is wrong.

Industry / Company Specific

Valuation techniques vary depending on the industry group and specifics of each company. For this reason, a different technique and model is required for different industries and different

companies. This can get quite time consuming and limit the amount of research that can be performed. A subscription-based model may work great for an Internet Service Provider (ISP), but is not likely to be the best model to value an oil company.

Subjectivity

Fair value is based on assumptions. Any changes to growth or multiplier assumptions can greatly alter the ultimate valuation. Fundamental analysts are generally aware of this and use sensitivity analysis to present a base-case valuation, a best-case valuation and a worst-case valuation. However, even on a worst case, most models are almost always bullish, the only question is how much so. The chart below shows how stubbornly bullish many Fundamental analysts can be.



Analyst Bias

The majority of the information that goes into the analysis comes from the company itself. Companies employ investor relations managers specifically to handle the analyst community and release information. As Mark Twain said, "there are lies, damn lies and statistics". When it comes to massaging the data or spinning the announcement, CFOs and investor relations managers are professionals. Only buy-side analysts tend to venture past the company statistics. Buy-side analysts work for mutual funds and money managers. They read the reports written by the sell-side analysts who work for the big brokers (CIBC, Merrill Lynch, Robertson Stephens, CS First Boston, Paine Weber, DLJ to name a few). These brokers are also involved in underwriting and investment banking for the companies. Even though there are Chinese Dalals in place to prevent a conflict of interest, the brokers have an ongoing relationship with the company under analysis. When reading these reports, it is important to take into consideration any biases a sell-side analyst may have. The buy-side analyst on the

other hand is analyzing the company purely from an investment standpoint for a portfolio manager. If there is a relationship with the company, it is usually on different terms. In some cases this may be as a large shareholder.

Definition of a Fair Value

When market valuations extend beyond historical norms, there is pressure to adjust growth and multiplier assumptions to compensate. If Dalal Street values a stock at 50 times earnings and the current assumption is 30 times, the analyst would be pressured to revise this assumption higher. There is an old Dalal Street adage: the value of any asset (stock) is only what someone is willing to pay for it (current price). Just as stock prices fluctuate, so too will growth and multiplier assumptions. Are we to believe Dalal Street and the stock price, or the analyst and the assumptions?

It used to be that free cash flow or earnings were used with a multiplier to arrive at a fair value. In 1999, the S&P 500 typically sold for 28 times free cash flow.

However, because so many companies were and are losing money, it has become popular to value a business as a multiple of its revenues. This would seem to be OK, except that the multiple was higher than the PE of many stocks! Some companies were considered bargains at 30 times revenues.

Conclusion

Fundamental analysis can be valuable, but it should be approached with caution. If

you are reading research written by a sell-side analyst, it is important to be familiar with the analyst behind the report. We all have personal biases and every analyst has some sort of bias. There is nothing wrong with this and the research can still be of great value. Learn what the ratings mean and the track record of an analyst before jumping off the deep end. Corporate statements and press releases offer good information, but should be read with a healthy degree of skepticism to separate the facts from the spin. Press releases don't happen by accident and are an important PR tool for companies. Investors should become skilled readers to weed out the important information and ignore the hype.

LESSON 19 TECHNICAL ANALYSIS

Technical analysis is the examination of past price movements to forecast future price movements. Technical analysts are sometimes referred to as chartists because they rely almost exclusively on charts for their analysis.

monthly price data and last a few hours or many years. In addition, some technical analysts include volume or open interest figures with their study of price action.

The Basis of Technical Analysis

At the turn of the century, the Dow theory laid the foundations for what was later to become modern technical analysis. Dow Theory was not presented as one complete amalgamation, but rather pieced together from the writings of Charles Dow over several years. Of the many theorems put forth by Dow, three stand out:

1. Price Discounts Everything
2. Price Movements are not Totally Random
3. What is More Important than Why?



Technical analysis is applicable to stocks, indices, commodities, futures or any tradable instrument where the price is influenced by the forces of supply and demand. Price refers to any combination of the open, high, low or close for a given security over a specific timeframe. The time frame can be based on intraday (tick, 5-minute, 15-minute or hourly), daily, weekly or

with the price set by such an impressive array of people with impeccable credentials. Technical analysis utilizes the information captured by the price to interpret what the market is saying with the purpose of forming a view on the future.

Price Discounts Everything: This theorem is similar to the strong and semi-strong forms of market efficiency. Technical analysts believe that the current price fully reflects all information. Because all information is already reflected in the price, it represents the fair value and should form the basis for analysis. After all, the market price reflects the sum knowledge of all participants, including traders, investors, portfolio managers, buy-side analysts, sell-side analysts, market strategist, technical analysts, fundamental analysts and many others. It would be folly to disagree

Prices Movements are not Totally Random: Most technicians agree that prices trend. However, most technicians also acknowledge that there are periods when prices do not trend. If prices were always random, it would be extremely difficult to make money using technical analysis. Jack Schwager states:

“One way of viewing it is that markets may witness extended periods of random fluctuation, interspersed with shorter periods of nonrandom behavior. The goal of the chartist is to identify those periods (i.e. major trends).”

A technician believes that it is possible to identify a trend, invest or trade based on the trend and make money as the trend unfolds. Because technical analysis can be applied to many different timeframes, it is possible to spot both short-term and long-term trends. The IBM chart illustrates Schwager’s view on the nature of the trend. The broad trend is up, but it is also interspersed with trading ranges. In between the trading ranges are smaller up trends within the larger up trend. The up trend is renewed when the stock breaks above the trading range. A downtrend begins when the stock breaks below the low of the previous trading range.

What is more Important than Why: “A technical analyst knows the price of everything, but the value of nothing”. Technicians, as technical analysts are called, are only concerned with two things:

What is the current price?

What is the history of the price movement?

The price is the end result of the battle between the forces of supply and demand for the company’s stock. The objective of analysis is to forecast the direction of the future price. By focusing on price and only price, technical analysis represents a direct approach. Fundamentalists are concerned with why the price is what it is. For technicians, the why portion of the equation is too broad and many times the fundamental reasons given are highly suspect. Technicians believe it is best to concentrate on what and never mind why. Why did the price go up? It is simple, more buyers (demand) than sellers (supply). After all, the value of any asset is only what someone is willing to pay for it. Who needs to know why?

General Steps to Technical Evaluation

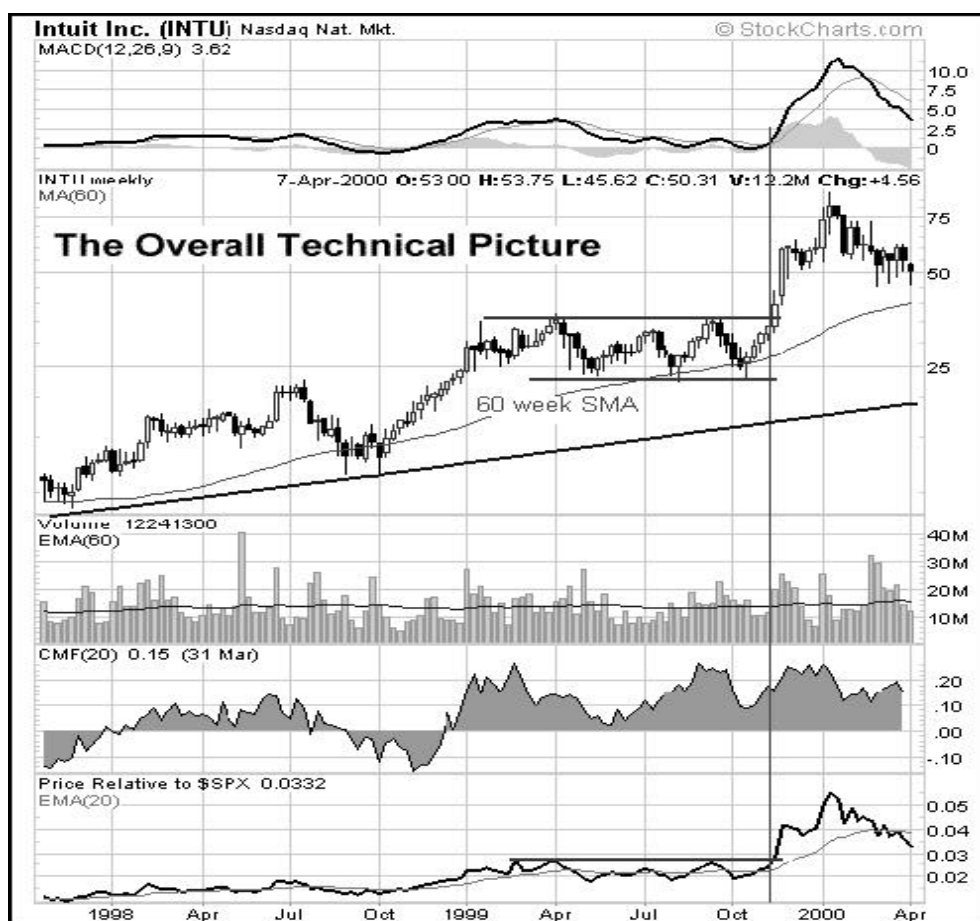
Many technicians employ a top-down approach that begins with broad-based macro analysis. The larger parts are then broken down to base the final step on a more focused/micro perspective. Such an analysis might involve three steps:

1. Broad market analysis through the major indices
2. Sector analysis to identify the strongest and weakest groups within the broader market.
3. Individual stock analysis to identify the strongest and weakest stocks within select groups.

The beauty of technical analysis lies in its versatility. Because the principles of technical analysis are universally applicable, each of the analysis steps above can be performed using the same theoretical background. The technical principles of support, resistance, trend, trading range and other aspects can be applied to any chart.

Chart Analysis

Technical analysis can be as complex or as simple as you want it. The example below represents a simplified version. Since we are interested in buying stocks, the focus will be on spotting bullish situations.



Overall Trend: The first step is to identify the overall trend. This can be accomplished with trend lines, moving averages or peak/trough analysis. As long as the price remains above its uptrend line, selected moving averages or previous lows, the trend will be considered bullish.

Support: Areas of congestion or previous lows below the current price mark support levels. A break below support would be considered bearish.

Resistance: Areas of congestion and previous highs above the current price mark the resistance levels. A break above resistance would be considered bullish.

Momentum: Momentum is usually measured with an oscillator such as MACD. If MACD is above its 9-day EMA (exponential moving average) or positive, then momentum will be considered bullish, or at least improving.

Buying/Selling Pressure: For stocks and indices with volume figures available, an indicator that uses volume is used to measure buying or selling pressure. When Chaikin Money Flow is above zero, buying pressure is dominant. Selling pressure is dominant when it is below zero.

Relative Strength: The price relative is a line formed by dividing the security by a benchmark. For stocks it is usually the price of the stock divided by the S&P 500. The plot of this line over a period of time will tell us if the stock is outperforming (rising) or underperforming (falling) the major index.

The final step is to synthesize the above analysis to ascertain the following:

- Strength of the current trend.
- Maturity or stage of current trend.
- Reward to risk ratio of a new position.
- Potential entry levels for new long position.

Top Down Technical Analysis

For each segment (market, sector and stock), an investor would analyze long-term and short-term charts to find those that meet specific criteria. Analysis will first consider the market in general, perhaps the S&P 500. If the broader market were considered to be in bullish mode, analysis would proceed to a selection of sector charts. Those sectors that show the most promise would be singled out for individual stock analysis. Once the sector list is narrowed to 3-4 industry groups, individual stock selection can begin. With a selection of 10-20 stock charts from each industry, a selection of 3-4 of the most promising stocks in each group can be made. How many stocks or industry groups make the final cut will depend on the strictness of the criteria set forth. Under this scenario, we would be left with 9-12 stocks from which to choose. These stocks could even be broken down further to find the 3-4 of the strongest of the strong.

Strength of Technical Analysis

Focus on Price: If the objective is to predict the future price, then it makes sense to focus on price movements. Price movements usually precede fundamental developments. By focusing on price action, technicians are automatically focusing on the future. The market is thought of as a leading indicator and generally leads the economy by 6 to 9 months. To keep pace with the market, it makes sense to look directly at the price movements. More often than not, change is a subtle beast. Even though the market is prone to sudden knee-jerk reactions, hints usually develop before significant moves. A technician will

refer to periods of accumulation as evidence of an impending advance and periods of distribution as evidence of an impending decline.

Supply, Demand, and Price Action: Many technicians use the open, high, low and close when analyzing the price action of a security. There is information to be gleaned from each bit of information. Separately, these will not be able to tell much. However, taken together, the open, high, low and close reflect forces of supply and demand.



The annotated example above shows a stock that opened with a gap up. Before the open, the number of buy orders exceeded the number of sell orders and the price was raised to attract more sellers. Demand was brisk from the start. The intraday high reflects the strength of demand (buyers). The intraday low reflects the availability of supply (sellers). The close represents the final price agreed upon by the buyers and the sellers. In this case, the close is well below the high and much closer to the low. This tells us that even though demand (buyers) was strong during the day, supply (sellers) ultimately prevailed and forced the price back down. Even after this selling pressure, the close remained above the open. By looking at price action over an extended period of time, we can see the battle between supply and demand unfold. In its most basic form, higher prices reflect increased demand and lower prices reflect increased supply.

Support/Resistance: Simple chart analysis can help identify support and resistance levels. These are usually marked by periods of congestion (trading range) where the prices move within a confined range for an extended period, telling us that the forces of supply and demand are deadlocked. When prices move out of the trading range, it signals that either supply or demand has started to get the upper hand. If prices move above the upper band of the trading range, then demand is winning. If prices move below the lower band, then supply is winning.

Pictorial Price History: Even if you are a tried and true fundamental analyst, a price chart can offer plenty of valuable information. The price chart is an easy to read historical account of a security's price movement over a period of time. Charts are much easier to read than a table of numbers. On most stock charts, volume bars are displayed at the bottom. With this historical picture, it is easy to identify the following:

- Reactions prior to and after important events.
- Past and present volatility.
- Historical volume or trading levels.
- Relative strength of a stock versus the overall market.

Assist with Entry Point: Technical analysis can help with timing a proper entry point. Some analysts use fundamental analysis to decide what to buy and technical analysis to decide when to buy. It is no secret that timing can play an important role in performance. Technical analysis can help spot demand (support) and supply (resistance) levels as well as breakouts. Simply waiting for a breakout above resistance or buying near support levels can improve returns.

It is also important to know a stock's price history. If a stock you thought was great for the last 2 years has traded flat for those two years, it would appear that Wall Street has a different opinion. If a stock has already advanced significantly, it may be prudent to wait for a pullback. Or, if the stock is trending lower, it might pay to wait for buying interest and a trend reversal.

Weaknesses of Technical Analysis

Analyst Bias: Just as with fundamental analysis, technical analysis is subjective and our personal biases can be reflected in the analysis. It is important to be aware of these biases when analyzing a chart. If the analyst is a perpetual bull, then a bullish bias will overshadow the analysis. On the other hand, if the analyst is a disgruntled eternal bear, then the analysis will probably have a bearish tilt.

Open to Interpretation: Furthering the bias argument is the fact that technical analysis is open to interpretation. Even though there are standards, many times two technicians will look at the same chart and paint two different scenarios or see different patterns. Both will be able to come up with logical support and resistance levels as well as key breaks to justify their position. While this can be frustrating, it should be pointed out that technical analysis is more like an art than a science, somewhat like economics. Is the cup half-empty or half-full? It is in the eye of the beholder.

Too Late: Technical analysis has been criticized for being too late. By the time the trend is identified, a substantial portion of the move has already taken place. After such a large move, the reward to risk ratio is not great. Lateness is a particular criticism of Dow theory.

Always Another Level: Even after a new trend has been identified, there is always another "important" level close at hand. Technicians have been accused of sitting on the fence and never

taking an unqualified stance. Even if they are bullish, there is always some indicator or some level that will qualify their opinion.

Trader's Remorse: Not all technical signals and patterns work. When you begin to study technical analysis, you will come across an array of patterns and indicators with rules to match. For instance: A sell signal is given when the neckline of a head and shoulders pattern is broken. Even though this is a rule, it is not steadfast and can be subject to other factors such as volume and momentum. In that same vein, what works for one particular stock may not work for another. A 50-day moving average may work great to identify support and resistance for IBM, but a 70-day moving average may work better for Yahoo. Even though many principles of technical analysis are universal, each security will have its own idiosyncrasies.

Conclusion

Technical analysts consider the market to be 80% psychological and 20% logical. Fundamental analysts consider the market to be 20% psychological and 80% logical. Psychological or logical may be open for debate, but there is no questioning the current price of a security. After all, it is available for all to see and nobody doubts its legitimacy. The price set by the market reflects the sum knowledge of all participants, and we are not dealing with lightweights here. These participants have considered (discounted) everything under the sun and settled on a price to buy or sell. These are the forces of supply and demand at work. By examining price action to determine which force is prevailing, technical analysis focuses directly on the bottom line: What is the price? Where has it been? Where is it going?

Even though there are some universal principles and rules that can be applied, it must be remembered that technical analysis is more an art form than a science. As an art form, it is subject to interpretation. However, it is also flexible in its approach and each investor should use only that which suits his or her style. Developing a style takes time, effort and dedication, but the rewards can be significant.

Chart Analysis

What are Charts

A price chart is a sequence of prices plotted over a specific timeframe. In statistical terms, charts are referred to as time series plots.



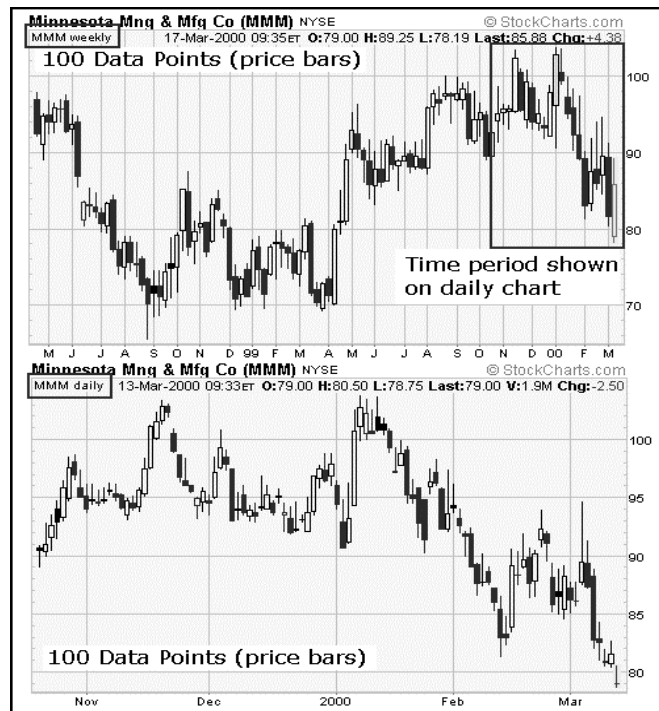
On the chart, the y-axis (vertical axis) represents the price scale and the x-axis (horizontal axis) represents the time scale. Prices are plotted from left to right across the x-axis with the most recent plot being the furthest right. The price plot for MMM extends from January 1, 1999 to March 13, 2000.

Technicians, technical analysts and chartists use charts to analyze a wide array of securities and forecast future price movements. The word “securities” refers to any tradable financial instrument or quantifiable index such as stocks, bonds, commodities, futures or market indices. Any security with price data over a period of time can be used to form a chart for analysis.

While technical analysts use charts almost exclusively, the use of charts is not limited to just technical analysis. Because charts provide an easy-to-read graphical representation of a security’s price movement over a specific period of time, they can also be of great benefit to fundamental analysts. A graphical historical record makes it easy to spot the effect of key events on a security’s price, its performance over a period of time and whether it’s trading near its highs, near its lows, or in between.

How to Pick a Time Frame

The timeframe used for forming a chart depends on the compression of the data: intraday, daily, weekly, monthly, quarterly or annual data. The less compressed the data is, the more detail is displayed.



Daily data is made up of intraday data that has been compressed to show each day as a single data point, or period. Weekly data is made up of daily data that has been compressed to show each week as a single data point. The difference in detail can be seen with the daily and weekly chart comparison above. 100 data points (or periods) on the daily chart is equal to the last 5 months of the weekly chart, which is shown by the data marked in the rectangle. The more the data is compressed, the longer the timeframe possible for displaying the data. If the

chart can display 100 data points, a weekly chart will hold 100 weeks (almost 2 years). A daily chart that displays 100 days would represent about 5 months. There are about 20 trading days in a month and about 252 trading days in a year. The choice of data compression and timeframe depends on the data available and your trading or investing style.

- Traders usually concentrate on charts made up of daily and intraday data to forecast short-term price movements. The shorter the time frame and the less compressed the data is, the more detail that is available. While long on detail, short-term charts can be volatile and contain a lot of noise. Large sudden price movements, wide high-low ranges and price gaps can affect volatility, which can distort the overall picture.
- Investors usually focus on weekly and monthly charts to spot long-term trends and forecast long-term price movements. Because long-term charts (typically 1-4 years) cover a longer timeframe with compressed data, price movements do not appear as extreme and there is often less noise.
- Others might use a combination of long-term and short-term charts. Long-term charts are good for analyzing the large picture to get a broad perspective of the historical price action. Once the general picture is analyzed, a daily chart can be used to zoom in on the last few months.

How are Charts Formed

We will be explaining the construction of line, bar, candlestick and point & figure charts. Although there are other methods available, these are 4 of the most popular methods for displaying price data.

Line Chart

The line chart is one of the simplest charts. It is formed by plotting one price point, usually the close, of a security over a period of time. Connecting the dots, or price points, over a period of time, creates the line.

Some investors and traders consider the closing level to be more important than the open, high or low. By paying attention to only the close, intraday swings can be ignored. Line charts are also used when open, high and low data points are not available. Sometimes only closing data are available for certain indices, thinly traded stocks and intraday prices.



Bar Chart

Perhaps the most popular charting method is the bar chart. The high, low and close are required to form the price plot for each period of a bar chart. The high and low are represented by the top and bottom of the vertical bar and the close is the short horizontal line crossing the vertical bar. On a daily chart, each bar represents the high, low and close for a particular day. Weekly charts would have a bar for each week based on Friday's close and the high and low for that week.



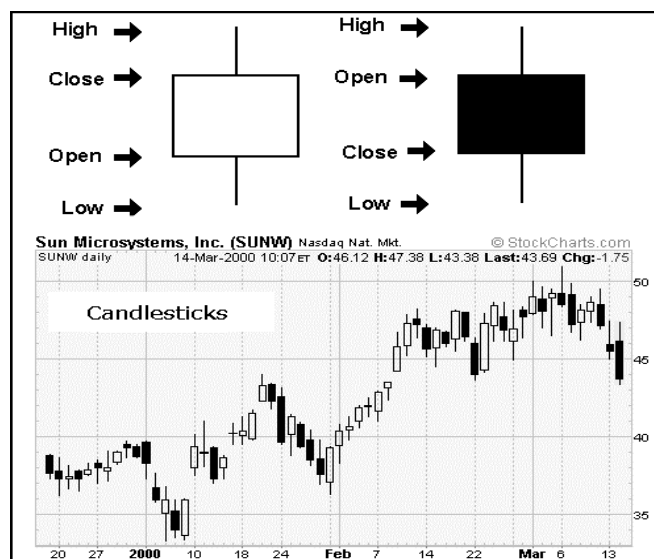
Bar charts can also be displayed using the open, high, low and close. The only difference is the addition of the open price, which is displayed as a short horizontal line extending to the left of the bar. Whether or not a bar chart includes the open depends on the data available.



Bar charts can be effective for displaying a large amount of data. Using candlesticks, 200 data points can take up a lot of room and look cluttered. Line charts show less clutter, but do not offer as much detail (no high-low range). The individual bars that make up the bar chart are relatively skinny, which allows users the ability to fit more bars before the chart gets cluttered. If you are not interested in the opening price, bar charts are an ideal method for analyzing the close relative to the high and low. In addition, bar charts that include the open will tend to get cluttered quicker. If you are interested in the opening price, candlestick charts probably offer a better alternative.

Candlestick Chart

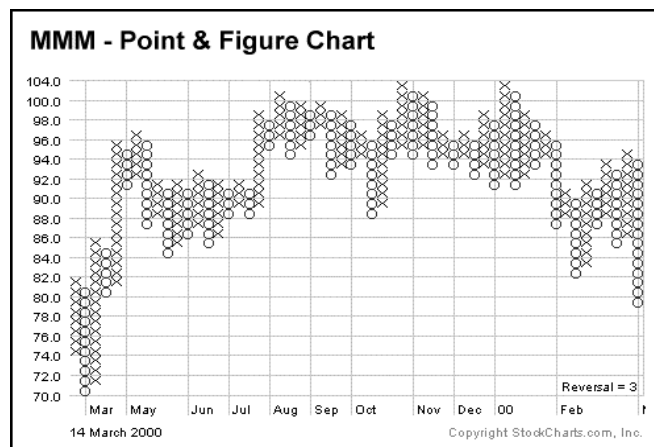
Originating in Japan over 300 years ago, candlestick charts have become quite popular in recent years. For a candlestick chart, the open, high, low and close are all required. A daily candlestick is based on the open price, the intraday high and low, and the close. A weekly candlestick is based on Monday's open, the weekly high-low range and Friday's close.



Many traders and investors believe that candlestick charts are easy to read, especially the relationship between the open and the close. White (clear) candlesticks form when the close is higher than the open and black (solid) candlesticks form when the close is lower than the open. The white and black portion formed from the open and close is called the body (white body or black body). The lines above and below are called shadows and represent the high and low.

Point & Figure Chart

The charting methods shown above all plot one data point for each period of time. No matter how much price movement, each day or week represented is one point, bar or candlestick along the time scale. Even if the price is unchanged from day to day or week to week, a dot, bar or candlestick is plotted to mark the price action. Contrary to this methodology, Point & Figure Charts are based solely on price movement and do not take time into consideration. There is an x-axis but it does not extend evenly across the chart.



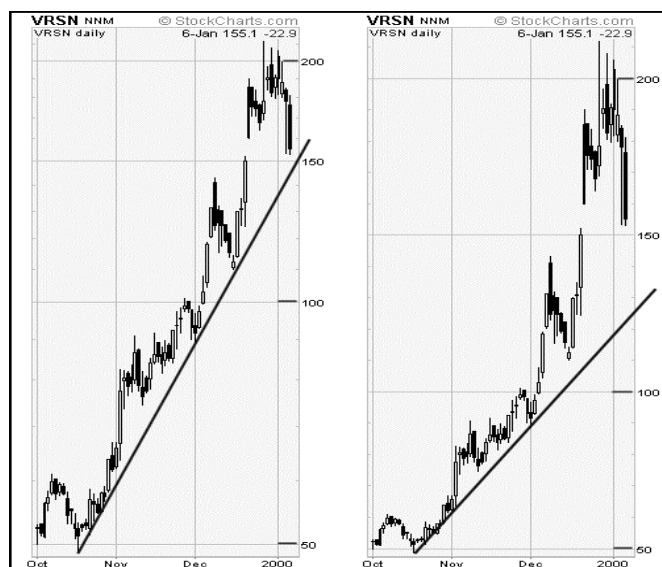
The beauty of Point & Figure Charts is their simplicity. Little or no price movement is deemed irrelevant and therefore not

duplicated on the chart. Only price movements that exceed specified levels are recorded. This focus on price movement makes it easier to identify support and resistance levels, bullish breakouts and bearish breakdowns.

Price Scaling

There are two methods for displaying the price scale along the y-axis: arithmetic and logarithmic. An arithmetic scale displays 10 points (or dollars) as the same vertical distance no matter what the price level. Each unit of measure is the same throughout the entire scale. If a stock advances from 10 to 80 over a 6-month period, the move from 10 to 20 will appear to be the same distance as the move from 70 to 80. Even though this move is the same in absolute terms, it is not the same in percentage terms.

A logarithmic scale measures price movements in percentage terms. An advance from 10 to 20 would represent an increase of 100%. An advance from 20 to 40 would also be 100%, as would an advance from 40 to 80. All three of these advances would appear as the same vertical distance on a logarithmic scale. Most charting programs refer to the logarithmic scale as a semi-log scale, because the time axis is still displayed arithmetically.



The chart above uses the 4th-Quarter performance of Verisign to illustrate the difference in scaling. On the semi-log scale, the distance between 50 and 100 is the same as the distance between 100 and 200. However, on the arithmetic scale, the distance between 100 and 200 is significantly greater than the distance between 50 and 100.

Key points on the benefits of arithmetic and semi-log scales:

- Arithmetic scales are useful when the price range is confined within a relatively tight range.
- Arithmetic scales can be useful for short-term charts and trading. Price movements (particularly for stocks) are shown in absolute dollar terms and reflect movements dollar for dollar.

- Semi-log scales are useful when the price has moved significantly, be it over a short or extended timeframe
- Trendlines tend to match lows better on semi-log scales.
- Semi-log scales can be useful for long-term charts to gauge the percentage movements over a long period of time. Large movements are put into perspective.
- Stocks and many other securities are judged in relative terms through the use of ratios such as PE, Price/Revenues and Price/Book. With this in mind, it also makes sense to analyze price movements in percentage terms.

Conclusion

Even though many different charting techniques are available, one method is not necessarily better than the other. The data may be the same, but each method will provide its own unique interpretation, with its own benefits and drawbacks. A breakout on the Point & Figure Chart may not occur in unison with a breakout in a candlestick chart. Signals that are available on candlestick charts may not appear on bar charts. How the security's price is displayed, be it a bar chart or candlestick chart, with an arithmetic scale or semi-log scale, is not the most important aspect. After all, the data is the same and price action is price action. When all is said and done, it is the analysis of the price action that separates successful technicians from not-so-successful technicians. The choice of which charting method to use will depend on personal preferences and trading or investing styles. Once you have chosen a particular charting methodology, it is probably best to stick with it and learn how best to read the signals. Switching back and forth may cause confusion and undermine the focus of your analysis. The chart rarely causes faulty analysis. Before blaming your charting method for missing a signal, first look at your analysis.

The keys to successful chart analysis are dedication, focus and consistency.

- **Dedication:** Learn the basics of chart analysis, apply your knowledge on a regular basis and continue your development.
- **Focus:** Limit the number of charts, indicators and methods you use. Learn how to use these and learn how to use them well.
- **Consistency:** Maintain your charts on a regular basis and study them often (daily if possible).

Exercise

1. What are the differences between Fundamental analysis & Technical Analysis?
2. What are the steps involved in Fundamental analysis?
3. What are the strengths and weaknesses of Fundamental analysis, explain each of them in relation to their contribution to company analysis.
4. What is the basis for Technical analysis that makes it different from fundamental analysis?
5. What are the strengths and weaknesses of Technical analysis, explain each of them in relation to their contribution to company analysis.
6. What do we analyze charts in Technical analysis?

LESSON 20

AN INTRODUCTION TO EQUITY VALUATION

Equity shares can be described more easily than the fixed income securities. However they are more difficult to analyze. Fixed income securities typically have a limited life and a well-defined cash flow stream but equity shares have neither of these. While the basic principles of valuation are same for fixed income securities as well as equity shares, the factors for growth and risk create greater complexity in case of equity shares.

As our discussion in market efficiency suggested that identifying mispriced securities is not easy. Yet there are enough chinks in the efficient market hypothesis and hence the search for mispriced securities cannot be dismissed out of hand. Moreover, it is the ongoing search for mispriced securities by equity analysts that contributes to a high degree of market efficiency. Equity analysts employ two kinds of analysis – Fundamental analysis & Technical analysis. Fundamental analysts assess the fair market value of equity shares by examining the assets, earnings prospects, cash flow projections and dividend potential. Fundamental analysts differ from technical analysts, who essentially rely on price and volume trends and other market indicators to identify trading opportunities.

A Philosophical Basis for Valuation

- There have always been investors in financial markets who have argued that market prices are determined by the perceptions (and misperceptions) of buyers and sellers, and not by anything as prosaic as cash flows or earnings.
- Perceptions matter, but they cannot be all the matter.
- Asset prices cannot be justified by merely using the “bigger fool” theory.

Misconceptions about Valuation

1. Myth 1: A valuation is an objective search for “true” value.
 - Truth 1.1: All valuations are biased. The only questions are how much and in which direction.
 - Truth 1.2: The direction and magnitude of the bias in your valuation is directly proportional to who pays you and how much you are paid.
2. Myth 2.: A good valuation provides a precise estimate of value.
 - Truth 2.1: There are no precise valuations
 - Truth 2.2: The payoff to valuation is greatest when valuation is least precise.
3. Myth 3: The more quantitative a model, the better the valuation
 - Truth 3.1: One’s understanding of a valuation model is inversely proportional to the number of inputs required for the model.
 - Truth 3.2: Simpler valuation models do much better than complex ones.

Approaches to Valuation

1. Balance Sheet Valuation
2. Dividend Discount Model
3. Earning Multipliers Approach

Balance Sheet Valuation

Analysts often look at the balance sheet of the firm to get a handle on some valuation measures. Three measures derive from the balance sheet are book value, liquidation value and replacement cost.

Book Value

The book value per share is simply the net worth of the company, which is equal to the paid up equity capital plus reserves plus surplus, divided by the number of outstanding equity shares. For example, if the net worth of Zenith Ltd is Rs 37 million and the number of outstanding shares of Zenith is 2 million, the book value per share works out to be Rs 18.50 (Rs 37 million divided by 2 million).

How relevant and useful is the book value per share as a measure of investment value? The book value per share is firmly rooted in financial accounting and hence can be established relatively easily. Due to this, its proponents argue that it represents an ‘objective’ measure of value. A closer examination, however, quickly reveals that what is regarded as objective is based on accounting conventions and policies, which are characterized, by a great deal of subjectivity and arbitrariness. An allied and more powerful criticism against the book value measures, is that historical balance sheet figures on which it is based are often are very divergent from current economic value. Balance sheet figure rarely reflect earning power and hence the book value per share cannot be regarded as a good proxy for true investment value.

Liquidation Value

The liquidation value per share is equal to:

(Value realized from liquidating all the assets of the firm — Amount to be paid to all the creditors and preference shareholders)

Number of outstanding equity shares

To illustrate, assume that Pioneer Industries would realize Rs 45 million from the liquidation of its assets and pay Rs 18 million to its creditors and preference shareholders in full settlement of their claims. If the number of outstanding equity shares of Pioneer is 1.5 million, the liquidation value per share works out to be:

$$\frac{\text{Rs 45 million} - \text{Rs 18 million}}{1.5 \text{ Million}} = \text{Rs 18}$$

While the liquidation value appears more realistic than the book value, there are two serious problems in applying it. First, it is very difficult to estimate that what amounts would be realized from liquidation of various assets. Second, the liquidation value does not reflect earning capacity. Given these problems, the measure of liquidation value seems to make sense only for firms, which are 'better dead and alive' – such firms are not viable and economic values cannot be established for them.

Replacement Cost

Another balance sheet measure considered by analysts in valuing a firm is the replacement cost of its assets less liabilities. The use of this measure is based on the premise that the market value of a firm cannot deviate too much from its replacement cost. If it did so, competitive pressure will tend to align the two.

This idea seems to be popular among economists. The ratio of market price to replacement cost is called *Tobin q*. The proponents of replacement cost believe that in the long run Tobin's q will tend to 1. The empirical evidence, however, is that this ratio can depart significantly from 1 to long periods of time.

The major limitation of the replacement cost concept is that organizational capital, a very valuable asset, is not shown on the balance sheet. Organizational capital is the value created by bringing together employees, customers, suppliers, managers and others in a mutually beneficial and productive relationship. An important characteristic of organizational capital is that it cannot be easily separated from the firm as a going entity.

Although balance sheet analysis may provide useful information about book value, liquidation value or replacement cost, the analyst must focus on expected future dividends, earnings and cash flows to estimate the value of a firm as a going entity.

Capitalization of Income Method of Valuation

There are many ways to implement the fundamental analysis approach to identifying mispriced securities. A number of them are either directly or indirectly related to what is sometimes referred to as the **capitalization of income method of valuation**. This method states that the true or intrinsic value of any asset is based on the cash flow that the investor expects to receive in the future from owning the asset. Because these cash flows are expected in the future, they are adjusted by a discount rate to reflect not only the time value of money but also the riskiness of the cash flows.

Algebraically, the intrinsic value of the asset *V* is equal to the sum of the present values of the expected cash flows:

$$V = \{C_1 / ((1+k)^1) + \{C_2 / (1+k)^2\} + \{C_3 / (1+k)^3 + \dots\} \\ = \sum_{t=1}^{\infty} \{C_t / (1+k)^t\} \dots\dots\dots(1)$$

where *C_t* denotes the expected cash flow associated with the asset at time *t* and *k* is the appropriate discount rate for cash flows of this degree of risk. In this equation the discount rate is assumed to be the same for all periods. Because the symbol ∞ above the summation sign in the equation denotes infinity, all expected cash flows, from immediately after making the investment until infinity, will be discounted at the same rate in determining *V*².

Net Present Value

For the sake of convenience, let the current moment in time be denoted as zero, or *t* = 0. If the cost of purchasing an asset at *t* = 0 is *P*, then its net present value (NPV) is equal to the difference between its intrinsic value and cost, or:

$$NPV = V - P \\ = \sum_{t=1}^{\infty} \{C_t / (1+k)^t\} - P \dots\dots\dots(2)$$

The NPV calculation shown here is conceptually the same as the NPV calculation made for capital budgeting decisions. Capital budgeting decisions involve deciding whether or not a given investment project should be undertaken. (For example, should a new machine be purchased?) In making this decision, the focal point is the NPV of the project. Specifically, an investment project is viewed favorably if its NPV is positive, and unfavorably if its NPV is negative. For a simple project involving cash outflow now (at *t* = 0) and expected cash inflows in the future, a positive NPV means that the present value of all the expected cash inflows is greater than the cost of making the investment. Conversely, a negative NPV means that the present value of all the expected cash inflows is less than the cost of making the investment.

The same views about NPV apply when financial assets (such as a share of common stock), instead of real assets such as a new machine), are being considered for purchase. That is, a financial asset is viewed favorably and said to be underpriced (or undervalued) if NPV > 0. Conversely, a financial asset is viewed unfavorably and said to be overpriced or (overvalued) if NPV < 0. From Equation (2), this is equivalent to stating that a financial asset is underpriced if *V* > *P*:

$$[\sum_{t=1}^{\infty} \{C_t / (1+k)^t\}] > P \dots\dots\dots(3)$$

Conversely, the asset is overvalued if *V* < *P*:

$$[\sum_{t=1}^{\infty} \{C_t / (1+k)^t\}] < P \dots\dots\dots(4)$$

Internal Rate of Return

Another way of making capital budgeting decisions in a manner that is similar to the NPV method involves calculating the internal rate of return (IRR) associated with the investment project. With IRR, NPV in Equation (2) is set equal to zero and the discount rate becomes the unknown that must be calculated. That is, the IRR for a given investment is the discount rate that makes the NPV of the investment equal to zero. Algebraically, the procedure involves solving the following equation for the internal rate of return *k*^{*}:

$$0 = [\sum_{t=1}^{\infty} \{C_t / (1+k)^t\}] - P \dots\dots\dots(5)$$

Equivalently, Equation (5) can be rewritten as:

$$P = [\sum_{t=1}^{\infty} \{C_t / (1+k)^t\}] \dots\dots\dots(6)$$

The decision rule for IRR involves comparing the project's IRR (denoted by *k*^{*}) with the required rate of return for an investment of similar risk (denoted by *k*). Specifically, the investment is viewed favorably if *k*^{*} > *k*, and unfavorably if *k*^{*} < *k*. As with NPV, the same decision rule applies if either a real asset or a financial asset is being considered for possible investment.

Application to Common Stocks

This chapter is concerned with using the capitalization of income method to determine the intrinsic value of common stocks. Because the cash flows associated with an investment in

any particular common stock are the dividends that are expected to be paid throughout the future on the shares purchased, the models suggested by this method of valuation are often known as dividend discount models (DDMs). Accordingly, D_t will be used instead of C_t to denote the expected cash flow in period associated with a particular common stock, resulting in the following restatement of Equation (1):

Usually the focus of DDMs is on determining the “true” or “intrinsic” value of one share of a particular company’s common stock, even if larger size purchases are being contemplated. This is because it is usually assumed that larger size purchases can be made at a cost that is a simple multiple of the cost of one share. (For example, the cost of 1,000 shares is usually assumed to be 1,000 times the cost of one share.) Thus the numerator in DDMs is the cash dividends per share that are expected in the future.

However, there is a complication in using Equation (7) to determine the intrinsic value of a share of common stock. In particular, in order to use this equation the investor must forecast all future dividends. Because a common stock does not have a fixed lifetime, this suggests that an infinitely long stream of dividends must be forecast. Although this may seem to be an impossible task, with the addition of certain assumptions, the equation can be made tractable.

These assumptions center on dividend growth rates. That is, the dividend per share at any time t can be viewed as being equal to the dividend per share at time t-1 times a dividend growth rate of g

$$D_t = D_{t-1}(1 + g_t) \dots\dots\dots(8)$$

Or, equivalently:

$$\{(D_t - D_{t-1}) / D_{t-1}\} = g_t \dots\dots\dots(9)$$

For example, if the dividend per share expected at t = 2 is Rs 4 and the dividend per share expected at t = 3 is Rs 4.20, then $g = (Rs\ 4.20 - Rs\ 4) / Rs\ 4 = 5\%$.

The different types of tractable DDMs reflect different sets of assumptions about dividend growth rates, and are presented in the next lesson. The discussion in the next lesson begins with the simplest case, the zero-growth model.

Notes

LESSON 21

DDMS FOR VALUATION OF EQUITIES

The Zero Growth Model

One assumption that could be made about future dividends is that they will re-main at a fixed rupees amount. That is, the rupees amount of dividends per share that were paid over the past year D_0 also be paid over the next year D_1 , and the year after that D_2 and the year after that D_3 and so on-that is,

$$D_0 = D_1 = D_2 = D_3 = \dots = D_{\infty}$$

This is equivalent to assuming that all the dividend growth rates are zero, be-cause if $g_t = 0$, then $D_t = D_{t-1}$ in Equation (8). Accordingly, this model is often referred to as the zero-growth (or no-growth) model.

Net Present Value

The impact of this assumption on Equation (7) can be analyzed by noting what happens when D_t is replaced by D_0 in the numerator:

$$V = \{\sum_{t=1}^{\infty} D_0 / (1+k)^t\} \dots\dots\dots(10)$$

Fortunately, Equation (10) can be simplified by noting that D_0 is a fixed rupees amount, which means that it can be written outside the summation sign,

$$V = \{\sum_{t=1}^{\infty} 1 / (1+k)^t\} \dots\dots\dots(11)$$

The next step involves using a property of infinite series from mathematics

If $k > 0$, then it can be shown that:

$$\{\sum_{t=1}^{\infty} 1 / (1+k)^t\} = 1 / k \dots\dots\dots(12)$$

Applying this property to Equation (11) results in the following formula for the zero-growth model:

$$V = D_0 / k_0 \dots\dots\dots(13)$$

Because $D_0 = D_1$, Equation (13) is written sometimes as:

$$V = D_1 / k \dots\dots\dots(14)$$

Example

As an example of how this DDM can be used, assume that the Zinc Company is expected to pay cash dividends amounting to Rs 8 per share into the indefinite fu-ture and has a required rate of return of 10%. Using either Equation (13) or Equation (14), it can be seen that the value of a share of Zinc stock is equal to Rs 80 (= Rs 8 / 0.10). With a current stock price of Rs 65 per share, Equation (2) would suggest that the NPV per share is Rs 15, (=Rs 80 – Rs 65). Equivalently, as $V = Rs 80 > P = Rs 65$, the stock is, underpriced by Rs15 per share and would be a candidate for purchase.

Internal Rate of Return

Equation (13) can be reformulated to solve for the IRR, on a investment in a zero-growth security. First, the security's current price P is substituted for V, and second k^* is substituted for k. These changes result in:

$$P = D_0 / k^*$$

Which can be rewritten as:

$$k^* = D_0 / P \dots\dots\dots(15a)$$

$$k^* = D_1 / P \dots\dots\dots(15b)$$

Applying this formula to the stock of Zinc indicates that $k^* = 12.3\%$ (= Rs 8 / Rs 65). Because the IRR from an investment in Zinc exceeds the required rate of return on Zinc $12.3\% > 10\%$, this method also indicates that Zinc is underpriced.

Application

The zero-growth model may seem quite restrictive. After all, it seems unreason-able to assume that a given stock will pay a fixed rupees-size dividend forever. Al-though such a criticism has validity for common stock valuation, there is one particular situation where this model is quite useful.

Specifically, whenever the intrinsic value of a share of high-grade preferred stock is to be determined, the zero-growth DDM will often be appropriate. This is because most preferred stock is nonparticipating, meaning that it pays a fixed rupees-size dividend that will not change as earnings per share change. Further-more, for high-grade preferred stock these dividends are expected to be paid regularly into the foreseeable future. Why? Because preferred stock does not have a fixed lifetime, and, by restricting the application of the zero growth models to high-grade preferred stocks, the chance of a suspension of dividends is remote.

The Constant-growth Model

The next type of DDM to be considered is one that assumes that dividends will grow from period to period at the same rate forever, and is therefore known as the **constant growth model**. Specifically, the dividends per share that were paid over the previous year D_0 are expected to grow at a given rate g , so that the divi-dends expected over the next year D_1 are expected to be equal to $(D_0 + g)$. Dividends the year after that are again expected to grow by the same rate g , meaning that $D_2 = (D_1 + g)$. Because $(D_1 = D_0 + g)$, this is equivalent to as-suming that $D_2 = D_0 (1 + g)^2$ and, in general:

$$D_t = D_{t-1} (1+g) \dots\dots\dots(16a)$$

$$D_t = D_0 (1+g)^t \dots\dots\dots(16b)$$

Net Present Value

The impact of this assumption on Equation (7) can be analyzed by noting what happens when D_t is replaced by $D_0 (1 + g)^t$ in the numerator:

$$V = [\sum_{t=1}^{\infty} \{D_0 (1+g)^t\} / (1+k)^t] \dots\dots\dots(17)$$

Fortunately, Equation (17) can be simplified by noting that D_0 is a fixed rupees amount, which means that it can be written outside the summation sign:

$$V = D_0 [\sum_{t=1}^{\infty} \{(1+g)^t\} / (1+k)^t] \dots\dots\dots(18)$$

The next step involves using a property of infinite series from mathematics.

If $k > g$, then it can be shown that:

$$[\sum_{t=1}^{\infty} \{(1+g)^t\} / (1+k)^t] = \{(1+g) / (k-g)\} \dots\dots\dots(19)$$

Substituting Equation (19) into Equation (18) results in the valuation for-mula for the constant growth model:

$$V = D_0 \{(1+g) / (k-g)\} \dots\dots\dots(20)$$

Sometimes Equation (20) is rewritten as:

$$V = \{D_1 / (k-g)\} \dots\dots\dots (21)$$

Because $D_1 = D_0 (1+g)$.

Example

As an example of how this DDM can be used, assume that during the past year the Copper Company paid dividends amounting to Rs 1.80 per share. The forecast is that dividends on Copper stock will increase by 15% per year into the indefinite future. Thus dividend over the next year are expected to equal Rs 1.89 [= Rs1.80 X (1 + 0.05)]. Using Equation (20) and assuming a required rate of return k of 11%, it can be seen that the value of a share of Copper stock is equal to Rs 31.50 [=Rs1.80 X (1 + 0.05) / (0.11 – 0.05) = Rs 1.89 / (0.11 – 0.05)]. With a current stock price of Rs 40 per share; Equation (2) would suggest that the NPV per share is - Rs 8.50 (= Rs 31.50- Rs 40). Equivalently, as $V = Rs 31.50 < P = Rs 40$, the stock is overpriced by Rs 8.50 per share and would be a candidate for sale if currently owned.

Internal Rate of Return

Equation (20) can be reformulated to solve for the IRR on an investment in a constant growth security. First, the current price of the security *P* is substituted for *V* and then *k** is substituted for *k*. These changes result in:

$$P = D_0 \{(1+g) / (k^*-g)\} \dots\dots\dots(22)$$

Which can be rewritten as:

$$k^* = \{[D_0 (1+g) / P] + g\} \dots\dots\dots(23a)$$

$$k^* = (D_1 / P) + g \dots\dots\dots(23b)$$

Example

Applying this formula to the stock of Copper indicates that $k^* = 9.72\% \{ = [Rs1.80 X (1 + .05) / Rs 40] + .05 = (Rs 1.89 / Rs 40) + .05\}$. Because the required rate of return on Copper exceeds the IRR from an investment in Copper (11 % > 9.72%), this method also indicates that Copper is overpriced.

Relationship to the Zero-Growth Mode

The zero-growth model of the previous, section can be shown to be a special case of the constant-growth model. In particular, if the growth rate *g* is assumed to be equal to zero, then dividends will be a fixed rupees amount forever, which is the same as saying that there will-be-zero growth. Letting $g = 0$ in Equations (20) and (23a) results in two equations that are identical to Equations (13) and (15a), respectively.

Even though the assumption of constant dividend growth may seem less re-strictive than the assumption of zero dividend growth, it may still be viewed as unrealistic in many cases. However, as will be shown next, the constant-growth model is important because it is embedded in the multiple-growth model.

The Multiple-growth Model

A more general DDM for valuing common stocks the multiple-growth model. With this model, the focus is on a time in the

future (denoted by *T*) after which dividends are expected to grow at a constant rate *g*. Although the investor is still concerned with forecasting dividends, these dividends do not need to have any specific pattern until this time, after which they will be assumed to have the spe-cific pattern of constant growth. The dividends up until *T* ($D_1, D_2, D_3, \dots, D_T$) will be forecast individually by the investor. (The investor also forecasts when this time *T* will occur.) Thereafter dividends are assumed to grow by a constant rate *g* that the investor must also forecast, meaning that:

$$D_{T+1} = D_T (1 + g)$$

$$D_{T+2} = D_{T+1} (1 + g) = D_T (1 + g)^2$$

$$D_{T+3} = D_{T+2} (1 + g) = D_T (1 + g)^3$$

and so on.

Net Present Value

In determining the value of a share of common stock with the multiple growth model, the net present value of the forecast stream of dividends must be determined. This can be done by dividing the stream into two parts, finding the present value of each part, and then adding these two present values together. The first part consists of finding the present value of all the forecast dividends that will be paid up to and including time *T*. denoting this present value by V_T , it is equal to:

$$V_T = \{\sum_{t=1}^T D_t / (1+k)^t\} \dots\dots\dots(24)$$

The second part consists of finding the present value of all the forecast divi-dends that will be paid after time *T*, and involves the application of the constant -growth model. The application begins by imagining that the investor is not at time zero at time *T*, and has not changed his or her forecast of dividends, for the stock. This means that the next period's dividend D_{T+1} and all those thereafter are expected to grow at the rate *g*. Thus the investor would be viewing the stock as having a constant growth rate, and its value at time *T*, V_{T+} could be determined with the constant growth model of Equation (21):

$$V_{T+} = D_{T+1} \{1 / (k-g)\} \dots\dots\dots(25)$$

One way to view V_{T+} is that it represents a lump sum that is just as desirable as the stream of dividends after *T*. That is, an investor would find a lump sum of cash equal to V_{T+} to be received at time *T*, to be equally desirable as the stream of dividends $D_{T+1}, D_{T+2}, D_{T+3}$ and so on. Now given that the investor is at time zero, not at time *T*, the present value at $t = 0$ of the lump sum V_{T+} must be deter-mined. This is done simply by discounting it for *T* periods at the rate *k*, resulting in the following formula for finding the present value at time zero for all divi-dends after *T*, denoted V_{T+} :

$$V_{T+} = V_T [1 / (1+k)^T] \dots\dots\dots(26)$$

$$= \{D_{T+1} / (k-g)(1+k)^T\}$$

Having found the present value of all dividends up to and including time *T* with Equation (24), and the present value of all dividends after time *T* with Equation (26), the value of the stock can be determined by summing up these two amounts:

$$V = V_T + V_{T+}$$

$$= [\{\sum_{t=1}^T D_t / (1+k)^t\} + \{D_{T+1} / (k-g)(1+k)^T\}] \dots\dots\dots(27)$$

Example

As an example of how this DDM can be used, assume that during the past year the Magnesium Company paid dividends amounting to Rs.75 per share. Over the next year, Magnesium is expected to pay dividends of Rs 2 per share. Thus $g_1 = (D_1 - D_0) / D_0 = (Rs\ 2 - Rs\ 0.75) / Rs\ 0.75 = 167\%$. The year after that, dividends are expected to amount to Rs 3 per share, indicating that $g_2 = (D_2 - D_1) / D_1 = (Rs\ 3 - Rs\ 2) / Rs\ 2 = 50\%$. At this time, the forecast is that dividends will grow by 10% per year indefinitely, indicating that $T = 2$ and $g = 10\%$. Consequently, $D_{T+1} = D_3 = Rs\ 3 (1 + 0.10) = Rs\ 3.30$. Given a required rate of return on Magnesium shares of 15%, the values of V_T and V_{T+} can be calculated as follows:
 $V_T = \{Rs\ 2 / (1+0.15)^1\} + \{Rs\ 3 / (1+0.15)^2\} = Rs\ 4.01$
 $V_{T+} = \{Rs\ 3.30 / (0.15-0.10)(1+0.15)^2\} = Rs\ 49.91$
 Summing V_T and V_{T+} results in a value for V of Rs (4.01 + Rs 49.91 =) Rs 53.92. With a current stock price of Rs 55 per share, Magnesium appears to be fairly priced. That is, Magnesium is not significantly mispriced because V and P are nearly of equal size.

Internal rate of Return

The zero growth and constant growth models have equations for V that can be reformulated in order to solve the IRR on an investment in a stock. Unfortunately, a convenient expression similar to Equations (15a), (15b), (23a) and (23b) is not available for the multiple growth model. This can be seen by noting that the expression for IRR is derived by substituting P for V , and k^* for k in Equation (27):

$$P = \sum_{t=1}^T \{D_t / (1+k^*)^t\} + \{D_{T+1} / (k^*-g)(1+k^*)^T\}$$

This equation cannot be rewritten with k^* isolated on the left-hand side, meaning that a closed-form expression for IRR does not exist for the multiple growth model.

However, all is not lost. It is still possible to calculate the IRR for an investment in a stock conforming to the multiple-growth model by using an “educated” trial-and-error method. The basis for this method is in the observation that the right-hand side of equation (28) is simply equal to the present value of the dividend stream. Where k , is used as the discount rate. Hence, larger the value of k^* , smaller the value of the right-hand side of Equation (28). The trial-and-error method proceeds by initially using an estimate for k^* . If the resulting value on the right-hand side of Equation (28) is larger than P , then a larger estimate of k^* is tried. Conversely, if the resulting value is smaller than P , then a smaller estimate of k^* is tried of continuing this search process, the investor can hone in on the value of k^* that makes the right-hand side equal P on the left-hand side. Fortunately, it is a relatively simple matter to program a computer to conduct the search for k^* in equation (28). Most spreadsheet include a function that does so automatically.

Example

Applying Equation: (28) to the Magnesium Company results in:

$$Rs55 = \{Rs\ 2 / (1+k^*)^1\} + \{Rs\ 3 / (1+k^*)^2\} + \{Rs\ 3.30 / (1+k^*)^2 (k^* - 0.10)\} \dots\dots\dots(18.29)$$

Initially a rate of 14% is used in attempting to solve this equation for k^* . Inserting 14% for k^* in the right-hand side of Equation (29) results in a value of Rs 67.54. Earlier 15% was used in determining V and resulted in a value of Rs 53.92. This means that k^* must have a value between 14% and 15%, since Rs55 is between Rs 67.54 and Rs 53.92. If 14.5% is tried next, the resulting value is Rs59.97, suggesting that a higher rate should be tried. If 14.8% and 14.9% are subsequently tried, the respective resulting values are Rs 56.18 and Rs 55.03. As, Rs 55.03 is the closest to P , the IRR associated with an investment in Magnesium is, 14.9%. Given a re-quired return of 15% and an IRR of approximately that amount, the stock of Magnesium appears to be fairly priced.

Relationship to the Constant-Growth Model

The constant-growth model can be shown to be a special case of the multiple -growth models. In particular, if the time when constant growth is assumed to begin is set equal to zero, then:

$$V_T = \{\sum_{t=1}^T D_t / (1+k)^t\} = 0$$

and

$$V_{T+} = \{D_{T+1} / (k-g)(1+k)^T\} = \{D_1 / (k-g)\}$$

because $T = 0$ and $(1 + k)^0 = 1$, Given that the multiple-growth model states that $V = V_T + V_{T+}$ it can be seen that setting $T = 0$ results in $V = D_1 / (k - g)$, a formula that is equivalent to the formula for the constant-growth model.

Two-Stage and Three-Stage Models

Two dividend discount models that investors sometimes use are the two-stage model and the three-stage model. The two-stage model assumes that a constant growth rate g_1 exists only until some time T , when a different growth rate g_2 is as-sumed to begin and continue thereafter. The three-stage model assumes that a constant growth rate g_1 exists only until some time T_1 , when a second growth rate is assumed to begin and last until a later time T_2 when a third growth rate is assumed to begin and last thereafter. By letting V_{T+} denote the present value of all dividends after the last growth rate has begun and V_T the present value of all the preceding dividends, it can be seen that these models are just special cases of the multiple-growth model.

In applying the capitalization of income method of valuation to common stocks, it might seem appropriate to assume that the stock will be sold at some point in the future. In this case the expected cash flows would consist of the dividends up to that point as well as the expected selling price. Because dividends after the selling date would be ignored, the use of a dividend discount model may seem to be improper. However, as will be shown next, this is not so.

Valuation Based on a Finite Holding Period

The capitalization of income method of valuation involves discounting all dividends that are expected throughout the future. Because the simplified models of zero growth, constant growth, and multiple growth are based on this method, they too involve a future stream of dividends. Upon reflection it may seem that such models are relevant only for an investor who plans to hold a stock forever, so only such an investor would expect to receive this stream of future dividends.

But what about an investor who plans to sell the stock in a year? In such a situation the cash flow that the investor expects to receive from purchasing a share of the stock are equal to the dividend expected to be paid one year from now (for ease of exposition, it is assumed that common stocks pay dividends annually) and the expected selling price of the stock. That it would seem appropriate to determine the intrinsic value of the stock to the investor by discounting these two cash flows at the required rate of return as follows:

$$V = \{(D_1 + P_1) / (1+k)\}$$

$$= \{D_1 / (1+k)\} + \{P_1 / (1+k)\} \dots\dots\dots(30)$$

where, D_1 and P_1 are the expected dividend and selling price at $t = 1$, respectively.

In order to use Equation (30), the expected price of the stock at $t = 1$ must be estimated. The simplest approach assumes that the selling price will be based on the dividends that are expected to be paid after the selling date. Thus the expected selling price at $t = 1$ is:

$$P_1 = D_2 / (1+k)^1 + D_3 / (1+k)^2 + D_4 / (1+k)^3 + \dots\dots\dots$$

$$= \sum_{t=2}^{\infty} D_t / (1+k)^{t-1} \dots\dots\dots(31)$$

Substituting Equation (31) for P_1 in the right-hand side of Equation (30) results in:

$$V = D_1 / (1+k) + [D_2 / (1+k)^1 + D_3 / (1+k)^2 + D_4 / (1+k)^3 + \dots\dots\dots] \{1 / (1+k)\}$$

$$= D_1 / (1+k)^1 + D_2 / (1+k)^2 + D_3 / (1+k)^3 + D_4 / (1+k)^4 + \dots\dots\dots]$$

which is exactly the same as equation (7). Thus valuing a share of common stock by discounting its dividends up to some point in the future and its expected selling price at that time is equivalent to valuing stock by discounting all future dividends. Simply stated, the two are equivalent because the expected selling price is itself based on dividends to be paid after the selling date. Thus Equation (7), as well as the zero-growth, constant-growth, and multiple-growth model that are based on it, is appropriate for determining the intrinsic value of a share of common stock regardless of the length of the investor's planned holding period.

Example

As an examination, reconsider the common stock of the Copper Company. Over the past year it is noted that Copper paid dividends of Rs 1.80 per share, with the forecast that the dividends would grow by 5% per year forever. This means that dividends over the next two years (D_1 and D_2) are forecast to be Rs 1.89 [= Rs1.80 X (1 + .05)] and Rs1.985 [= Rs1.89 X (1 + .05)], respectively. If the investor plans to sell the stock after one year, the selling price could be estimated by noting that at $t = 1$, the forecast of dividends for the forthcoming year would be D_2 , or Rs 1.985. Thus the anticipated selling price at $t = 1$, denoted P_1 would be equal to Rs 33.08 [= Rs 1.985 / (0.11 - 0.05)]. Accordingly, the intrinsic value of Copper to such an investor would equal the present value of the expected cash flows, which are $D_1 =$ Rs 1.89 and $P_1 =$ Rs 33.08. Using Equation (30) and assuming a required rate of 11%, this value is equal to Rs 31.50 [= (Rs 1.89 + Rs 33.08) / (1 + 0.11)]. Note that this is the same amount that was calculated earlier when all the dividends from

now to infinity were discounted using the constant-growth model: $V = D_1 / (k - g) = \text{Rs } 1.89 / (0.11 - 0.05) = \text{Rs}31.50$.

Notes

LESSON 22

P/E APPROACH TO VALUATION OF EQUITIES

Despite the inherent sensibility of DDMs, many security analysts use a much simpler procedure to value common stocks. First, a stock's earnings per share over the forthcoming year E_1 are estimated, and then the analyst (or someone else) specifies a "normal" price-earnings ratio for the stock. The product of these two numbers gives the estimated future price P_1 . Together with estimated dividends D_1 to be paid during the period and the current price P , the estimated return on the stock over the period can be determined:

$$\text{Expected return} = \{(P_1 - P) + D_1 / P\} \dots\dots\dots(32)$$

Where, $P_1 = (P_1 / E_1) \times E_1$

Some security analysts expand this procedure, estimating earnings per share and price-earnings ratios for optimistic, most likely, and pessimistic scenarios to produce a rudimentary probability distribution of a security's return. Other analysts determine whether a stock is underpriced or overpriced by comparing the stock's actual price-earnings ratio with its "normal" price-earnings ratio.

In order to make this comparison, Equation (7) must be rearranged and some new variables introduced. To begin, it should be noted that earnings per share E_t are related to dividends per share D_t by the firm's payout ratio P_t ,

$$D_t = p_t E_t \dots\dots\dots(33)$$

Furthermore, if an analyst has forecast earnings-per-share and payout ratios, then he or she has implicitly forecast dividends.

Equation (33) can be used to restate the various DDMs where the focus is on estimating what the stock's price-earnings ratio should be instead of on estimating the intrinsic value of the stock. In order to do so, $p_t E_t$ is substituted for D_t in the right-hand side of Equation (7), resulting in a general formula for determining a stock's intrinsic value that involves discounting earnings:

$$\begin{aligned} V &= D_1 / (1+k)^1 + D_2 / (1+k)^2 + D_3 / (1+k)^3 + D_4 / (1+k)^4 + \dots\dots\dots \\ &= p_1 E_1 / (1+k)^1 + p_2 E_2 / (1+k)^2 + p_3 E_3 / (1+k)^3 + \dots\dots\dots \\ &= \sum_{t=1}^{\infty} \{p_t E_t / (1+k)^t\} \dots\dots\dots(34) \end{aligned}$$

Earlier it was noted that dividends in adjacent time periods could be viewed as being "linked" to each other by a dividend growth rate g_r . Similarly, earnings per share in any year t can be "linked" to earnings per share in the previous year $t - 1$ by a growth rate in earnings per share, g_{et} .

$$E_t = E_{t-1} (1+g_{et}) \dots\dots\dots(35)$$

This implies that

$$\begin{aligned} E_1 &= E_0 (1 + g_{e1}) \\ E_2 &= E_1 (1 + g_{e2}) = E_0 (1 + g_{e1})(1 + g_{e2}) \\ E_3 &= E_2 (1 + g_{e3}) = E_0 (1 + g_{e1})(1 + g_{e2})(1 + g_{e3}) \end{aligned}$$

and so on, where E_0 is the actual level of earnings per share over the past year, E_1 is the expected level of earnings per share over the forthcoming year, E_2 is the expected level of earnings per share for the year after E_1 and E_3 is the expected level of earnings per share for the year after E_2 .

These equations relating expected future earnings per share to E_0 can be substituted into Equation (34), resulting in:

$$V = [p_1 \{E_0 (1 + g_{e1}) / (1+k)^1\} + p_2 \{E_0(1 + g_{e1})(1 + g_{e2}) / (1+k)^2\} + p_3 \{E_0 (1 + g_{e1})(1 + g_{e2})(1 + g_{e3}) / (1+k)^3\} + \dots\dots\dots](36)$$

As V is the intrinsic value of a share of stock, it represents what the stock would be selling for if it were fairly priced. It follows that V/E_0 represents what the price-earnings ratio would be if the stock were fairly priced, and is sometimes referred to as the stock's "normal" price-earnings ratio. Dividing both sides of Equation (36) by E_0 and simplifying results in the formula for determining the "normal" price-earnings ratio:

$$V/E_0 = [p_1 \{(1 + g_{e1}) / (1+k)^1\} + p_2 \{(1 + g_{e1})(1 + g_{e2}) / (1+k)^2\} + p_3 \{(1 + g_{e1})(1 + g_{e2})(1 + g_{e3}) / (1+k)^3\} + \dots\dots\dots](37)$$

This shows that, other things being equal, a stock's "normal" price-earnings ratio will be higher:

The greater the expected payout ratios ($p_1, p_2, p_3, \dots\dots\dots$),

The greater the expected growth rates in earnings per share ($g_{e1}, g_{e2}, g_{e3}, \dots\dots\dots$), The smaller the required rate of return (k).

The qualifying phrase "other things being equal" should not be overlooked. For example, a firm cannot increase the value of its shares by simply making greater payouts. This will increase $p_1, p_2, p_3, \dots\dots\dots$ but will decrease the expected growth rates in earnings per share $g_{e1}, g_{e2}, g_{e3}, \dots\dots\dots$. Assuming that the firm's investment policy is not altered, the effects of the reduced growth in its earnings per share will just offset the effects of the increased payouts, leaving its share value unchanged.

Earlier it was noted that a stock was viewed as underpriced if $V > P$ and overpriced if $V < P$; Because dividing both sides of an inequality by a positive constant will not change the direction of the inequality, such a division can be done here to the two inequalities involving V and P , where the positive constant is E_0 . The result is that a stock can be viewed as being underpriced if $V/E_0 > P / E_0$ and overpriced if $V / E_0 < P / E_0$. Thus a stock will be underpriced if its "normal" price-earnings ratio is greater than its actual price-earnings ratio, and overpriced if its "normal" price-earnings ratio is less than its actual price-earnings ratio.

Unfortunately, Equation (37) is intractable, meaning that it cannot be used to estimate the "normal" price-earnings ratio for any stock. However, simplifying assumptions can be made that result in tractable formulas for estimating "normal" price-earnings ratios. These assumptions, along with the formulas,

parallel those made previously regarding dividends and are discussed next.

The Zero-Growth Model

The zero growth model assumed that dividends per share remained at a fixed Rupees amount forever. This is most likely if earnings per share remain at a fixed Rupees amount forever, with the firm maintaining a 100% payout ratio. Why 100%? Because if a lesser amount were assumed to be paid out, it would mean that the firm was retaining part of its earnings. These retained earnings would be put to some use, and would thus be expected to increase future earnings and hence dividends per share.

Accordingly, the zero growth model can be interpreted as assuming $p_t = 1$ for all time periods and $E_0 = E_1 = E_2 = E_3$ and so on. This means that $D_0 = E_0 = D_1 = E_1 = D_2 = E_2$ and so on, allowing valuation Equation (13) to be re-stated as:

$$V = E_0 / k \tag{38}$$

Dividing Equation (38) by E_0 results in the formula for the “normal” price-earnings ratio for a stock having zero growth:

$$V / E_0 = 1 / k \tag{39}$$

Example

Earlier it was assumed that the Zinc Company was a zero-growth firm paying dividends of Rs 8 per share, selling for Rs 65 per share, and having a required rate of re-turn of 10%. Because Zinc is a zero-growth company, it will be assumed that it has a 100% payout ratio which, in turn, means that $E_0 = Rs 8$. At this point Equation (38) can be used to note that a “normal” price-earnings ratio for Zinc is $1 / 0.10 = 10$. As Zinc has an actual price-earnings ratio of $Rs 65 / Rs 8 = 8.1$, and because $V / E_0 = 10 > P / E_0 = 8.1$, it can be seen that Zinc stock is underpriced.

The Constant-Growth Model

Earlier it was noted that dividends in adjacent time periods could be viewed as being connected to each other by a dividend growth rate g_d . Similarly, it was noted that earnings per share can be connected by earnings growth rate g_e . The constant-growth model assumes that the growth rate in dividends per share will be the same through out the future. An equivalent assumption is that earnings per share will grow at a constant rate g_e throughout the future with the pay-out ratio remaining at a constant level p . This means that:

$$\begin{aligned} E_1 &= E_0(1 + g_e) = E_0(1 + g_e)^1 \\ E_2 &= E_1(1 + g_e) = E_0(1 + g_e)(1 + g_e) = E_0(1 + g_e)^2 \\ E_3 &= E_2(1 + g_e) = E_0(1 + g_e)(1 + g_e)(1 + g_e) = E_0(1 + g_e)^3 \end{aligned}$$

and so on. In general, earnings in year t can be connected to E_0 as follows:

$$E_t = E_0(1 + g_e)^t \tag{40}$$

Substituting Equation (40) into the numerator of Equation (34) and recognizing that $p_t = p$ results in:

$$\begin{aligned} V &= \sum_{t=1}^{\infty} \{pE_0(1 + g_e)^t / (1 + k)^t\} \\ &= pE_0 \sum_{t=1}^{\infty} \{(1 + g_e)^t / (1 + k)^t\} \end{aligned} \tag{41}$$

The same mathematical property of infinite series given in Equation (19) can be applied to Equation (41), resulting in:

$$V = pE_0 [(1 + g_e) / (k - g_e)] \tag{42}$$

It can be noted that the earnings-based constant growth model has a numerator that is identical to the numerator of the dividend-based constant-growth model, because $pE_0 = D_0$. Furthermore, the denominators of the two models are identical. Both assertions require that the growth rates in earnings and dividend be the same (that is, $g_e = g_d$). Examination of the assumptions of the model reveals that these growth rates must be equal. This can be seen by recalling that constant earnings growth means:

$$E_t = E_{t-1}(1 + g_e)$$

Now when both sides of this equation are multiplied by the constant payout ratio, the result is:

$$pE_t = pE_{t-1}(1 + g_e).$$

Because $pE_t = D_t$ and $pE_{t-1} = D_{t-1}$, this equation reduces to:

$$D_t = D_{t-1}(1 + g_e)$$

which indicates that dividends in any period $t - 1$ will grow by the earnings growth rate, g_e . Because the dividend-based constant-growth model assumed that dividends in any period $t - 1$ would grow by the dividend growth rate g_d , it can be seen that the two growth rates must be equal for the two models to be equivalent.

Equation (42) can be restated by dividing each side by E_0 resulting in the following formula for determining the “normal” price-earnings ratio for a stock with constant growth:

$$V/E_0 = p\{(1 + g_e) / (k + g_e)\} \tag{43}$$

Example

Earlier it was assumed that the Copper Company had paid dividends of Rs 1.80 per share over the past year, with a forecast that dividend, would grow by 5% per year forever. Furthermore, it was assumed that the required rate of return on Copper was 11 %, and the current stock price was Rs 40 per share. Now assuming that E_0 was Rs 2.70, it can be seen that the payout ratio was equal to 66.67% (= $Rs 1.80 / Rs 2.70$). This means that the “normal” price-earnings ratio for Copper, according to Equation (43), is equal to $11.7 [= .6667 X (1 + .05) / (0.11 - 0.05)]$. Because this is less than Copper’s actual price-earnings ratio of 14.8 (= $Rs 40 / Rs 2.70$), it follows that the stock of Copper Company is overpriced.

The Multiple-Growth Model

Earlier it was noted that the most general DDM is the multiple-growth model, where dividends are allowed to grow at varying rates until some point in time T , after which they are assumed to grow at a constant rate. In this situation the present value of all the dividends is found by adding the present value of all dividends up to and including T , denoted by V_T , and the present value of all dividends after T , denoted by V_{T+} :

$$\begin{aligned} V &= V_T + V_{T+} \\ &= \sum_{t=1}^T \{D_t / (1 + k)^t\} + \{D_{T+1} / (k - g)(1 + k)^T\} \end{aligned} \tag{27}$$

In, general earnings per share in any period t can be expressed as being equal to E_0 times the product of all the earning growth rates from time zero to time t :

$$E_t = E_0 (1+g_{e1})(1+g_{e2})\dots\dots\dots(1+g_{et}) \dots\dots\dots(44)$$

Because dividends per share in any period t are equal to the payout ratio for that period times the earnings per share, it follows from Equation (44) that:

$$D_t = p_t E_t \\ = p_t E_0 (1+g_{e1})(1+g_{e2})\dots\dots\dots(1+g_{et}) \dots\dots\dots(45)$$

Replacing the numerator in Equation (47), with the right-hand side of Equation (45) and then dividing both sides by E_0 gives the following formula for determining a stock's normal price earnings ratio with the multiple-growth model:

$$V/E_0 = \{p_1(1+g_{e1}) / (1+k)^1\} + \{p_2(1+g_{e1})(1+g_{e2}) / (1+k)^2\} + \dots\dots\dots + \{p_T(1+g_{e1})(1+g_{e2})\dots\dots\dots(1+g_{eT}) / (1+k)^T\} + \{p(1+g_{e1})(1+g_{e2})\dots\dots\dots(1+g_{eT})(1+g) / (k-g)(1+k)^T\} \dots\dots\dots(46)$$

Example

Consider the Magnesium company again. Its share price is currently Rs 55, and per share earnings and dividends over the past year were Rs 3 and Rs 0.75 respectively. For the next two years, forecast earnings and dividends, along with the earnings growth rates and payout ratios are:

$$D_1 = Rs\ 2, \quad E_1 = Rs\ 5, \quad g_{e1} = 67\%, \quad p_1 = 40\%, \\ D_2 = Rs\ 3, \quad E_2 = Rs\ 6, \quad g_{e2} = 20\%, \quad p_2 = 50\%.$$

Constant growth in dividends and earnings of 10% per year is forecast to begin at $T = 2$, which means that $D_3 = Rs\ 3.30$, $E_3 = Rs\ 6.60$, $g = 10\%$ and $p = 50\%$.

Given a required return of 15%, equation (46) can be used as follows to estimate a normal P/E ratio for Magnesium:

$$V/E_0 = \{0.40(1+0.67) / (1+0.15)^1\} + \{0.50(1+0.67)(1+0.20) / (1+0.15)^2\} + \{0.50(1+0.67)(1+0.20)(1+0.10) / (0.15-0.10)(1+0.15)^2\} = 0.58+0.76+16.67 = 18.01$$

Because the actual price-earnings ratio of 18.33 (= Rs 55 / Rs 3) is close to the "normal" ratio of 18.01, the stock of the Magnesium Company can be viewed as fairly priced.

Sources of Earnings Growth

So far no explanation has been given as to why earnings or dividends will be expected to grow in the future. One way of providing such an explanation uses the constant-growth model. Assuming that no new capital is obtained externally and no shares are repurchased (meaning that the number of shares outstanding does not increase or decrease), the portion of earnings not paid to stockholders as dividends will be used to pay for the firm's new investments. Given that p_t denotes the payout ratio in year t , then $(1 - p_t)$ will be equal to the portion of earnings not paid out, known as the **retention ratio**. Furthermore, the firm's new investments stated on a per-share basis and denoted by I_t will be:

$$I_t = (1-p_t) E_t \dots\dots\dots(47)$$

If these new investments have an average return on equity of r_t in period t and every year thereafter, they will add $r_t I_t$ to earnings per share in year $t + 1$ and every year thereafter. If all previous investments also produce perpetual earnings at a constant rate of return, next year's earnings will equal this year's earnings plus the new earnings resulting from this year's new investments:

$$E_{t+1} = E_t + r_t I_t \\ = E_t + r_t (1-p_t) E_t \dots\dots\dots(48) \\ = E_t [1+r_t(1-p_t)]$$

Because it was shown earlier that the growth rate in earnings per share is:

$$E_t = E_{t-1}(1+g_{et}) \dots\dots\dots(35)$$

it follows that:

$$E_{t+1} = E_t (1 + g_{et+1}) \dots\dots\dots(49)$$

A comparison of Equations (48) and (49) indicates that:

$$g_{et+1} = r_t (1-p_t) \dots\dots\dots(50)$$

If the growth rate in earnings per share g_{et+1} is to be constant over time, then the average return on equity for new investments r_t and the payout ratio p_t must also be constant over time. In this situation Equation (50) can be simplified by removing the time subscripts:

$$g_e = r (1 - p). \dots\dots\dots(51a)$$

Because the growth rate in dividends per share g is equal to the growth rate in earnings per share g_e , this equation can be rewritten as:

$$g = r (1 - p). \dots\dots\dots(51b)$$

From this equation it can be seen that the growth rate g depends on (1) the proportion of earnings that is retained $1 - p$, and (2) the average return on equity for the earnings that are retained r .

The constant-growth valuation formula given in Equation (20) can be modified by replacing with the expression on the right-hand side of Equation (51b), resulting in:

$$V = D_0 \{(1+g) / (k-g)\} \dots\dots\dots(52) \\ = D_0 \{[1 + r (1 - p)] / [k - r (1 - p)]\} \\ = D_1 [1 / \{k - r (1 - p)\}]$$

Under these assumptions, a stock's value (and hence its price) should be greater, the greater its average return on equity for new investments, other things being equal.

Example

Continuing with the Copper Company, recall that $E_0 = Rs\ 2.70$ and $p = 66.67\%$. This means that 33.33% of earnings per share over the past year were retained and reinvested, an amount equal to Rs 0.90 (= 0.3333 x Rs 2.70). The earnings per share in the forthcoming year E_1 are expected to be Rs 2.835 [= Rs 2.70 x (1 + 0.05)] because the growth rate g for Copper is 5%.

The source of the increase in earnings per share of Rs 0.135 (= Rs 2.835 - Rs 2.70) is the Rs 0.90 per share that was reinvested at $t = 0$. The average return on equity for new investments r is 15%, because Rs 0.135 / Rs 0.90 = 15%. That is, the reinvested earnings of Rs 0.90 per share can be viewed as having generated an annual increase in earnings per share of Rs 0.135. This increase will occur not only at $t = 1$, but also at $t = 2$, $t = 3$, and so on. Equivalently, a Rs 0.90 investment at $t = 0$ will generate a perpetual annual cash inflow of Rs 0.135 beginning at $t = 1$.

Expected dividends at $t = 1$ can be calculated by multiplying the expected payout ratio p of 66.67% times the expected earnings per share E_1 of Rs 2.835, or 0.6667 X Rs 2.835 = Rs 1.89. It can also be calculated by multiplying 1 plus the growth rate g of 5%

times the past amount of dividends per share D_0 of Rs 1.80, or $1.05 \times Rs 1.80 = Rs 1.89$.

It can be seen that the growth rate in dividends per share of 5% is equal to the product of the retention rate (33.33%) and the average return on equity for new investments (15%), an amount equal to 5% ($= 0.3333 \times 0.15$).

Two years from now ($t = 2$), earnings per share are anticipated to be Rs 2.977 [$= Rs 2.835 \times (1 + 0.05)$], a further increase of Rs 0.142 ($= Rs 2.977 - Rs 2.835$) that is due to the retention and reinvestment of Rs 0.945 ($= 0.3333 \times Rs 2.835$) per share at $t = 1$. This expected increase in earnings per share of Rs 0.142 is the result of earning (15%) on the reinvestment (Rs 0.945), because $0.15 \times Rs 0.945 = Rs 0.142$.

The expected earnings per share at $t = 2$ can be viewed as having three components. The first is the earnings attributable to the assets held at $t = 0$, an amount equal to Rs 2.70. The second is the earnings attributable to the reinvestment of Rs 0.90 at $t = 0$, earning Rs 0.135. The third is the earnings attributable to the reinvestment of Rs 0.945 at $t = 1$, earning Rs 0.142. These three components, when summed, can be seen to equal $E_2 = Rs 2.977$ ($= Rs 2.70 + Rs 0.135 + Rs 0.142$).

Dividends at $t = 2$ are expected to be 5% larger than at $t = 1$, or Rs 1.985 ($= 1.05 \times Rs 1.89$) per share. This amount corresponds to the amount calculated by multiplying the payout ratio times. The expected earnings per share at $t = 2$, or Rs 1.985 ($= 0.6667 \times Rs 2.977$).

Exercise

1. The constant-growth dividend discount model can be used for both the valuation of companies and the estimation of the long-term total return of a stock.
 Assume: Rs 20 = the price of a stock today,
 8% = the expected growth rate of dividends,
 Rs 0.60 = the annual dividend one year forward.
 - a. Using only the above data, compute the expected long-term total return on the stock using the constant growth dividend discount model.
 - b. Briefly discuss three disadvantages of the constant growth dividend discount model in its application to investment analysis.
2. As a firm operating in a mature industry. Arbot Industries is expected to maintain a constant dividend payout ratio and constant growth rate of earnings for the foreseeable future. Earnings were Rs 4.50 per share in the recently completed fiscal year. The dividend payout ratio has been a constant 55% in recent years and is expected to remain so. Arbot's return on equity is expected to remain at 10% in the future, and you require an 11% return on the stock.
 - a. Using the constant growth dividend discount model, calculate the current value of Arbot's common stock. Show your calculation.
 After an aggressive acquisition and marketing program, it now appears that Arbot's EPS and ROE will grow rapidly over the next two years. You are aware that the dividend discount model can be useful in estimating the value of

common stock even when the assumption of constant growth does not apply.

- b. Calculate the current value of Arbot's common stock, using the dividend discount model, assuming that Arbot's dividend will grow at a 15% rate for the next two years, returning in the third year to the historical growth rate and continuing to grow at the historical rate for the foreseeable future. Show your calculation.

A three stage DDM has become very popular common stock valuation model. It is used by a number of institutional investors and brokerage firms. What advantage does it offer relative to a simple constant growth DDM? Despite its increased sophistication compared to the constant growth DDM, what disadvantage does it still retain?

Notes

LESSON 23

VALUATION OF OPTIONS

An option-pricing model is a mathematical formula or model into which you insert the following parameters:

- Underlying stock or index price
- Exercise price of the option
- Expiry date of the option
- Expected dividends (in cents for a stock, or as a yield for an index) to be paid over the life of the option
- Expected risk free interest rate over the life of the option
- Expected volatility of the underlying stock or index over the life of the option

When the formula is applied to these variables, the resulting figure is called the theoretical fair value of the option.

Pricing Models Used by the Market

There are two main models used in the market for pricing equity options: **the Binomial model and the Black Scholes model.**

The Binomial Option-pricing Model

Introduction

Thus far, we have only been able to place a lower and upper bound around the value of an option prior to its expiration. To produce an exact formula, we will need to make specific assumptions about the way the underlying asset price and riskless return evolve over time.

We begin by making the simplest possible, but still interesting, assumption governing this uncertainty: the option expires after a single period (of known but arbitrary duration) in which the underlying asset price moves either up to a single level or down to a single level. In addition to being able to invest in a European option, we can also invest in its underlying asset and cash. This approach, when generalized to accommodate many periods is known as the standard binomial option-pricing model.

We assume that there are no riskless arbitrage opportunities, first between the underlying asset and cash; and second between the option and the underlying asset. In that case, the prices of these three securities must be set as if their payoffs were discounted back to the present using the same two state-contingent prices. Expressed mathematically, we have three equations (one for the asset, one for cash, and one for the option) in two unknowns. As a result, we can solve the first two equations for the two state-contingent prices. Finally, knowing these state-contingent prices and using the third equation, we can write down a formula for the current option value as a function of its current underlying asset price and the riskless return.

Option Pricing Formula

The option-pricing problem we now address is to find an exact formula or method, which transforms the current underlying

asset price S and the current time-to-expiration t into a standard option's current value. Among the six fundamental determinants of option values — asset price, strike price (K), time-to-expiration, riskless return (r), volatility (s), and payout return (d) — these two are singled out because they must necessarily change as the expiration date approaches. In brief, we search for a function f of S and t , where the other determinants enter as fixed parameters, which equal the concurrent option value C or P .

For calls at expiration, we already know the answer: $C^* = \max [0, S^* - K]$; and similarly for puts, $P^* = \max [0, K - S^*]$. The unanswered question is what formula to use prior to expiration. Simple arbitrage arguments tell us at least that, prior to expiration, an American call value C must be less than the asset price S , but more than the call's current exercisable value $\max [0, S - K]$ and also more than its present value $\max [0, Sd^t - Kr^t]$ when volatility is zero. In summary,

$$S \geq C \geq \max [0, S - K, Sd^t - Kr^t]$$

For example, if $S = K = 100$, $r = 1.08$, $d = 1.03$, and $t = 1$, this places only very loose bounds on the call value, $100 \geq C \geq 4.49$.

Similarly, for an American put:

$$K \geq P \geq \max [0, K - S, Kr^t - Sd^t]$$

For European calls and puts, while the lower bounds must be loosened, the upper bounds can be tightened:

$$Sd^t \geq C \geq \max [0, Sd^t - Kr^t]$$

$$Kr^t \geq P \geq \max [0, Kr^t - Sd^t]$$

Single Period Model

Black and Scholes used a replicating portfolio argument to derive their option pricing formula. To mimic that argument with a binomial model, we form a portfolio consisting of delta units of the underlying asset and an investment in cash, such that the portfolio has payoffs equal to the value of the option in each of the two possible states at the end of the period. In this analysis, we also account for payouts, allowing for the option not to be payout-protected. If there are no riskless arbitrage opportunities, the current cost of constructing the replicating portfolio must equal the cost of the option. This leads to a simple single-period formula for the current value of the option — indeed, the very same formula that was derived earlier via state-contingent prices.

This satisfies our goal of finding an exact option pricing formula prior to expiration under conditions of uncertainty. Despite its simplicity, it reveals many of the economic ideas that lie behind modern option pricing theory. First, the current value of the option is given by a formula that depends on the concurrent underlying asset price, the strike price, the volatility (as proxied for by the sizes of the up and down moves of the underlying asset), the riskless return and the payout return. Second, investors are assumed only to act in the market to

eliminate riskless arbitrage opportunities. They need not be risk-averse or even rational.

Significantly, the formula says the option should be priced by discounting its risk-neutral expected value at the end of the period, where the discount rate is the riskless return, and where the risk-neutral probabilities have a simple well-defined form, determined solely by the riskless return, payout return, and the up and down move sizes.

If the option is American, the valuation formula is only slightly more complex: the option is worth either its current exercisable value or its holding value, whichever is greater.

The simplicity of the analysis seems to depend on the assumption of binomial underlying asset price movements. If, instead, the asset price could move to three possible levels, no replicating portfolio (involving solely the underlying asset and cash) could match the future values of the option. However, most of the force of this objection can be removed, as we shall see, by generalizing the model to many periods.

Binomial Formula Interpretation

$$C = [p C_u + (1 - p) C_d] / r$$

$$\text{Where, } p = \{(r / d) - d\} / (u - d)$$

Assumptions:

1. Exact formula for the value of an option prior to expiration.
2. Option value depends only on S , K , u , d , r and d .
3. Option value depend only on one random variable: underlying asset price.
4. Investor motivation: eliminate arbitrage opportunities, neither rationality nor risk aversion required.

Several comments are in order. It was easy to write down the formula for the value of a call at expiration ($\max [0, S^* - K]$); now we have the formula for the value of a call prior to expiration in terms of its possible values C_u and C_d one period later. If this were exactly one period before expiration, this formula clearly depends only on S , K , u , d , r and d (S and K through payoffs $C_u = \max [0, uS - K]$ and $C_d = \max[0, dS - K]$). Interpreting the spread between u and d as a proxy for asset volatility, these variables, along with the time-to-expiration, are the fundamental determinants of option prices.

In any model in the social sciences, it is prudent to ask what is being assumed about human behavior and psychology. In this case, we only assume that investors price securities so that there are no riskless arbitrage opportunities. This arose in our derivation when we assumed that the riskless return was bracketed by the total return of the underlying asset and when we assumed that the current cost of the option and its replicating portfolio must be the same. Interestingly, we have not assumed (as is common in many models of pricing in financial economics) that investors are risk-averse, or indeed that they are even rational in the economist's sense of making transitive choices (if an investor prefers A to B and B to C , then he prefers A to C).

Multi Period Model

The principal defect of the single-period binomial option-pricing model is overcome by extending it to many periods by constructing a recombining binomial tree of asset prices

working forward from the present. One path through the tree represents a sample drawn from the universe of possible future histories. Inverting this process and working backward from the end of the tree, being careful at each node, for American options, to consider the possibility of early exercise, then calculate the current option value. For a European option, using the risk-neutral valuation principle, a shortcut is available. We simply calculate its discounted risk-neutral expected expiration-date payoff. With a little algebra, we can derive a single-line formula for the current value of a European option even though it expires an arbitrarily large number of periods later.

We use a series of examples to illustrate this combination of working forward to construct the binomial tree of asset prices and then working backward to derive the current option value for European and American calls and puts, with and without payouts.

We then discuss some curious properties of binomial trees based on the ideas of sample paths and path-independence. It is fortunate that the binomial option pricing model is based on recombining trees, otherwise the computational burden would quickly become overwhelming as the number of moves in the tree is increased. All sample paths that lead to the same node in the tree have the same risk-neutral probability. The types of volatility – objective, subjective and realized – which in real life are usually different, are indistinguishable in our recombining binomial tree. Finally, in the continuous-time limit, as the number of moves in the tree (for a fixed time-to-expiration) becomes infinite, the sample path, though itself continuous, has no first derivative at any point.

We showed earlier that the term structure of spot and forward returns could be inferred from the concurrent prices of otherwise identical bonds of different maturities. In a similar manner, the inverse problem for binomial trees can also be solved; that is, we can infer a binomial tree from the concurrent prices of otherwise identical European options with different strike prices. This is called an implied binomial tree.

Volatility in Binomial Trees

In most economic situations involving a random variable, there are three types of volatility:

1. **The objective population volatility:** the true volatility of the random variable – true in the sense that if history could be rerun many times, on average the realized volatility of the random variable would tend to converge to this volatility.
2. **The subjective population volatility:** the volatility believed by the relevant agents to govern the random variable – that is, their best guess about the objective population volatility.
3. **The realized sample volatility:** the historically measured volatility of the realized outcomes of the random variable along its realized sample path.

In the standard binomial option pricing model, these three are identical. It is assumed that all investors believe in the same binomial tree. That is, they all believe that the underlying asset price follows a binomial movement. They all believe that the resulting tree is recombining, so that an up followed by a down move leads to the same outcome as a down move followed by

an up move. And they have the same estimate of the possible up and down moves at every point in the tree. Indeed, were this not the case, then two investors would value an option differently, so that whatever the market price of the option, at least one of them would believe there were a riskless arbitrage opportunity. Since we rule this out, in effect, we are assuming that volatilities (1) and (2) are the same.

Moreover, investors all think the next up and down moves at every node in the tree will be the same everywhere in the tree, and that $u = 1/d$. Thus $\log u = -\log d$, so that $(\log u)^2 = (\log d)^2$. This means that along any path in the tree the sampled (logarithmic) volatility around a zero mean will be the same. For example, consider two paths in a five move tree: u, d, d, u, d and d, d, u, u, u . The sample variance of the first path is:

$$[(\log u)^2 + (\log d)^2 + (\log u)^2 + (\log d)^2 + (\log u)^2]/5 = (\log u)^2$$

The sample variance of the second path is:

$$[(\log d)^2 + (\log d)^2 + (\log d)^2 + (\log u)^2 + (\log u)^2]/5 = (\log u)^2$$

This is an extraordinary situation. In real life, realized history can be interpreted as a sample from a population of possible histories. It would be strange indeed if each sample were guaranteed to have the same volatility computed from its time-series of events.

Hedging

We can use binomial trees not only to value options, but also to determine the sensitivity of these values to key determining variables: underlying asset price, time-to-expiration, volatility, riskless return and payout return.

Delta is the sensitivity of current option value to its current underlying asset price. It is easily calculated from a binomial tree. While working backward, stop one move before reaching the beginning of the tree and collect the two nodal values. The delta is their difference divided by the corresponding difference in underlying asset prices including payouts.

Gamma measures the rate at which the delta changes as the underlying asset price changes. This is also easily calculated from a binomial tree, but by stopping two periods before the beginning. It indicates at which points during the life of an option replication will be particularly difficult in practice.

Theta measures the sensitivity of the current option value to a reduction in time-to-expiration. Again, it is also easily calculated from a binomial tree by comparing two adjacent option values computed when the underlying asset price is the same. Vega, rho and lambda measure the sensitivity of current option value to changes in volatility, the riskless return and the payout return, respectively. To calculate these, two current option values are compared from two otherwise identical binomial trees, except that they are based on slightly different volatilities, riskless or payout returns.

Similar to bond duration, fugit measures the risk-neutral expected life of an option, accounting for reduction in its life from early exercise. This too can be calculated by working backward in the binomial tree.

The Black Scholes Model

The Black and Scholes Option Pricing Model involved calculating a derivative to measure how the discount rate of a warrant varies with time and stock price.

The Model:

$$C = SN(d_1) - Ke^{-rt}N(d_2)$$

C = Theoretical call premium

S = Current Stock price

t = time until option expiration

K = option striking price

r = risk-free interest rate

N = Cumulative standard normal distribution

e = exponential term (2.7183)

$$d_1 = \frac{\ln(S/K) + (r + \frac{s^2}{2})t}{s\sqrt{t}}$$

$$d_2 = d_1 - s\sqrt{t}$$

s = standard deviation of stock returns

\ln = natural logarithm

Assumptions of the Black and Scholes Model:

- 1. The stock pays no dividends during the option's life:** Most companies pay dividends to their shareholders, so this might seem a serious limitation to the model considering the observation that higher dividend yields elicit lower call premiums. A common way of adjusting the model for this situation is to subtract the discounted value of a future dividend from the stock price.
- 2. European exercise terms are used:** European exercise terms dictate that the option can only be exercised on the expiration date. American exercise term allow the option to be exercised at any time during the life of the option, making American options more valuable due to their greater flexibility. This limitation is not a major concern because very few calls are ever exercised before the last few days of their life. This is true because when you exercise a call early, you forfeit the remaining time value on the call and collect the intrinsic value. Towards the end of the life of a call, the remaining time value is very small, but the intrinsic value is the same.
- 3. Markets are efficient:** This assumption suggests that people cannot consistently predict the direction of the market or an individual stock. The market operates continuously with share prices following a continuous Itô process. To understand what a continuous Itô process is, you must first know that a Markov process is "one where the observation in time period t depends only on the preceding observation." An Itô process is simply a Markov process in continuous time. If you were to draw a continuous process you would do so without picking the pen up from the piece of paper.

4. **No commissions are charged:** Usually market participants do have to pay a commission to buy or sell options. Even floor traders pay some kind of fee, but it is usually very small. The fees that Individual investor's pay is more substantial and can often distort the output of the model.
5. **Interest rates remain constant and known:** The Black and Scholes model uses the risk-free rate to represent this constant and known rate. In reality there is no such thing as the risk-free rate, but the discount rate on U.S. Government Treasury Bills with 30 days left until maturity is usually used to represent it. During periods of rapidly changing interest rates, these 30-day rates are often subject to change, thereby violating one of the assumptions of the model.
6. **Returns are log normally distributed:** This assumption suggests, returns on the underlying stock are normally distributed, which is reasonable for most assets that offer options.

Greeks

Delta

$$\Delta = N(d_1)$$

Delta is a measure of the sensitivity the calculated option value has to small changes in the share price.

Gamma

$$\Gamma = \frac{d^2C}{dS^2} = \frac{e^{-(d^2/2)}}{S\sigma\sqrt{2\pi T}}$$

Gamma is a measure of the calculated delta's sensitivity to small changes in share price.

Theta

$$\Theta = \frac{dC}{dt} = \frac{\frac{S\sigma}{(d^2/2)}}{2\sqrt{2\pi T}} - \frac{rE}{e^{rt}} * N(d - \sigma\sqrt{T})$$

Theta measures the calculated option value's sensitivity to small changes in time till maturity.

Vega

$$Vega = \frac{\frac{S\sqrt{T}}{(d^2/2)}}{\sqrt{2\pi}}$$

Vega measures the calculated option value's sensitivity to small changes in volatility.

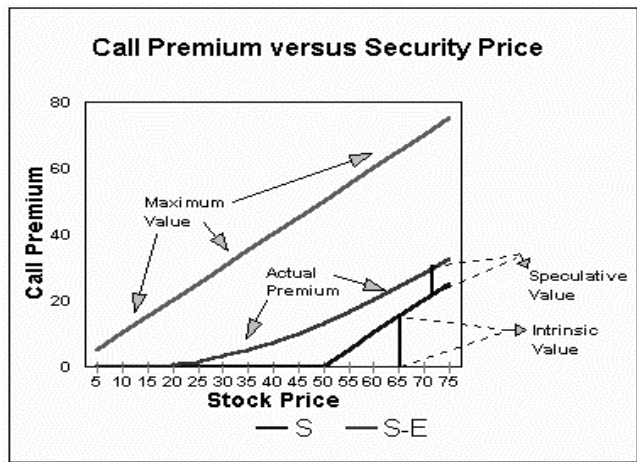
Rho

$$\rho = \frac{rE}{e^{rt}} N(d - \sigma\sqrt{T})$$

Relationship between Call Premium & Underlying Stock's Prices

These following graphs show the relationship between a call's premium and the underlying stock's price.

The first graph identifies the Intrinsic Value, Speculative Value, Maximum Value, and the Actual premium for a call.

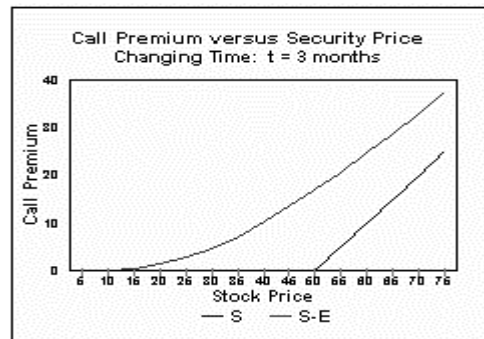


The following 5 graphs show the impact of diminishing time remaining on a call with:

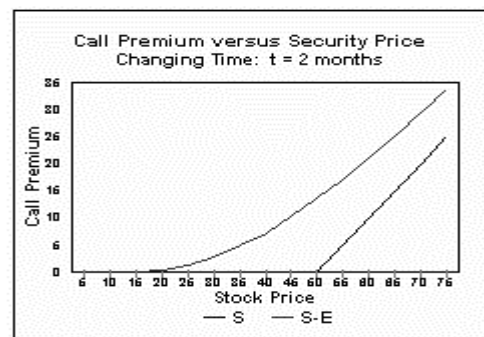
- S = \$48
- E = \$50
- r = 6%
- sigma = 40%

- Graph # 1, t = 3 months
- Graph # 2, t = 2 months
- Graph # 3, t = 1 month
- Graph # 4, t = .5 months
- Graph # 5, t = .25 months

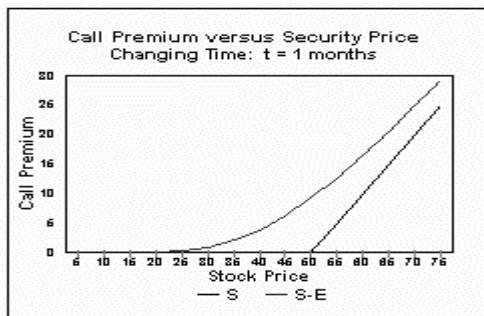
Graph #1



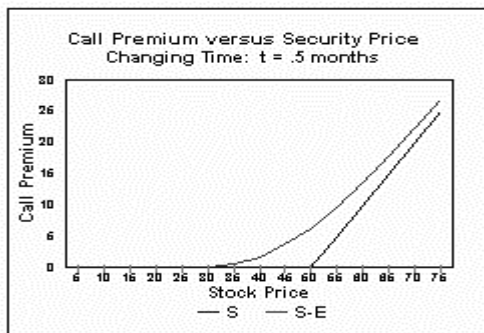
Graph #2



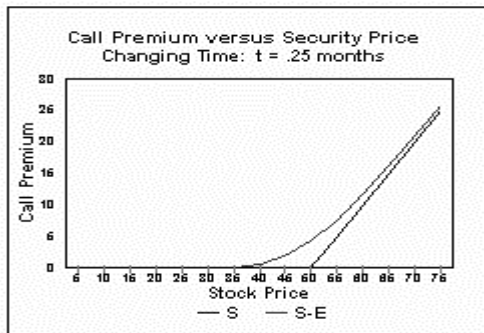
Graph #3



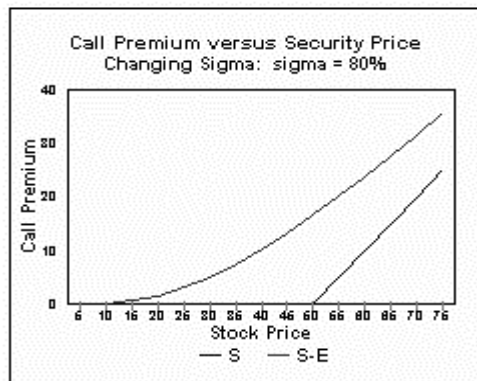
Graph #4



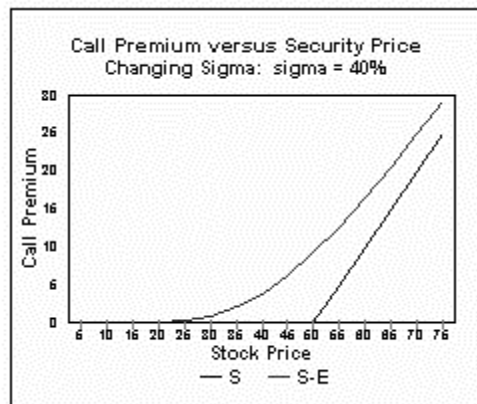
Graph #5



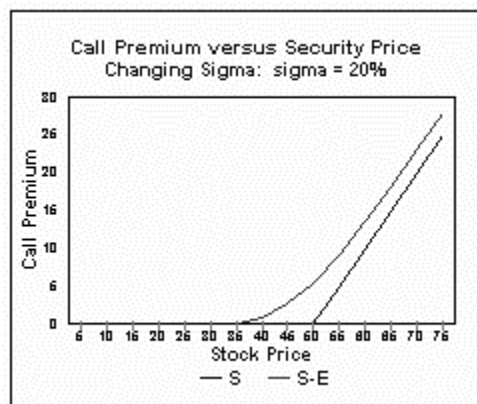
Graph #6



Graph #7



Graph #8



Graphs # 6 - 9, show the effects of a changing Sigma on the relationship between Call premium and Security Price.

$S = \$48$, $E = \$50$, $r = 6\%$, $\sigma = 40\%$

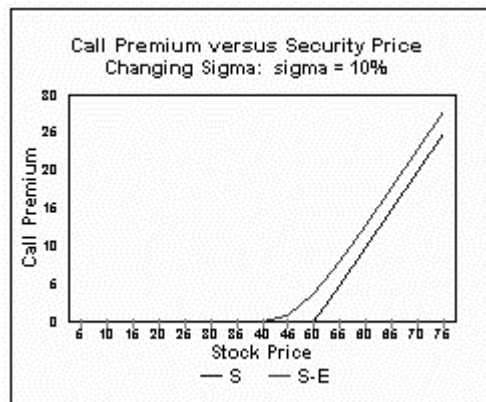
Graph # 6, $\sigma = 80\%$,

Graph # 7, $\sigma = 40\%$

Graph # 8, $\sigma = 20\%$,

Graph # 9, $\sigma = 10\%$

Graph #9



Hedging

Delta measures the sensitivity of an option value, *ceteris paribus*, to a small change in its underlying asset price. So it makes sense to calculate the delta by taking the first partial derivative of the option value, as expressed by the Black-Scholes formula, with respect to the underlying asset price. Other hedging parameters including gamma and vega, can also be derived from the Black-Scholes formula by taking the appropriate partial derivatives.

We can also use the Black-Scholes formula to measure the “local” risk of an option as measured by its own volatility or its beta. To do this, we apply the simple result that the local option volatility or beta equals the volatility or beta of its underlying asset scaled by the option omega.

For some purposes, we may also want to measure “global” properties of an option that apply on average over its remaining life. As an example, we show that the expected return of an option over all or some portion of its life can be easily calculated by reinterpreting the Black-Scholes formula.

Commonly, several different options – but with the same underlying asset – are simultaneously held in a portfolio. The delta of such a portfolio measures the amount by which its value changes for a small increase in the underlying asset price. Fortunately, having calculated the deltas of the individual options in the portfolio, the delta of the portfolio as a whole is calculated from a simple weighted average of the constituent option deltas. A similar additivity property also applies to gamma.

One application of portfolio deltas is to the construction of option portfolios, which are almost insensitive to movements in its underlying asset price. Such delta-neutral portfolios are useful for option market makers, who must take positions in options but do not want to risk losses because of unfavorable asset price changes. Investors who believe they can identify options which are mispriced relative to each other but who have no opinion about the direction of changes in the underlying asset price also use them.

The relationship between fair value and market price

Although the fair value may be close to where the market is trading, other pricing factors in the marketplace mean fair value is used mostly as an estimate of the option’s value.

Moreover, fair value will depend on the assumptions regarding volatility levels, dividend payments and so on that are made by the person using the pricing model. Different expectations of volatility or dividends will alter the fair value result. This means that at any one time there may be many views held simultaneously on what the fair value of a particular option is.

In practice, supply and demand will often dictate at what level an option is priced in the marketplace. Traders may calculate fair value on a option to get an indication of whether the current market price is higher or lower than fair value, as part of the process of making a judgement about the market value of the option.

Volatility

The volatility figure input into an option-pricing model reflects the assumptions of the person using the pricing model.

Volatility is defined technically in various ways, depending on assumptions made about the underlying asset’s price distribution. For the regular option trader it is sufficient to know that the volatility a trader assigns to a stock reflects expectations of how the stock price will fluctuate over a given period of time.

Volatility is usually expressed in two ways: historical and implied.

Historical volatility describes volatility observed in a stock over a given period of time. Price movements in the stock (or underlying asset) are recorded at fixed time intervals (for example every day, every week, or every month) over a given period. More data generally leads to more accuracy.

Be aware that a stock’s past volatility may not necessarily be reproduced in the future. Caution should be used in basing estimates of future volatility on historical volatility. In estimating future volatility, a frequently used compromise is to assume that volatility over a coming period of time will be the same as measured/historical volatility for that period of time just finished. Thus if you want to price a three month option, you may use three month historical volatility.

Implied volatility relates to the current market for an option. Volatility is implied from the option’s current price, using a standard option-pricing model. Keeping all other inputs constant, you can put the current market price of an option into any theoretical option price calculator and it will calculate the volatility implied by that option price.

LESSON 24

TYPES & FEATURES OF DEBT MARKET

Introduction

Debt market is essential for an economy as it provides liquidity to the investors; bring in FII money and most important serves as a growth engine for the economy. Debt market in India is made up of three main segments.

- Government securities market.
- Corporate securities market.
- Securities issued by PSU.

Government is the biggest borrower in the Indian debt market. After the dismantling of administered interest rate regime, it has started raising funds at market rates. This has led to market distortion because of presence of dominant issuer of securities. The government suffers the most because of immature market due to higher impact cost on borrowings. If the market were more deep and liquid the government would be the biggest beneficiary. Government securities provide the basis for pricing of other debt instruments.

Now again come the importance of well-developed debt market that fixed income securities would be priced on the basis of demand and supply factors, rather than benchmark from government securities.

Several initiatives have been taken in past to provide fillip to the government securities market like introduction of liquidity adjustment facility, clearing corporation of India, negotiated dealing system and others. But the real boost to the market could come from participation by retail investors, which till date is negligible.

Corporate Securities market in India began to develop when PSU started raising money directly from the public during eighties. The private sector participation was minimal. But now with well-recognised private sector and financial dis-intermediation taking place companies are actively raising money from the debt market.

Corporates with higher ratings AAA - A, are easily able to raise money in the market and that too at very competitive rates. But the liquidity in the market is again a problem as buyers of these securities like mutual funds, financial institutions, banks and high net worth individuals tend to keep the securities with them till maturity.

Given the low risk profile of Indian investors, it is imperative to have a developed debt market where they can make investments. Also it would not be wrong to say that the low risk profile of Indians would make debt market the engine of financing requirements for corporates and thus a developed debt market could boost the growth of the country.

Various initiatives can help us to get closer to developed debt market like - Improving the transaction-processing infrastructure, incentives to retail & foreign investors to participate in the market, removal of tax loop holes, efficient price discovery

mechanism, transparency in the system and most importantly deep & liquid secondary market.

Structure of Wholesale Debt Market

There is no single location or exchange where debt market participants interact for common business. Participants talk to each other, conclude deals, send confirmations etc. on the telephone, with clerical staff doing the running around for settling trades. In that sense, the wholesale debt market is a virtual market. The daily transaction volume of all the traded instruments would be about Rs5bn per day excluding call money and repos.

In order to understand the entirety of the wholesale debt market we have looked at it through a framework based on its main elements. The market is best understood by understanding these elements and their mutual interaction. These elements are as follows:

Instruments i.e. the instruments that are being traded in the debt market.

- Issuers i.e. entities which issue these instruments.
- Investors i.e. entities which invest in these instruments or trade in these instruments.
- Interventionists or Regulators i.e. the regulators and the regulations governing the market.

Debt Instruments

Traditionally when a borrower takes a loan from a lender, he enters into an agreement with the lender specifying when he would repay the loan and what return (interest) he would provide the lender for providing the loan. This entire structure can be converted into a form wherein the loan can be made tradable by converting it into smaller units with pro rata allocation of interest and principal. This tradable form of the loan is termed as a debt instrument.

Therefore, debt instruments are basically obligations undertaken by the issuer of the instrument as regards certain future cash flows representing interest and principal, which the issuer would pay to the legal owner of the instrument. Debt instruments are of various types. The key terms that distinguish one debt instrument from another are as follows:

- Issuer of the instrument
- Face value of the instrument
- Interest rate
- Repayment terms (and therefore maturity period/tenor)
- Security or collateral provided by the issuer

Different kinds of debt instruments and their key terms and characteristics are discussed below.

Money market instruments: By convention, the term “money market” refers to the market for short-term requirement and deployment of funds. Money market instruments are those instruments, which have a maturity period of less than one year. The most active part of the money market is the market for overnight and term money between banks and institutions (called call money) and the market for repo transactions. The former is in the form of loans and the latter are sale and buy back agreements – both are obviously not traded. The main traded instruments are commercial papers (CPs), certificates of deposit (CDs) and treasury bills (T-Bills). All of these are discounted instruments i.e. they are issued at a discount to their maturity value and the difference between the issuing price and the maturity/face value is the implicit interest. These are also completely unsecured instruments. One of the important features of money market instruments is their high liquidity and tradability. A key reason for this is that these instruments are transferred by endorsement and delivery and there is no stamp duty or any other transfer fee levied when the instrument changes hands. Another important feature is that there is no tax deducted at source from the interest component.

A brief description of these instruments is as follows:

Commercial paper (CP): These are issued by corporate entities in denominations of Rs2.5mn and usually have a maturity of 90 days. CPs can also be issued for maturity periods of 180 and one year but the most active market is for 90 day CPs.

Two key regulations govern the issuance of CPs—firstly, CPs have to be compulsorily rated by a recognized credit rating agency and only those companies can issue CPs which have a short term rating of at least P1. Secondly, funds raised through CPs do not represent fresh borrowings for the corporate issuer but merely substitute a part of the banking limits available to it. Hence, a company issues CPs almost always to save on interest costs i.e. it will issue CPs only when the environment is such that CP issuance will be at rates lower than the rate at which it borrows money from its banking consortium.

Certificates of deposit (CD): These are issued by banks in denominations of Rs0.5mn and have maturity ranging from 30 days to 3 years. Banks are allowed to issue CDs with a maturity of less than one year while financial institutions are allowed to issue CDs with a maturity of at least one year. Usually, this means 366 day CDs. The market is most active for the one-year maturity bracket, while longer dated securities are not much in demand. One of the main reasons for an active market in CDs is that their issuance does not attract reserve requirements since they are obligations issued by a bank.

Treasury Bills (T-Bills): These are issued by the Reserve Bank of India on behalf of the Government of India and are thus actually a class of Government Securities. At present, T-Bills are issued in maturity of 14 days, 91 days and 364 days. The RBI has announced its intention to start issuing 182 day T-Bills shortly. The minimum denomination can be as low as Rs100, but in practice most of the bids are large bids from institutional investors who are allotted T-Bills in dematerialized form. RBI holds auctions for 14 and 364 day T-Bills on a fortnightly basis and for 91 day T-Bills on a weekly basis. There is a notified value

of bills available for the auction of 91 day T-Bills that is announced 2 days prior to the auction. There is no specified amount for the auction of 14 and 364 day T-Bills. The result is that at any given point of time, it is possible to buy T-Bills to tailor one’s investment requirements.

Potential investors have to put in competitive bids at the specified times. These bids are on a price/interest rate basis. The auction is conducted on a French auction basis i.e. all bidders above the cut off at the interest rate/price which they bid while the bidders at the clearing/cut off price/rate get pro rata allotment at the cut off price/rate. The cut off is determined by the RBI depending on the amount being auctioned, the bidding pattern etc. By and large, the cut off is market determined although sometimes the RBI utilizes its discretion and decides on a cut off level, which results in a partially successful auction with the balance amount devolving on it. The RBI to check undue volatility in the interest rates does this.

Non-competitive bids are also allowed in auctions (only from specified entities like State Governments and their undertakings and statutory bodies) wherein the bidder is allotted T-Bills at the cut off price.

Apart from the above money market instruments, certain other short-term instruments are also in vogue with investors. These include short-term corporate debentures, Bills of exchange and promissory notes.

Like CPs, **short-term debentures** are issued by corporate entities. However, unlike CPs, they represent additional funding for the corporate i.e. the funds borrowed by issuing short term debentures are over and above the funds available to the corporate from its consortium bankers. Normally, debenture issuance attracts stamp duty; but issuers get around this by issuing only a letter of allotment (LOA) with the promise of issuing a formal debenture later – however the debenture is never issued and the LOA itself is redeemed on maturity. These LOAs are freely tradable but transfers attract stamp duty.

Bills of exchange are promissory notes issued for commercial transactions involving exchange of goods and services. These bills form a part of a company’s banking limits and are discounted by the banks. Banks in turn rediscount bills with each other.

Long-term debt instruments

By convention, these are instruments having a maturity exceeding one year. The main instruments are Government of India dated securities (GOISEC), State Government securities (state loans) public sector bonds (PSU bonds), corporate debentures etc.

Most of these are coupon bearing instruments i.e. interest payments (called coupons) are payable at pre specified dates called “coupon dates”. At any given point of time, any such instrument has a certain amount of accrued interest with it i.e. interest, which has accrued (but is not due) calculated at the “coupon rate” from the date of the last coupon payment. e.g. if 30 days have elapsed from the last coupon payment of a 14% coupon debenture with a face value of Rs 100, the accrued interest will be

$$100 \times 0.14 \times 30 / 365 = 1.15$$

Whenever coupon-bearing securities are traded, by convention, they are traded at a base price with the accrued interest separate – in other words, the total price would be equal to the summation of the base price and the accrued interest.

A brief description of these instruments is as follows:

Government of India dated securities (GOISECs): Like treasury bills, GOISECs are issued by the Reserve Bank of India on behalf of the Government of India. These form a part of the borrowing program approved by Parliament in the Finance Bill each year (Union Budget). They are issued in dematerialized form but can be issued in denominations as low as Rs 100 in physical certificate form. They have maturity ranging from 1 year to 30 years. Very long dated securities i.e. those having maturity exceeding 20 years were in vogue in the seventies and the eighties while in the early nineties, most of the securities issued have been in the 5-10 year maturity bucket. Very recently, securities of 15 and 20 years maturity have been issued.

Like T-Bills, GOISECs are most commonly issued in dematerialized form in the “SGL” account although it can be issued in physical certificate form on specific request. Tradability of physical securities is very limited. The SGL passbook contains a record of the holdings of the investor. The RBI acts as a clearing agent for GOISEC transactions by being the custodian and operator of the SGL account. GOISECs are transferable by endorsement and delivery for physical certificates. Transactions of securities held in SGL form are effected through SGL transfer notes. Transfer of GOISECs does not attract stamp duty or transfer fee. Also no tax is deductible at source on the coupon payments made on GOISECs.

Like T-Bills, GOISECs are issued through the auction route. The RBI pre specifies an approximate amount of dated securities that it intends to issue through the year. However, it has broad flexibility in exceeding or being under that figure. Unlike T-Bills, it does not have a pre set timetable for the auction dates and exercises its judgement on the timing of each issuance, the duration of instruments being issued as well as the quantum of issuance.

Sometimes the RBI specifies the coupon rate of the security proposed to be issued and the prospective investors bid for a particular issuance yield. The difference between the coupon rate and the yield is adjusted in the issue price of the security. On other occasions, the RBI just specifies the maturity of the proposed security and prospective investors bid for the coupon rate itself. In either case, just as in T-Bills, the auction is conducted on a French auction basis. Also, the RBI has wide latitude in deciding the cut off rate for each auction and can end up with unsold securities, which devolve on it.

Apart from the auction program, the RBI also sells securities in its open market operations (OMO), which it has acquired in involvement or sometimes directly through private placements. Similarly, it also buys securities in open market operations if it feels fit.

New types of GOISECs

Earlier, the RBI used to issue straight coupon bonds i.e. bonds with a stated coupon payable periodically. In the last few years,

the RBI has been innovative and new types of instruments have also been issued. These include

Inflation linked bonds: These are bonds for which the coupon payment in a particular period is linked to the inflation rate at that time – the base coupon rate is fixed with the inflation rate (consumer price index-CPI) being added to it to arrive at the total coupon rate. Investors are often loath to invest in longer dated securities due to uncertainty of future interest rates. The idea behind these bonds is to make them attractive to investors by removing the uncertainty of future inflation rates, thereby maintaining the real value of their invested capital.

Zero coupon bonds: These are bonds for which there is no coupon payment. They are issued at a discount to face value with the discount providing the implicit interest payment. In effect, these can be construed as long duration T – Bills or as bonds with cumulative interest payment.

State government securities (state loans): The respective state governments issue these but the RBI coordinates the actual process of selling these securities. Each state is allowed to issue securities up to a certain limit each year. The planning commission in consultation with the respective state governments determines this limit. While there is no central government guarantee on these loans, they are deemed to be extremely safe. This is because the RBI debits the overdraft accounts of the respective states held with it for payment of interest and principal. Generally, the coupon rates on state loans are marginally higher than those of GOISECs issued at the same time.

The procedure for selling of state loans, the auction process and allotment procedure is similar to that for GOISEC. They also qualify for SLR status and interest payment and other modalities are similar to GOISECs. They are also issued in dematerialized form and no stamp duty is payable on transfer. The procedure for transfer is similar to GOISECs. In general, state loans are much less liquid than GOISECs.

Public Sector Undertaking Bonds (PSU Bonds): These are long-term debt instruments issued by Public Sector Undertakings (PSUs). The term usually denotes bonds issued by the central PSUs (i.e. PSUs funded by and under the administrative control of the Government of India). The issuance of these bonds began in a big way in the late eighties when the central government stopped/reduced funding to PSUs through the general budget. Typically, they have maturities ranging between 5-10 years and they are issued in denominations (face value) of Rs1000 each. Most of these issues are made on a private placement basis to a targeted investor base at market determined interest rates. Often, investment bankers are roped in as arrangers for these issues.

These PSU bonds are transferable by endorsement and delivery and no tax is deductible at source on the interest coupons payable to the investor (TDS exempt). In addition, from time to time, the Ministry of Finance has granted certain PSUs, an approval to issue limited quantum of tax-free bonds i.e. bonds for which the payment of interest is tax exempt in the hands of the investor. This feature was introduced with the purpose of lowering the interest cost for PSUs which were engaged in

businesses which could not afford to pay market determined rates of interest e.g. Konkan Railway Corporation was allowed to issue substantial quantum of tax free bonds. Thus we have taxable coupon PSU bonds and tax free coupon PSU bonds.

Bonds of Public Financial Institutions (PFIs): Apart from public sector undertakings, Financial Institutions are also allowed to issue bonds, that too in much higher quantum. They issue bonds in 2 ways – through public issues targeted at retail investors and trusts and also through private placements to large institutional investors. Usually, transfers of the former type of bonds are exempt from stamp duty while only parts of the bonds issued privately have this facility. On an incremental basis, bonds of PFIs are second only to GOISECs in value of issuance.

Retail bond issues of PFI bonds have become a big rage with investors in the last three years. PFIs have also been offering bonds with different features to meet differing needs of investors e.g. monthly return bonds (which pay monthly coupons), cumulative interest bonds, step up coupon bonds etc

Corporate debentures: These are long-term debt instruments issued by private sector companies. These are issued in denominations as low as Rs 1000 and have maturities ranging between one and ten years. Long maturity debentures are rarely issued, as investors are not comfortable with such maturities. Generally, debentures are less liquid as compared to PSU bonds and the liquidity is inversely proportional to the residual maturity.

A key feature that distinguishes debentures from bonds is the stamp duty payment. Debenture stamp duty is a state subject and the quantum of incidence varies from state to state. There are two kinds of stamp duties levied on debentures viz issuance and transfer. Issuance stamp duty is paid in the state where the principal mortgage deed is registered. Over the years, issuance stamp duties have been coming down and are reasonably uniform. Stamp duty on transfer is paid to the state in which the registered office of the company is located. Transfer stamp duty remains high in many states and is probably the biggest deterrent for trading in debentures resulting in lack of liquidity.

Pass Through Certificates (PTCs): Pass through certificate is an instrument with cash flows derived from the cash flow of another underlying instrument or loan. Most commonly, foreign banks like Citibank on the basis of their car loan or mortgage/housing loan portfolio have issued them. The issuer is a special purpose vehicle, which just receives money from a multitude of (may be several hundreds or thousands) underlying loans and passes the money to the holders of the PTCs. This process is called securitisation. Legally speaking PTCs are promissory notes and therefore tradable freely with no stamp duty payable on transfer. Most PTCs have 2-3 year maturity because the issuance stamp duty rate of 0.75% makes shorter duration PTCs unviable.

Some corporates have also issued zero coupons like debentures. The best example is Tata Steel's Secured Premium Notes (SPNs). These debentures had 4 bullet payments of principal and interest combined after a wait period of 4 years.

Issuer of Debt Instruments

Issuers of debt instruments can be classified into five broad categories. These are as follows:

- Government of India and other sovereign bodies
- Banks and Development Financial Institutions
- PSUs
- Private sector companies
- Government or quasi government owned non-corporate entities

Government of India and other sovereign bodies: The largest volumes of instruments issued and traded in the debt market fall in this category. Issuers within this category include the Government of India, various State Governments and some statutory bodies. Instruments issued by the central Government carry the highest credit rating because of the ability of the Government to tax and repay its obligations.

As mentioned earlier, government of India issues T-Bills and GOISECs of varying maturities, while state government's issue state loans. Apart from these, the government also issues instruments, which are tailor-made for retail investors. These include tax-free relief bonds, Indira Vikas Patra, Kisan Vikas Patra, etc.

As on March 31, 1999, the total value of outstanding GOISECs is about Rs2750bn. The total value of outstanding state loans is about Rs500bn. The incremental gross issuance for 1999-2000 is estimated at Rs840bn. Net of repayments falling due within the year (about Rs300bn) the net increase in the value of outstanding securities in the current year would be about Rs540bn.

Banks and Development Financial Institutions

Instruments issued by DFIs and banks carry the highest credit ratings amongst non-government issuers primarily because of their linkage with the Government. There is also a perception that the Government will not allow important DFIs and banks to fail or default on their obligations. Prominent DFI issuers include ICICI, IDBI, IFCI, IRBI, as well as some state level DFIs like SICOM, GIIC etc. ICICI and IDBI have been the most aggressive issuers. Virtually all banks raise CDs while prominent bond issuers have been SBI, Bank of Baroda, and Bank of India etc. Most banks have floated issues last year in order to raise tier II capital to meet their capital adequacy requirements.

DFIs issue 1-3 year CDs as well as longer maturity bonds. Banks mainly issue short term CDs and they have also issued bonds from time to time (although infrequently). For DFIs, Bonds used to originally account for a very small part of their overall resource raising; but the picture has changed dramatically in the past 5 years as Government has discontinued other cheaper avenues of funds to them. For new private sector banks and foreign banks, which do not have access to a large branch network, CDs constitute an extremely important part of overall resource raising.

DFIs are the second largest issuer of debt instruments after the Government and sovereign bodies. The total value of outstanding bonds and CDs issued by DFIs is estimated at

Rs1trillion while the total outstanding value of CDs and bonds issued by scheduled commercial banks is estimated at Rs60bn. The incremental gross issuance of bonds by DFIs and banks is estimated at Rs320bn while the gross and net annual issuances of CDs are estimated at Rs120bn and Rs60bn respectively.

DFIs raise bonds through public issues targeted at retail investors and trusts. These retail issues account for about 20% of total funds raised. Private placement of bonds with institutional investors is the main mechanism for raising money. Privately placed bonds can be issued at any time to any investor with the only restriction being the ceiling defined by the shareholders of the PFI. Since these private placements happen throughout the year, they are called on-tap bond issues.

Public Sector Undertakings (PSUs)

PSUs issue PSU bonds, which enjoy special concessions. These concessions are indirect i.e. these PSU bonds are approved securities for investment by various trusts, provident funds etc. The prominent PSU issuers include Mahanagar Telephone Nigam Ltd. (MTNL), National Thermal Power Corporation (NTPC), Indian Railway Finance Corporation (IRFC), Konkan Railway Corporation (KRC), Neyveli Lignite Corporation (NLC), Steel Authority of India (SAIL), National Hydel Power Corporation (NHPC), and HUDCO, COAL INDIA, RASHTRIYA ISPAT NIGAM LTD (RINL) etc. IRFC is the fund raising arm of the Indian railways while MTNL raises funds for itself as well as for the Department of Telecom. In addition to PSU bonds, PSUs issue CPs like any other corporate.

The total value of PSU bonds outstanding as at March 31, 1999 is estimated at Rs500bn with MTNL, NTPC, IRFC and SAIL being the largest issuers. The overall issuance of PSU bonds was very high in the late eighties and early nineties when they were the biggest issuers after the Government of India and other sovereign bodies. However the total issuance has declined considerably in the last 3 - 4 years.

Private Sector Companies

Private sector companies issue commercial papers (CPs) and short and long-term debentures. The total value of outstanding debentures issued by private sector corporates is estimated at Rs500bn.

There were large issues of debentures by private sector companies in the early and mid nineties. Capital investment in the private sector was booming on the back of a strong capital market and private sector companies were raising loans by way of debentures (among other means) in order to meet their overall fund requirements. Sometimes, debentures were issued together with equity issues in the form of partly convertible debentures. Since then three developments have taken place. Firstly, there was overall decline in the investment spending by the private corporate sector leading to decline in demand for raising money in all forms including this one. On the other hand the demand for top quality debentures – i.e. debentures issued by top rated companies – has increased substantially due to general flight to quality. Thirdly, banks have been allowed to invest in private sector debentures, which is an indirect way of giving term loans to these companies. Banks have begun

debenture investment in a big way and demand for debentures by banks and newer investors like mutual funds have been high. These opposing forces have resulted in a market that is stagnant at about Rs100bn per year. Most of the debentures issued by the private sector are privately placed with institutional investors. It is not feasible for a typical company to have a public issue of debentures because the cost of making a public issue is very high for amounts less than Rs5bn.

Government owned or quasi government non-corporate entities

This is a new class of issuers, which has emerged in the last 3 years. The origin of these issuers lies in the inability of state governments to execute large infrastructure projects through budgetary allocations. Consequently, these state governments have created special purpose vehicles (SPVs) for executing these projects. These SPVs issue bonds/debentures. Typical maturity of the instruments ranges from 3-7 years.

The first prominent issuance of this type was made in 1993 - that of Sardar Sarovar Narmada Nigam Ltd, a vehicle created by the Government of Gujarat to execute the Sardar Sarovar project. Since then, Krishna Bhagya Jala Nigam (KBJNL), Maharashtra Krishna Valley Development Corporation (MKVDC), Maharashtra State Road Development Corporation (MSRDC) etc. have come with larger and larger issues for funding such ambitious infrastructure projects.

The credit rating of these debentures takes into account the implicit and sometimes explicit support of the State Government and the ratings issued are called SO rating (called supplemental obligation rating). In effect, it is an indirect rating of the state government in question. Most of these issues are public issues and the size of each issue is fairly large - ranging from Rs5bn to 15bn per issue. But the actual subscribers are largely institutional. There is a widespread belief that the state government behind the issuance would not be willing to face the wrath of a large number of retail investors and therefore would not let the issuer default. Hence, these issues are perceived to be safe.

The total value of outstanding debentures from this class of issuers is estimated at Rs150bn. Many private developers have come forward to sponsor infrastructure projects. We expect similar issues from such private sector infrastructure developers in the years to come.

Investors

While understanding the behavior of institutional investors, one will have to appreciate the very fundamental point that in most cases debt market is a market of compulsion as against the equity market which is a market of choice. Many institutional investors have no choice but to invest in specific debt instruments by virtue of their constitution or due to the regulations, which govern their functioning, or by their orientation as to whom they represent.

We have classified institutional investors operating in the Indian debt market in the following main categories:

- Banks
- Insurance companies
- Provident funds

- Mutual funds
- Trusts
- Corporate treasuries
- Foreign investors (FIIs)

While banks, corporate treasuries, mutual funds and some FIIs can and do invest in other kinds of securities like equities, provident funds, insurance companies and trusts almost exclusively invest in various debt instruments.

Banks

Collectively, all the banks put together are the largest investors in the debt market. They invest in all instruments ranging from T-Bills, CPs and CDs to GOISECs, private sector debentures etc. By regulation, a bank has to invest 25% of its total deposits in GOISECs or other approved securities. This percentage figure (25%) is called the Statutory Liquidity Ratio (SLR) and these eligible securities are called SLR securities. These securities are the ones, which are supposed to be extremely safe and carry minimal risk weightage. GOISECs used to carry zero risk weightage till very recently, which has now been changed to 5%.

The SLR regulation makes the banks the largest investors in the market for Government of India securities. In reality most banks have exposure to Government of India securities much higher than the minimum 25% stipulated by regulation. This is because of the prevailing recessionary environment wherein many industrial and commercial borrowers have been performing poorly and have been unable to meet their repayment obligations on time. In such an environment, investing in GOISECs represents a sure fire way of avoiding non-performing assets (NPAs). Similarly, investment in bonds and CDs of DFIs is another safe investment in the present environment. Banks would be amongst the largest investors in DFI bonds.

Banks lend to corporate sector directly by way of loans and advances and also invest in debentures issued by the private corporate sector and in PSU bonds. A few years ago, the total ceiling for investment by banks in corporate debentures, shares and other securities was fixed at 5% of the incremental deposits of the previous year. This regulation has since been changed. Banks can now invest 5% of the incremental deposits of the previous year in shares of private sector while there is no ceiling for debentures. Banks' investment in private sector investment has grown manifold due to this relaxation.

Banks also keep on investing in CDs and CPs - but that is more as a way of managing their liquidity on a day-to-day basis. By and large bank treasuries are not very active. In most cases, banks just buy and hold the investments, which they make and not trade too much on them. Things have been changing in recent times with some of the more aggressive banks churning over part of their portfolio and having a more active treasury.

Insurance companies

The second largest category of investors in the debt market are the insurance companies which have aggregate outstanding investments of Rs1250bn and gross annual incremental investments of Rs250bn. By regulation, LIC has to allocate 60% of its annual incremental investments to GOISECs while the GIC and its 4 subsidiaries (New India Assurance, Oriental Insurance, United India Insurance and National Insurance) are

supposed to allocate 40% of their annual incremental investments in GOISECs. LIC is allowed to invest up to a maximum of 15% of its incremental investments in private sector debentures and shares while GIC and its subsidiaries are allowed to invest up to a maximum of 25% of their incremental investments in private sector shares and debentures. Hence, collectively, the insurance companies are one of the largest investors in GOISEC's. Of their annual incremental investments of Rs250bn, not less than Rs150bn would be in GOISECs.

Provident funds

Provident funds are estimated to have a total corpus of Rs800bn. The total incremental investment by provident funds every year is approximately Rs150bn, which makes them the third largest investors in the debt market. Again by virtue of regulation, provident funds are supposed to invest a minimum of 25% of their incremental accretions each year in GOISECs, 15% in state government securities, 40% in PSU bonds etc with a maximum of 10% in rated private sector debentures. Investment guidelines for provident funds are being progressively liberalized and investment in private sector debentures is one step in this direction.

Most of the provident funds are very safety oriented and tend to give much more weightage to investment in government securities although they have been considerable investors in PSU bonds as well as state government backed issues like SSNL, MSRDC, etc The largest provident fund is the one managed by the State Bank of India on behalf of the Central Provident Fund Commissioner. This has an estimated corpus of Rs400bn and fresh annual investments of Rs70bn. This Provident fund has taken a policy decision not to invest in private sector debentures although recent regulation allows it to do so.

By their very orientation as well as by regulation, provident funds are buy and hold investors and almost never trade on their investments.

Mutual Funds

Mutual funds represent an extremely important category of investors. World over, they have almost surpassed banks as the largest direct collector of primary savings from retail investors and therefore as investors in the wholesale debt market.

Mutual funds include the Unit Trust of India, the mutual funds set up by nationalized banks and insurance companies like the SBI Mutual Fund, the GIC Mutual Fund, the LIC Mutual Fund etc. as well as the new private sector mutual funds set up by corporates and overseas mutual fund companies. Of these, the largest is the Unit Trust of India, which has almost 85% of the market share of the mutual fund business and a total corpus of about Rs700bn. The total corpus of all the mutual funds put together is about Rs850bn while the annual gross incremental investments are in the range of around Rs150bn.

While all mutual funds including the Unit Trust of India invest in GOISECs in a big way, they are collectively one of the largest investors in PSU bonds and private sector corporate debentures. Private sector mutual funds like Birla, Prudential ICICI etc have emerged as major investors in the debentures issued by top rated private sector companies. Short-term debentures are a

favorite of mutual funds. This has resulted in a scenario where the yield on some of the top quality private sector corporates is at a very low differential compared to risk free sovereign instruments and bonds of financial institutions.

Most mutual funds trade at least 30-40% of their portfolio with the exception of UTI, which does very little trading.

Trusts

Trusts include religious and charitable trusts as well as statutory trusts formed by the government and quasi government bodies. The largest trusts in India are the port trusts, which have been constituted under the Major Port Trust Act. These include the Bombay Port Trust, Madras Port Trust, Calcutta Port Trust, and Cochin Port Trust etc. The aggregate corpus of the Port Trusts is estimated at Rs80bn while their annual investments would be about Rs20bn of that amount.

Religious trusts and Charitable trusts range from the very small ones to large ones like Tirupati Devasthanam, Mata Amritanandmayi, and Ramkrishna Mission etc. Other trusts include hospital trusts like Jaslok, Bombay Hospital etc, armed forces trusts like Army Wives Welfare Association, Air Force Officers Association and many other general trusts like the Rajiv Gandhi Foundation, Birla Science Foundation etc.

There are very few instruments in which trusts are allowed to invest. Most of the trusts invest in CDs of banks and bonds of financial institutions and units of Unit Trust of India. The total aggregate corpus of all trusts is estimated at Rs250bn while the total incremental investment would be approximately Rs40bn per annum.

Corporate Treasuries

Corporate treasuries have become prominent investors only in the last few years. Treasuries could be either those of the public sector units or private sector companies or any other government bodies or agencies.

The treasuries of PSUs as well as the governmental bodies are heavily regulated in the instruments they can invest in. These regulations were put in place by the administrative ministries as a reaction to the Harshad Mehta scam. These treasuries are allowed to invest in papers issued by DFIs and banks as well as GOISECs of various maturities. However the orientation of the investments is mostly in short-term instruments or sometimes in extremely liquid long-term instruments, which can be sold immediately in the markets. Some have been investing in preference shares issued by DFIs.

In complete contrast to public sector treasuries, those in the private sector are very adventurous, fleet footed and savvy. They invest in CDs of banks and CPs of other private sector companies, GOISECs as well as debentures of other private sector companies. Of late, preference shares of DFIs and open-ended mutual funds have also become popular with these treasuries. Some of the savvier treasuries have also been investing in badla financing which gives much superior returns as compared to any other security albeit with higher risk perception. Another favorite is the inter-corporate deposit (ICD), which is also non tradable like badla financing. The big private sector treasuries are those belonging to the Birla companies, Reliance group, Gujarat Ambuja, Bajaj Auto, and Parle Products etc.

Foreign Institutional Investors

India does not allow capital account convertibility either to overseas investors or to domestic residents. Registered FIIs are an exception to this rule. More than 300 FIIs invest in Indian equities while the number of FIIs investing in Indian domestic debt is less than 20.

FIIs have to be specifically and separately approved by SEBI for equity and debt. Each debt FII is allocated a limit every year up to which it can invest in Indian debt securities. It can do so without asking for any permission from anyone. They are also free to disinvest any of their holdings, at any point of time, without asking for any permission from anyone.

The total aggregate limit or ceiling of investments by debt FIIs is US\$ 1.5bn. As on date, the aggregate investments are less than US\$100mn. Most of the debt FIIs is extremely quick traders. They invest wherever they can make a quick buck. They are unlikely to invest in Indian debt at a time when the currency risk is high and the expected gains from price appreciation in Indian debt paper are not very high.

Retail Debt Market

The transaction sizes in the debt market are very large and most individual investors are not able to participate in it directly. Typically retail investors invest money with primary savings institutions through various schemes/instruments. Typical examples of primary savings mobilizers are banks, insurance companies, mutual funds, provident funds etc. In turn, these institutions invest the funds mobilized from millions of individuals in the wholesale debt market and other investment avenues. In this section, we discuss the various avenues of investment available to retail investors in instruments/schemes which provide the investor with fixed annual returns in the form of interest.

The following table shows the investment behavior of Indian households as a whole and gives some idea of investment preferences for the entire mass of Indian investors.

Household savings and investment trends (% GDP)

% of GDP	1993-94	1994-95	1995-96	1996-97	1997-98
Currency	1.6	1.7	1.5	1.1	0.9
Bank deposits	4.5	5.8	3.6	4.5	5.8
Non bank deposits	1.4	1.2	1.2	1.7	0.5
Life Insurance	1.2	1.2	1.2	1.3	1.4
Provident/pension	2.2	2.2	2.0	2.1	2.3
Small savings	0.9	1.4	0.9	0.9	1.6
Shares & debentures	1.2	1.4	0.8	0.5	0.2
UTI units	0.6	0.4	-	0.3	-
Trade debt	(0.1)	(0.1)	-	-	-
Total % GDP	13.5	15.2	11.2	12.4	12.7

Household savings and investment trends (% total)

%of financial assets	1993-94	1994-95	1995-96	1996-97	1997-98
Currency	12.2	10.9	13.2	8.7	6.9
Bank deposits	33.1	38.4	32.0	36.4	45.6
Non bank deposits	10.6	7.9	10.6	13.6	4.3
Life Insurance	8.7	7.8	11.1	10.3	10.8
Provident/pension	16.6	14.6	17.8	16.7	18.1
Small savings	6.3	9.1	7.7	7.4	12.4
Shares & debentures	9.2	9.3	7.1	4.3	1.7
UTI units	4.3	2.7	0.2	2.4	0.3
Trade debt	(1.0)	(0.7)	0.3	0.2	(0.1)
Total	100.0	100.0	100.0	100.0	100.0

The above table shows the importance that the typical investor attaches to “fixed” return schemes and the extreme importance and faith in the “government” as a borrower.

Investment/Saving products

It must be noted that there are few tradable instruments available for investment by retail investors. Most of the available products are different kinds of schemes that are largely illiquid. The different investment products available for retail participation are listed below:

- Products from banks
- Fixed/term deposits
- Recurring deposits
- Savings deposits
- Contributory and Voluntary provident fund
- Small savings schemes of government
- Public Provident Fund (PPF) scheme
- Tax-free Relief Bonds
- Small savings schemes from Department of Posts
- National Savings Scheme (NSS)
- National Savings Certificates (NSC)
- Postal fixed deposits
- Indira Vikas Patra
- Kisan Vikas Patra
- Savings oriented life insurance schemes
- Company fixed deposits
- Bonds of development financial institutions
- Debentures of private sector companies
- Debentures of infrastructure companies
- Debentures of state government backed entities
- Unit Trust of India
- Unit Scheme 64 (US 64)

- Guaranteed return monthly income schemes
- Income/bond funds
- Other Mutual funds
- Guaranteed return monthly income schemes
- Income/bond funds
- Mutual benefit companies
- Nidhi companies
- Collective schemes (plantation/ livestock etc.)

Broad trends in retail debt market

Traditionally, fixed deposits of companies used to be the biggest avenue for retail investors. Within this category, it was the deposits of finance companies (NBFCs), which were most popular with investors and mobilizers alike – with investors because of the higher interest rates offered (typically 1-2% higher and additional incentives like gold coin etc.) and with mobilizers because of the high commissions. In South India, Nidhi companies, benefit and chit funds were quite popular due to the high returns offered.

The last 3 years have been times of dramatic upheaval in the retail debt market. The key events relate to defaults by many of the issuers especially the finance companies and the benefit companies. Prominent default cases include the CRB group of companies, Lloyds Finance, and most recently the Kuber group of companies. The market was also rocked by the US 64 problem when for a brief period of time investors were scared and withdrawing money from the scheme.

The reasons for default by manufacturing companies are related to the overall decline in profitability due to increased competition, dumping of imports, sharp fall in commodity prices and general slowdown in the economy.

The reasons for defaults in finance companies are related to their investments. Most NBFCs had invested in real estate (either directly or builder financing), stock market, promoter funding and other illiquid investments. In addition, they had invested in 100% depreciation leases (often fictitious sale and leaseback transactions) to obtain tax shields. They witnessed widespread defaults in their lending portfolio, huge losses in investment portfolio and often were disallowed tax shields by the income tax authorities. In the wake of credit problems, the RBI came down heavily on these companies and investors stopped investing in their FD's, which further aggravated their liquidity crisis. Ironically, the loss of business and the losses they faced resulted in their so-called tax shield being irrelevant.

All these resulted in a huge flight to safety. This can be seen from the increase in popularity of institutional bond issues (i.e. ICICI “Safety Bonds” and IDBI “Flexi Bonds”) and the sharp increase in the collection of Government sponsored small savings schemes and postal schemes (In FY 99, small savings collections were about Rs320bn as against about Rs91bn 5 years ago). While it is difficult to obtain data to support the feeling that nationalized banks have also received larger amounts of money, empirical experience on the ground does point towards that trend.

Despite the US 64 problem and the consequent loss of image suffered by UTI, it continued to collect large quantum of funds

LESSON 25

CALCULATION OF BOND YIELDS

Overview

Yield is the total amount of income you earn on an investment each year as a percentage of what you spent to buy it.

A bond's yield is the interest the bond pays divided by its price. If you buy a 10-year Rs 1,000 bond paying 6% and hold it until it matures, you'll earn Rs 60 a year for ten years — an annual yield of 6%, or the same as the interest rate.

A stock's yield is the dividend per share divided by its current price per share. If a company whose stock is selling for Rs 40 a share pays an annual dividend of Rs 0.80 a share, the stock's yield is 2%. However, while all bonds have a yield, only those stocks that pay dividends have yields.

There are basically two types of bond yields you should know about: current yield and yield to maturity.

Current yield is the annual return on the amount paid for a bond. Yield to maturity is the total return you receive by holding a bond until it matures. It equals the interest you receive from the time you purchase the bond until maturity, plus any gain (if you purchased the bond below its par, or face, value) or loss (if you purchased it above its par value).

Tax-exempt yields are usually stated in terms of yield to maturity, with yield expressed at an annual rate. If you purchase a bond with a 6% coupon at par, its yield to maturity is 6%. If you pay more than par, the yield to maturity will be lower than the coupon rate. If purchased below par, the bond will have a yield to maturity higher than the coupon rate.

When the price of a tax-exempt security - or any bond, for that matter - increases above its par value, it is said to be selling at a premium. When the security sells below par value, it is said to be selling at a discount.

Current Yield

If you buy a bond in the secondary market, after the date of issue, the bond's yield, or more precisely its current yield, differs from its interest rate.

That's because bond prices aren't fixed at their par value of Rs1000, and generally sell for more or less than that amount. The actual price is determined by supply and demand, or what investors are willing to pay. And the current yield is determined by the price at the time of purchase.

If the price is more than par, or a premium, the current yield is less than the bond's interest rate. For example, if you spend Rs 1200 for a Rs 1000 bond paying 6% interest, the yield would be 5%.

And if the price is less than par, or a discount, the current yield is more than the stated interest. In this case, if you pay Rs 920 for a 6% bond, the yield is 6.52%. While a bond's current yield changes every time its price changes, your yield on a bond is fixed by the price you pay.

Current Yield = Annual interest payment / Price of the Bond.

Bond Yield-to-maturity

Imagine you are interested in buying a bond, at a market price that's different from the bond's par value. There are three numbers commonly used to measure the annual rate of return you are getting on your investment:

Coupon Rate: Annual payout as a percentage of the bond's par value

Current Yield: Annual payout as a percentage of the current market price you'll actually pay

Yield-to-Maturity: Composite rate of return off *all* payouts, coupon and capital gain (or loss)

The capital gain or loss is the difference between par value and the price you actually pay). The yield-to-maturity is the best measure of the return rate, since it includes all aspects of your investment.

Whatever r is, if you use it to calculate the present values of all payouts and then add up these present values, the sum will equal your initial investment.

In an equation,

$$1. \quad c(1+r)^{-1} + c(1+r)^{-2} + \dots + c(1+r)^{-n} + B(1+r)^{-n} = P$$

where

c = annual coupon payment (in dollars, not a percent)

n = number of years to maturity

B = par value

P = purchase price

You should try to form a mental picture of what this equation is saying. The left side represents $n+1$ different compound interest curves, all starting out now, and each one ending at the moment that the payout it corresponds to takes place. Most of these curves will lie pretty low to the axis, because they only grow to a value of c , the coupon payment. The very last curve will be a lot taller, and end up at the par value B . And if you add up the present values of all these curves (that's the left side of the equation), the sum will exactly equal the purchase price of the bond (that's the right side).

As with most composite payout problems, equation 1 can't be solved exactly, in general. The nice part is that all yield-to-maturity problems have basically the same form, so people have been able to create programmable calculators and computer programs (and even tables back in the old days) to help you find r .

Example: Suppose your bond is selling for Rs 950, and has a coupon rate of 7%; it matures in 4 years, and the par value is Rs 1000. What is the YTM?

The coupon payment is Rs 70 (that's 7% of Rs 1000), so the equation to satisfy is

$$70(1+r)^{-1} + 70(1+r)^{-2} + 70(1+r)^{-3} + 70(1+r)^{-4} + 1000(1+r)^{-4} = 950$$

One thing to notice is that the YTM is greater than the current yield, which in turn is greater than the coupon rate. (Current yield is Rs 70 / Rs 950 = 7.37%). This will always be true for a bond selling at a discount. In fact, you will always have this:

Bond Selling At . . .	Satisfies This Condition
Discount	Coupon Rate < Current Yield < YTM
Premium	Coupon Rate > Current Yield > YTM
Par Value	Coupon Rate = Current Yield = YTM

Bond Yields and Prices

Once a bond has been issued and it's trading in the bond market, all of its future payouts are determined, and the only thing that varies is its asking price. If you buy such a bond the yield to maturity you'll get on your investment naturally increases if you can buy it at a lower price: as they say, bond prices and yields "move" in opposite directions. That can be confusing since people aren't always consistent in the way they talk about bond performance. If somebody says "10 year treasuries were down today", they probably mean that the asking price was down (so it was a bad day for bond holders); but they sometimes mean that the yield to maturity was down because the asking price was up (a *good* day for bond holders).

High & Low Yields

In the world of stocks and bonds, higher yield may mean higher risk. Low-rated bonds, which expose you to greater risk of default, must offer higher interest than better-rated bonds in order to sell their issues. Those higher rates translate into higher yields per Rs of investment. But because the issuing company may be on shaky ground, you run the risk of losing interest payments and your principal.

Similarly, some companies that have traditionally paid stock dividends may continue to do so even as their stock price slips. That changing ratio increases the yield, which may be a sign that the company is in trouble.

On the other hand, some companies whose stock prices tend to change very little over time have traditionally paid higher dividends than others to increase investors' total return. In this case, high yield is usually not a danger sign.

Comparing Yields

Since you calculate yield by dividing the amount you receive annually in interest or dividends by the amount you put into the investment, you can compare the rate at which different investments are contributing to the value of your portfolio. For example, if you're earning Rs 500 a year on a money market mutual fund in which you've invested Rs 10000, and you earn another Rs 500 on a savings account in which you deposited Rs 20000, your income is the same, but your yield is different. The mutual fund yield is 5% (Rs 500 / Rs 10000 = 0.05, or 5%), but the savings account yield is just 2.5% (Rs 500 / Rs 20000 = 0.025, or 2.5%).

On the other hand, it can be difficult to use yield to compare different types of investments. For example, you don't want to compare a 2% stock yield to a 6% bond yield and conclude the stock is under-performing. That's because there may be a stronger potential for the stock price to increase, providing a larger total return.

Notes

LESSON 26

RISK IN INVESTING IN BONDS

General Risks

1. Economic risk

Security prices are always influenced by changes in the activity of a market economy, and fluctuate in line with such activity. The duration and extent of economic ups and downs vary, as do the repercussions of those variations on the different market sectors. In addition, different countries' economic cycles differ from each other. Failure to take these factors into account as well as an incorrect analysis of an economy's development when taking an investment decision may lead to losses being incurred. The effect of an economic cycle on prices must therefore be taken into account.

2. Inflation risk

Currency devaluations may cause an investor to incur financial loss. Therefore, it is important for investors to take into account the real value of their existing assets as well as the real realizable yield on this portfolio. For the purpose of calculating this yield, real interest rates should be taken into account, that is, the difference between the nominal interest rate and the inflation rate.

3. Country risk

It may happen that a foreign debtor, although solvent, cannot repay the principal and interest on loan at maturity or may even completely default on the loan due to the unavailability of foreign currency or limits on foreign currency transfers in the debtor's country of origin. Country risk includes the danger of economic as well as political instability. Consequently, payments to which the investor is entitled may be defaulted on in the event of the ensuing unavailability of foreign currency or limits on foreign currency transfers. With regard to securities issued in a foreign currency, investors risk receiving loan repayments in a currency that is no longer convertible because of exchange controls. No means of shielding oneself against such risks exist.

4. Exchange rate risk

Since foreign exchange rates fluctuate, exchange rate risk exists whenever securities are held in a foreign currency. The essential factors affecting a country's foreign exchange rate are a country's inflation rate, the gap between domestic and foreign interest rates, and the assessment of economic trends, the political situation and safety of the investment. Additionally, psychological factors, such as internal political crises, may weaken a domestic currency's exchange rate.

5. Liquidity risk

Insufficient market liquidity may prevent investors from selling securities at market prices. Fundamentally, a distinction has to be made between a lack of liquidity caused by the laws of market supply and demand and lack of

liquidity due to a security's characteristics or to market practice.

A lack of liquidity due to market supply and demand arises when a security is almost exclusively in supply (seller's price or bid) or almost exclusively in demand (buyer's price or offer) at a certain price.

Under such circumstances, buy or sell orders cannot be carried out immediately and or only partially (partial execution) and/or at unfavorable conditions. In addition, higher transaction costs may apply. A lack of liquidity due to a security's inherent characteristics or to market practice may occur, for example, because of lengthy transcription procedures for transactions involving registered shares, long performance delays because of market practice, other trading restrictions or a short-term need for liquidity that cannot be covered through sales of securities.

6. Psychological risk

Irrational factors may affect the overall performance of securities on stock exchanges such as trends, opinions or rumors likely to cause share prices to drop substantially even if the future prospects of the companies affected thereby have not evolved unfavorably.

7. Credit risk

Purchases of securities financed through loans are associated with additional risks. Supplementary collateral may be required if the prices of the pledged assets move such that the credit limit guaranteed by the pledge is exceeded. If the investor is unable to provide the additional collateral, the bank may be forced to sell the deposited securities at an unfavorable moment. Furthermore, the loss incurred due to an unfavorable movement in the price of a security may exceed the initial investment amount. Fluctuations in the prices of pledged securities may hinder the investor's ability to repay the loans. Investors need to be aware that, due to the leverage factor accompanying the purchase of credit-financed securities, the sensitivity to price fluctuations of such investments will be proportionally greater. As a consequence, chances for gain increase, as do risks of loss. The extent of those risks will depend on the amount of leverage associated with the investment: the greater the leverage, the greater the risks.

Specific Risks

Bonds

Bonds are negotiable debt instruments issued in bearer or registered form by a company or a government body to creditors and whose par value at issuance represents a fraction of the total amount of the debt. The interest payments on bonds may be either fixed or variable. The duration of the debt as well as the terms and conditions of repayment are deter-

mined in advance. The purchaser of a bond (the creditor) has a claim against the issuer (the debtor).

Characteristics:

- Yield: interest payment, possible increase in value
- Duration: short-term (up to 4 years), medium term (4-8 years), long-term (more than 8 years)
- Repayment: unless stipulated otherwise, the bond is repaid either at the maturity date, or by means of annual payments, or at different dates determined by drawing lots
- Interest: depends on the terms and conditions of the bond; e.g., fixed interest for the entire duration or variable interest often linked to reference rates (e.g., FIBOR or LIBOR).

Risks

1. Insolvency risk

The issuer risks becoming temporarily or permanently insolvent, thus entailing its incapacity to repay the interest or redeem the bond. The solvency of an issuer may change due to general economic conditions and/or to changes specific to the issuing company, the issuer's economic sector and/or the countries concerned as well as political developments with economic consequences. Deterioration of the issuer's solvency will influence the price of the securities it issues.

2. Interest rate risk

Uncertainty concerning interest rate movements means that purchases of fixed-rate securities carry the risk of a fall in the prices of the securities if interest rates rise. The longer the loan duration and the lower the interest rate, the higher a bond's sensitivity to a rise in the market rates.

3. Early redemption risk

The issuer of a bond may include a provision allowing early redemption of the bond if market interest rates fall. Such early redemption may result in a change to the expected yield.

4. Risks specific to bonds redeemable by drawing

Bonds redeemable by drawing have a maturity that is difficult to determine, so unexpected changes in the yield on these bonds may occur.

5. Risks specific to certain types of bond

Additional risks may be associated with certain types of bond, e.g., floating rate notes, reverse floating rate notes, zero bonds, foreign currency bonds, convertible bonds, indexed bonds, subordinated bonds, etc. For such bonds, the investor is advised to make inquiries about the risks referred to in the issuance prospectus and not to purchase such securities before being certain that all risks are fully understood.

In the case of subordinated bonds, investor is advised to enquire about the ranking of the debenture compared to the issuer's other debentures. Indeed, if the issuer becomes bankrupt, those bonds will only be redeemed after repayment of all higher ranked creditors. In the case of reverse convertible notes, there is a risk that the investor will not be entirely reimbursed, but will receive only an amount equivalent to the underlying securities at maturity.

The US 64 Crisis

What is the US 64 scheme and what exactly is the US 64 crisis all about?

The US 64 is the largest mutual fund scheme of the Unit Trust of India (UTI) having about 20 million investors. In its peak days, it had a corpus exceeding Rs300bn while now its corpus is about Rs200bn.

The US 64 invests in GOI Securities, shares and debentures of corporates, provides term loans to corporates and also participates in the call money market. About 65% of its investments (at investment price or "book value") are in shares while the rest are in various income/interest-bearing instruments.

US 64 earn dividends on its share investments and interest income on bonds/debentures/loans. It also earns profits/incurs losses on sale and purchase of shares and debentures. The net earnings through dividends, interest and profits on sale less losses on sale is the "distributable income" of the scheme i.e. it is this component which the US 64 can distribute to its unit holders. Any undistributed part out of this distributable income is reinvested/ redeployed in assets and adds to the holdings.

In addition to its distributable earnings, US 64 also has undistributable profits or losses. This is because the assets of US 64 fluctuate in value depending on market conditions. When share and bond markets are in a boom phase, the value of its shares and bonds/debentures can be much higher than its acquisition price and conversely when the markets are in a bear phase, they can be much lower than the acquisition price. These differences are termed as "mark to market" gains or losses respectively. The Net Asset Value of the scheme is the total asset value (at market prices) divided by the number of outstanding units. Such gains or losses increase or decrease the NAV per share.

UTI does not actually disclose the NAV but if it did so, immediately after dividend distribution, the NAV would have fallen by the amount of dividend distributed per share. In actual practice, UTI declares a sale and repurchase price for the units of US 64, which fall after the dividend is distributed, but not necessarily by the amount of dividend distributed per share.

In years when the market is in a bear phase, it may not be an opportune time to sell holdings and therefore, the realized profits could be low. Consequently, the dividend distribution could be low. There would also be a fall in the NAV, were it actually being calculated. This is what most mutual funds would do.

However, in the case of US 64, the trustees of US 64 decided to maintain the dividend rate even in bad years. This was possible by selling shares having highest mark to market profit and realizing the profit (i.e. shares of blue chips acquired many years ago at very low prices). The result was that the residual shares in the portfolio of holdings were those where the mark to market profit was low or there was a mark to market loss. As years went by, and the stock market continued to be in a bear phase, there arose a fear that there may be no choice in reducing the dividend sharply because there were very few investments, in which a profit could be realized on sale.

Secondly, throughout these years, fresh US 64 units were sold at a price significantly higher than NAV while some US 64 units were redeemed at a price higher than NAV. In effect, new investors subsidized investors who disinvested their holdings. Typically, the investors who exited were very smart corporate investors, which were holding the US 64 as a treasury investment while most of the new investors were retail investors who were completely unaware of the goings on. There arose a fear that some day this charade could not continue and the UTI would be forced to lower the sale and repurchase price of US 64 units leading to substantial lowering of the value of holdings of millions of individual investors. Further, there was a fear that the US 64 may have illiquid holdings, which could not be sold for cash, in case there were large-scale redemptions.

What was the origin of the problem?

The US 64 crisis was essentially a case of a mutual fund paying out higher returns to investors than what it earned on its investments. The trustees of the UTI took this decision. The trustees probably felt that a non-declaration of dividend or a decline in the dividend rate would result in investors losing confidence in it (i.e. UTI) and substantially hamper fresh collections for US 64 as well as other schemes.

The origin of this decision lies in the manner in which US 64 units are marketed to and perceived by investors. Traditionally, US 64 is perceived to be a fixed interest-bearing instrument like a fixed deposit or a bond. The UTI is perceived to be another kind of Government sponsored bank with the concept of a mutual fund not widely understood in any case. Many lay investors use the vernacular word for "interest" when they refer to US 64's annual dividend.

Never has the UTI ever said in words or in any other form of direct communication that US 64 is a scheme with minimum assured returns payable every year. However, over the years, its behavior has introduced and reinforced this perception. As they say, actions speak louder than words. Listed below are some of the actions of the UTI that served to reinforce the popular perception that US 64 is a fixed return scheme.

The US 64 has never declared its NAV by giving the reason that its assets contain illiquid assets like term loans and real estate which cannot be easily valued due to lack of marketability. It has been arguing the matter with SEBI for almost 6 years on this matter. Instead of publishing NAV on daily basis, it publishes the sale and repurchase value. The sale and repurchase prices never fluctuate in a manner that reflects the value of its underlying assets and these prices are purely arbitrary based on some system which values investments at the original purchase price. The value goes up almost every month and the pricing is designed to give a feeling of safety and predictability to investors. Neither has the repurchase price gone up significantly when the stock markets were in a boom phase, nor did it go down when the markets were in a bear phase. Most retail investors would be surprised to know that US 64 invests in equities let alone the fact that almost 65% of the investments are in equities. The entire impression sought to be created is

that US 64 has no connection to stock markets which most of its retail investors believe is "speculation".

The annual dividend of US 64 either remains constant or goes up irrespective of market conditions. In the one year that the dividend went down, US 64 declared a bonus issue and tried to give the feeling that the overall return did not go down.

The US 64 is one of the few instruments approved for investment by trusts like the various Port Trusts and various religious and charitable trusts on the grounds that it is a "safe" instrument from a "government run" company giving "predictable", "annual" returns. The said approval for investment has been given by either the central government (Ministry of Surface Transport) for the port trusts or by the competent authority in various state governments. The same trusts have been denied permission to invest in debt/income schemes floated by private sector mutual funds on the grounds that they do not give "guaranteed" returns.

The UTI has consciously targeted individuals who have retired or nearing retirement as potential investors. Nowhere does its marketing literature declare the extent or percentage of funds invested in shares and other volatile assets; instead the focus of the literature is on US 64's "consistent" dividend paying track record.

Up until 1992, the US 64 was one of the most active money market instruments with daily trading volumes ranging in hundreds of millions of rupees. It is a rare case where an instrument with more than 60% of underlying investments in equities was one of the most active instruments in a market, which is focused completely on safe returns.

The last thing is the strong linkage evoked with the government. Most investors believe that if there is any "problem", the government will not allow the UTI to "go under" and bail them out.

What events in the last 4 years triggered the crisis?

In order to understand this, it is imperative to understand the events in the stock market – events, which had a bearing on more than 65% of the investments in US 64.

The stock markets have done very badly in the last 6 years. The BSE Sensex crossed 3000 for the first time in early 1992. Since then it has gone up and come down several times but has remained in the same range. Effectively, the total return has been almost zero for a seven-year period. The prices of many leading stocks of yesteryear have fallen more than 50% in these seven years and if one considers the fact that the Sensex has been changed several times, with all the weak stocks having been weeded out, the effective returns on the old Sensex existing in 1992 have been substantially negative.

The last three years have also seen a virtual decimation of commodity stocks and stocks of public sector units (PSUs) and excellent performance by the PSF stocks ie stocks of companies engaged in pharmaceuticals, software and Fast Moving Consumer Goods (FMCG) businesses. Commodity stocks have done badly due to the increased competition from imports consequent to the opening up of the economy and the sharp decline in protection levels consequent to the lowering of

customs duties. Competition was accentuated with the Asian crisis last year, which resulted in a worldwide commodity deflation. PSU stocks have been languishing on account of the massive delay in the announcement of a policy on genuine privatisation of the PSUs including sale of large stakes to strategic buyers.

While schemes managed by the UTI including US 64 always owned PSF stocks, the quantum was not substantial – in the jargon of the investment world, US 64 was overweight commodities and PSUs and underweight PSF. A classic example is UTI's purchase of shares of Reliance Industries through private placement at a price of Rs385 per share in 1994 as against today's (April 1999) prevailing price of Rs250-260 per share (adjusted for 1:1 bonus).

Thus, very crudely put, the returns on 65% of US 64 investments have been marginal (less than 2-3% p.a.) on account of capital appreciation. Add to this, the returns by way of dividend (here we are talking of dividend yield i.e. dividend divided by market price and not the dividend which is commonly expressed as a percentage of face value per share), which are typically another 2-3% giving a total return of about 5%.

The remaining part of the portfolio is invested in debt instruments/loans with a small part in low yielding money market instruments. The average return on this including the low yielding part would be about 13-14% p.a.

This the total return of the scheme would be the weighted average of the two components equity and debt and is estimated at about 8% as follows

$$0.65 * 5 + 0.35 * 14 = 8.15\%$$

Note that this is an estimate based on our estimation of the portfolio made after considering published data and the actual figure could be somewhat different.

If the US 64 scheme had given annual dividend yield of 8-9% (ie dividend rate of 14-15% of the face value of the units), and lowered the sale and repurchase prices, then there would have been no problem. Instead, UTI chose to give out dividends exceeding 20% of face value. Theoretically, this is possible by drawing down on reserves ie returns made earlier but not distributed but the higher dividend is accompanied by a fall in the sale and repurchase price. But UTI did not do all that, in its endeavor to isolate the real returns from the selling and buying of US 64 units. Probably, the managers felt that the stock market would improve and the problem would vanish. But the sharp fall in the market after the Pokhran II nuclear tests put paid to this hope. The rest is history.

How can this problem be solved and what steps have been taken in this regard?

Theoretically, the problem can be solved in the following ways:

The difference between the NAV and the sale/repurchase price can be made good by any external agency. In other words, an agency external to the US 64 scheme agrees to fund the gap. The Government of India is one example of such an agency.

Complete assurance to investors that the scheme will continue to be run in the same manner ie the sale/repurchase prices will continue to go up in the same way that they have in the past regardless of the underlying return. If this assurance is believed

and investors keep pouring in fresh money in US 64, and if the market goes up some time in the future, the problem will be automatically solved.

The Government of India was extremely concerned about the problems of US 64. The US 64 is the largest mutual fund in India and has more than 20 million individual investors, many of who depend on the dividends for their living. Rightly or wrongly, it is strongly linked to the government. Inability to pay dividends, or declaration of big losses to investors in US 64, would shake the faith of people in the banking sector and the government, something which the latter could ill-afford. Further, it could have led to a run on the UTI and other mutual funds (and perhaps banks also). This would force UTI and other mutual funds to sell shares further depressing their values and compounding the problem. Hence, the government came out with open declarations of support and assurances that investors need not worry about their investments.

The government also appointed a committee of capital market experts under the chairmanship of financial expert, Mr. Deepak Parekh, the chairman of HDFC, IL&FS and other bodies. The Deepak Parekh committee presented its report in March 19. The report pertains to the operation of the scheme in the future and has many recommendations of a structural nature. As far as the scheme goes, it has suggested that the proportion of equities be reduced and the scheme be made debt oriented in line with the objectives of the scheme. The Deepak Parekh committee has also recommended that the UTI move towards a system of NAV based pricing of US 64 in 3 years time so that such problems do not recur again in the future. Further, it has recommended that dividends be in line with market forces. It has also strongly recommended that the concept of "assured" returns in any form be done away with, both for US 64 and for any other schemes.

The Government also worked out a bailout package for US 64 on the understanding that the Deepak Parekh committee report would be followed. The key aspect was the formation of a special vehicle termed the Special Unit Scheme 99 (SUS 99) to which the UTI would transfer all its loss making equity holdings of PSU shares, which were held to be the main culprit of the fall in value of US 64 holdings. The transfer would be made at the original purchase price thus eliminating the erosion in market value. SUS 99 would not pay cash to US 64 for purchasing these holdings but would instead pay in kind through specially issued interest-bearing Government of India Securities. These securities are to be issued by the RBI on behalf of the Government as a payment for its subscription of SUS 99 units. This transaction is depicted as follows:

Step I – Formation of SUS 99

Government subscribes to Rs48bn of SUS 99 by paying for it in the form of interest bearing GOI securities

Step II - Transfer

SUS 99 buys PSU shares from US 64 in exchange of interest bearing securities held by it

Step III

SUS 99 will sell PSU shares at opportune time

Modern Portfolio Theory

Modern portfolio theory (MPT) or portfolio theory was introduced by Harry Markowitz with his paper “Portfolio Selection” which appeared in the 1952 Journal of Finance. Thirty-eight years later, he shared a Nobel Prize with Merton Miller and William Sharpe for what has become a broad theory for portfolio selection.

Portfolio theory explores how risk averse investors construct portfolios in order to optimize expected returns for a given level of market risk. The theory quantifies the benefits of diversification. Out of a universe of risky assets, an efficient frontier of optimal portfolios can be constructed. Each portfolio on the efficient frontier offers the maximum possible expected return for a given level of risk.

Investors should hold one of the optimal portfolios on the efficient frontier and adjust their total market risk by leveraging or deleveraging that portfolio with positions in the risk-free asset.

Based upon strong simplifying assumptions, a capital asset pricing model concludes that the market portfolio sits on the efficient frontier, and all investors should hold that portfolio, leveraged or deleveraged with positions in the risk-free asset.

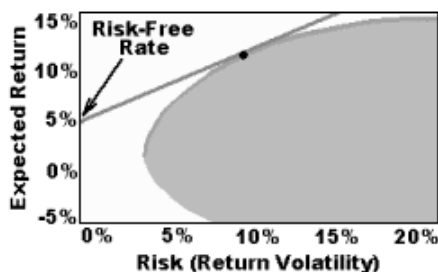
Portfolio theory provides a broad context for understanding the interactions of systematic risk and reward. It has profoundly shaped how institutional portfolios are managed, and motivated the use of passive investment management techniques. The mathematics of portfolio theory is used extensively in financial risk management and was a theoretical precursor for today’s value-at-risk measures.

Capital Market Line

By combining a risk-free asset with risky assets, it is possible to construct portfolios whose risk-return profiles are superior to those of portfolios on the efficient frontier. Consider Exhibit 1:

Capital Market Line

Exhibit 1



The capital market line is the tangent line to the efficient frontier that passes through the risk-free rate on the expected return axis.

In Exhibit 1, the risk-free rate is assumed to be 5%, and a tangent line—called the **capital market line**—has been drawn to the efficient frontier passing through the risk-free rate. The point of tangency corresponds to a portfolio on the efficient frontier. That portfolio is called the **super-efficient portfolio**.

Using the risk-free asset, investors who hold the super-efficient portfolio may leverage their position by shorting the risk-free asset and investing the proceeds in additional holdings in the super-efficient portfolio, or de-leverage their position by selling some of their holdings in the super-efficient portfolio and investing the proceeds in the risk-free asset.

The resulting portfolios have risk-reward profiles which all fall on the capital market line. Accordingly, portfolios, which combine the risk free asset with the super-efficient portfolio, are superior from a risk-reward standpoint to the portfolios on the efficient frontier.

Portfolio construction should be a two-step process. First, investors should determine the super-efficient portfolio. This should comprise the risky portion of their portfolio. Next, they should leverage or de-leverage the super-efficient portfolio to achieve whatever level of risk they desire. Significantly, the composition of the super-efficient portfolio is independent of the investor’s appetite for risk. The two decisions:

- The composition of the risky portion of the investor’s portfolio, and
- The amount of leverage to use,

are entirely independent of one another. One decision has no effect on the other. This is called Tobin’s **separation theorem**.

William Sharpe’s (1964) capital asset pricing model (CAPM) demonstrates that, given strong simplifying assumptions, the super-efficient portfolio must be the market portfolio. From this standpoint, all investors should hold the market portfolio leveraged or de-leveraged to achieve whatever level of risk they desire.

The Geography of Efficient Frontier

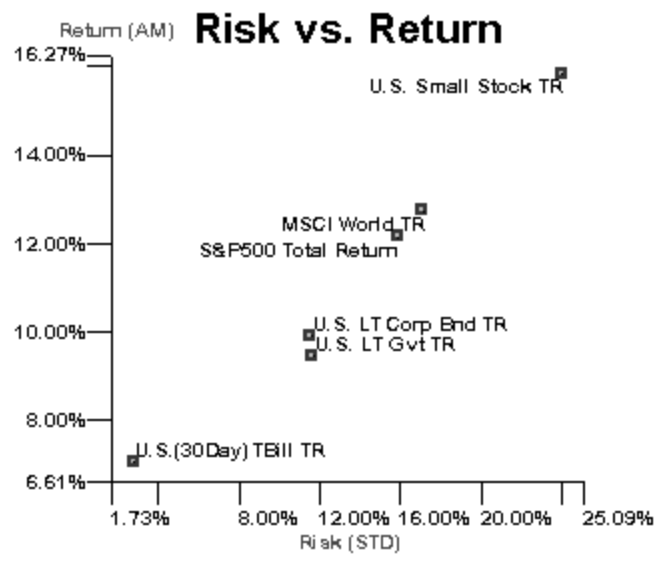
The risk and return of investments may be characterized by measures of central tendency and measures of variation, i.e. mean and standard deviation. In fact, statistics are the foundations of modern finance, and virtually all the financial innovations of the past thirty years, broadly termed “Modern Portfolio Theory,” have been based upon statistical models. Because of this, it is useful to review what a statistic is, and how it relates to the investment problem. In general, a statistic is a function that reduces a large amount of information to a small amount. For instance, the average is a single number that summarizes the typical “location” of a set of numbers. Statistics boil down a lot of information to a few useful numbers — as such, they ignore a great deal. Before modern portfolio theory, the decision about whether to include a security in a portfolio was based principally upon fundamental

analysis of the firm, its financial statements and its dividend policy. Finance professor Harry Markowitz began a revolution by suggesting that the value of a security to an investor might best be evaluated by its mean, its standard deviation, and its correlation to other securities in the portfolio. This audacious suggestion amounted to ignoring a lot of information about the firm — its earnings, its dividend policy, its capital structure, its market, its competitors — and calculating a few simple statistics.

The Risk & Return of Securities

Markowitz great insight was that the relevant information about securities can be summarized by three measures: the mean return (taken as the arithmetic mean), the standard deviation of the returns and the correlation with other assets' returns. The mean and the standard deviation can be used to plot the relative risk and return of any selection of securities.

The following figure was constructed using historical risk and return data on Small Stocks, S&P stocks, Corporate and Government Bonds, and an international stock index called MSCI, or Morgan Stanley Capital International World Portfolio. The figure shows the difficulty an investor faces about which asset to choose. The axes plot annual standard deviation of total returns, and average annual returns over the period 1970 through 3/1995. Notice that small stocks provide the highest return, but with the highest risk. In which asset class would you choose to invest your money? Is there any single asset class that dominates the rest? Notice that an investor who prefers a low risk strategy would choose T-Bills, while an investor who does not care about risk would choose small stocks. There is no one security that is best for ALL investors.



It takes into consideration the six asset classes.

Portfolios of Assets

Typically, the answer to the investment problem is not the selection of one asset above all others, but the construction of a portfolio of assets, i.e. diversification across a number of different securities. The key to diversification is the correlation

across securities. Recall from data analysis and statistics that the correlation coefficient is a value between -1 and 1, and measures the degree of co-movement between two random variables, in this case stock returns. It is calculated as:

$$\rho_{A,B} = \frac{1}{T} \sum_{t=1}^T \frac{(R_{A,t} - \bar{R}_A)(R_{B,t} - \bar{R}_B)}{\sigma_A \sigma_B}$$

$$= \frac{\sigma_{AB}}{\sigma_A \sigma_B}$$

Where the sigma AB is the covariance of the two securities.

Here is how to use correlation in the context of portfolio construction. Consider two securities, A and B. Security A has a mean of 10% and an STD of 15%. Security B has a mean of 20% and an STD of 30%. We can calculate the standard deviation of a *portfolio* composed of different mixtures of A & B using this equation:

$$\sigma_P = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2 \rho_{AB} W_A W_B \sigma_A \sigma_B}$$

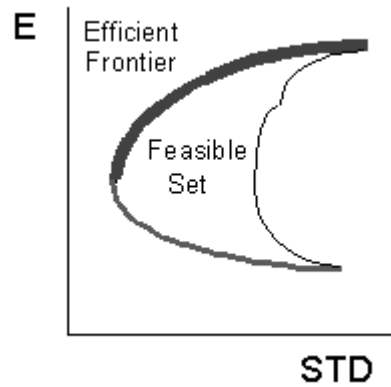
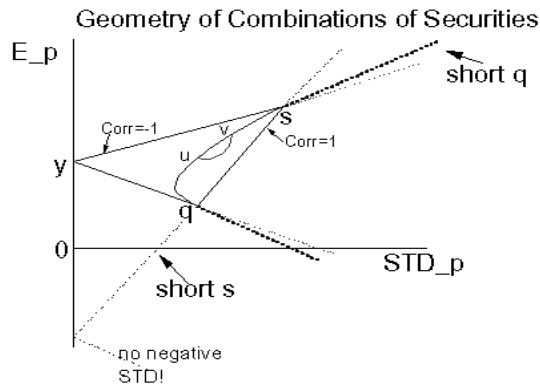
The mean return is not as complicated. It is a simple weighted average of the means of the two assets:

$$\text{Mean}_P = W_A R_A + W_B R_B$$

Notice that a portfolio will typically have a weight of one, so usually,

$$W_A + W_B = 1.$$

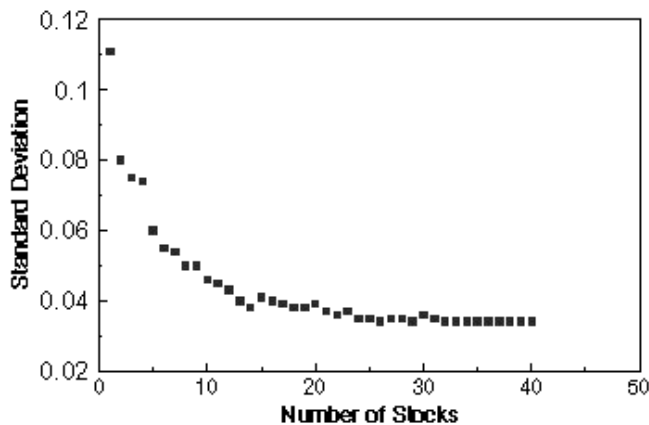
- **What if the correlation of A&B = 0?** Notice that a portfolio of 80% A and 20% B has a standard deviation of: $\text{sqrt}(.8^2 \cdot .15^2 + .2^2 \cdot .3^2 + 2 \cdot .8 \cdot .2 \cdot .15 \cdot .3) = 13.4\%$. In other words, a mixture of 20% of the MORE RISKY SECURITY actually decreases the volatility of the portfolio! This is a remarkable result. It means you can reduce risk and increase return by diversifying across assets.
- **What if the correlation of A&B = 1?** In this case, the perfect correlation between the two assets means there is no diversification. The portfolio std of the 80/20 mix is 18%. This is equal to a linear combination of the standard deviations: $(.8)(.15) + (.2)(.30) = 18\%$
- **What if the correlation of A&B = -1?** This is an unusual case, because it means that when A moves up, B always moves down. Take a mixture of .665 A and (1-.665) B. $\text{sqrt}(.665^2 \cdot .15^2 + (1-.665)^2 \cdot .3^2 + 2 \cdot (.665) \cdot (1-.665) \cdot .15 \cdot .3) = .075\%$, which is very close to zero. In other words, A is nearly a perfect hedge for B. One of the few real-life negative correlations you will find is a short position in a stock offsetting the long position. In this case, since the mean returns are also the same, the expected return will be zero. These extremes of correlation values allow us to describe an envelope within which all combinations of two assets will lie, regardless of their correlations.



More Securities & More Diversification

Now consider what will happen as you put more assets into the portfolio. Take the special case in which the correlation between all assets is zero, and all of them have the same risk. You will find that you can reduce the standard deviation of the portfolio by mixing across several assets rather than just two. Each point represents an equally weighted combination of assets; from a single stock to two, to three, to thirty, and more. Notice that, after 30 stocks, diversification is mostly achieved. There are enormous gains to diversification beyond one or two stocks.

Standard Deviation of Portfolio Return as a Function of Number of Stocks in Portfolio From Fama (1976)

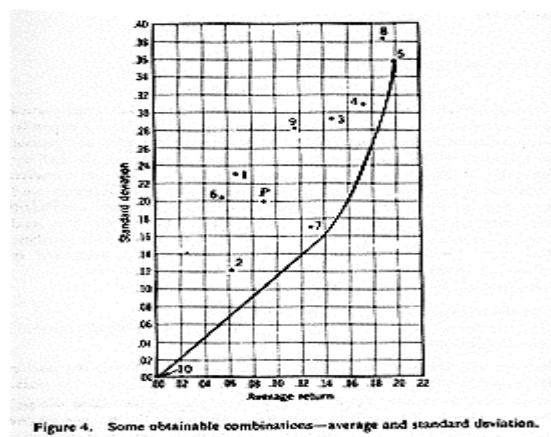


If you allow yourself to vary the portfolio weights, rather than keeping them equal, the benefits are even greater, however the mathematics is more challenging. You not only have to calculate the STD of the mixture between A&B, but the STD of every conceivable mixture of the securities. None-the-less, If you did so, you would find that there is a set of portfolios which provide the lowest level of risk for each level of return, and the highest level of return for each level of risk. By considering all combinations of assets, a special set of portfolios stand out — this set is called the efficient frontier.

The efficient frontier, shown in blue, is the set of dominant portfolios, at least from the perspective of a risk averse investor. For ANY level of risk, the efficient frontier identifies a point that is the highest returning portfolio in its risk class. By the same token, for any level of return, the frontier identifies the lowest risk portfolio in that return class. Notice that it extends from the maximum return portfolio (actually a single asset) to the minimum variance portfolio. The efficient frontier has a portfolio for everyone — there are an infinite number of points in the set, corresponding to the infinite variation in investor preferences for risk. The area called the feasible set represents all feasible combinations of assets. There are no assets that fall outside of the feasible set.

Markowitz and the First Efficient Frontier

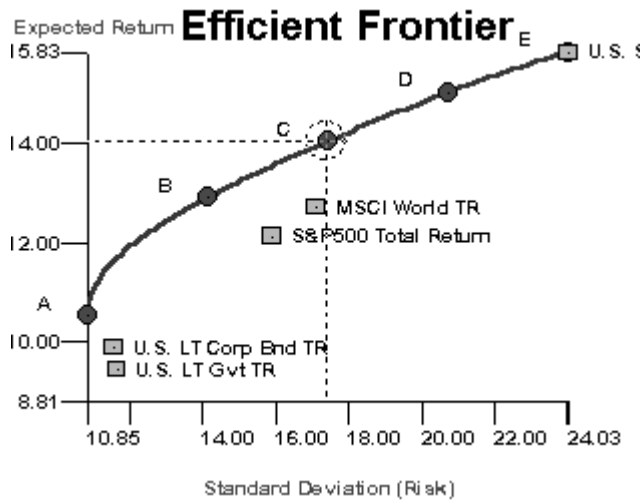
The first efficient frontier was created by Harry Markowitz, using a handful of stocks from the New York Stock Exchange. Here it is, reproduced from his book Portfolio Selection Cowles Monograph 16, Yale University Press, 1959. It has a line going to the origin, because Markowitz was interested in the effects of combining risky assets with a riskless asset: cash.



Notice, too, that it is tipped on its side. The convention of STD on the X-axis is developed later.

An Actual Efficient Frontier Today

This figure is an efficient frontier created from historical inputs for U.S. and international assets over the period 1970 through 3/1995, using the Ibbotson EnCorr Optimizer program.

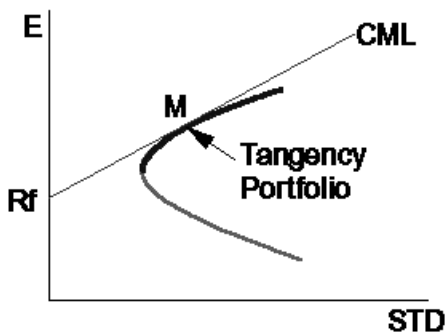


This is state-of-the-art portfolio selection technology, however it is still based upon Markowitz's original optimization program. There are some basic features to remember:

- A minimum variance portfolio exists
- A maximum return portfolio is composed of a single asset.
- B, C, D & E are critical points at which one the set of assets used in the frontier changes, i.e. an asset drops out or comes in at these points.
- There are no assets to the northwest of the frontier. That is why we call it a frontier. It is the edge of the feasible combinations of risk and returns.

The Efficient Frontier with the Riskless Asset

T-Bills are often taken to be riskless assets, and their return is indicated as R_f , the risk-free rate. Once you allow the riskless asset to be combined into a portfolio, the efficient frontier can change. Since it is riskless, it has no correlation to other securities. Thus it provides no diversification, *per se*. It does provide an opportunity to have a low-risk portfolio, however. This picture is a diagram of the efficient frontier composed of ALL the risky assets in the economy, as well as the riskless asset.



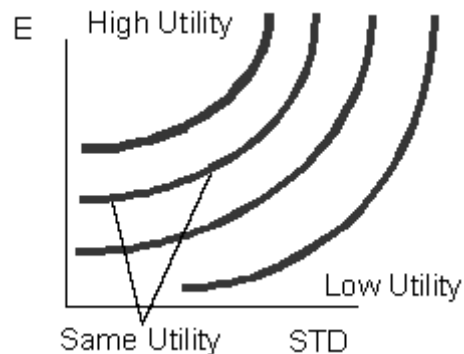
In this special case, the new efficient frontier is a ray, extending from R_f to the point of tangency (M) with the "risky-asset" efficient frontier, and then beyond. This line is called the Capital Market Line (CML). It is actually a set of investible portfolios, if you were able to borrow and lend at the riskless rate! All portfolios between R_f and M are portfolios composed of treasury bills and M, while all portfolios to the right of M are generated by BORROWING at the riskless rate R_f and investing the proceeds into M.

Preferences and Investor Choice

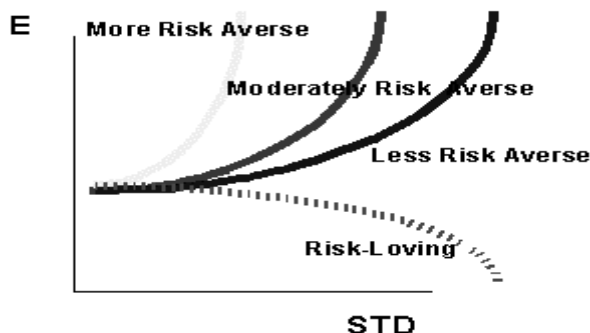
The previous section presented the Markowitz model of portfolio selection, but with one key element missing — individual portfolio choice. The efficient frontier dominates all combinations of assets, however it still has infinitely many assets. How do you pick one portfolio out of all the rest as the perfect one for you? This turns out to be a big challenge, because it requires investors to express their preferences in risk-return space. Investors choose portfolios for a myriad of reasons, very few of which can be reduced to a two-dimensional space. In fact, investors are used to having the ability the CHANGE their investment decision if it is not developing as planned. The simple Markowitz model does not allow this freedom. It is a single period model, now used widely in practice for decision-making in a multi-period world. In this chapter, we will address some of the ways that one may approximate investor preferences in mean-variance space, however these methods are only approximations.

Choosing a Single Portfolio

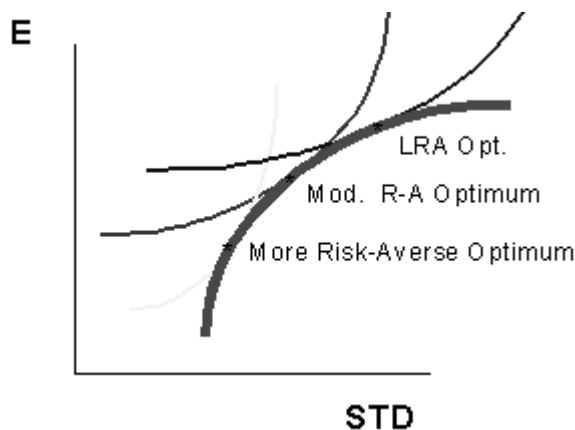
How might you choose a single portfolio among all of those on the efficient frontier? One approach is to model investor preferences mathematically, using *iso-utility curves*. These curves express the risk-return trade-off for investors in two-dimensional space. They work exactly like lines on a topological map. They are nested lines that show the highest and lowest altitudes in the region — except they measure altitude in units of utility (whatever that is!) instead of feet or meters. Typically, a convenient mathematical function is chosen as the basis for iso-utility curves. For instance, one could use a logarithmic function, or even part of a quadratic function to capture the essence of investor preferences. The essential feature of the function is that it must allow people to demand ever-increasing levels of return for assuming more risk.



One way to characterize differences in investor risk aversion is by the curvature of the iso-utility lines. Below are representative curves for four different types of investors: A more risk-averse, a moderately risk-averse, a less risk-averse, and a risk-loving investor. The whole set of nested curves is omitted to keep the picture simple.



Notice that the risk-lover demands lower expected return as risk increases in order to maintain the same utility level. On the other hand, for the more risk-averse investor, as volatility increase, he or she will demand sharply higher expected returns to hold the portfolio. These different curves will result in different portfolio choices for investors. The optimization procedure simply takes the efficient frontier and finds its point of tangency with the highest iso-utility curve in the investor set. In other words, it identifies the single point that provides the investor with the highest level of utility. For risk-averse individuals, this point is unique.



The problem with applying this methodology to identifying optimal portfolios is that it is difficult to figure out the risk-aversion of individuals or institutions.

Another Approach: Preferences About Distributions

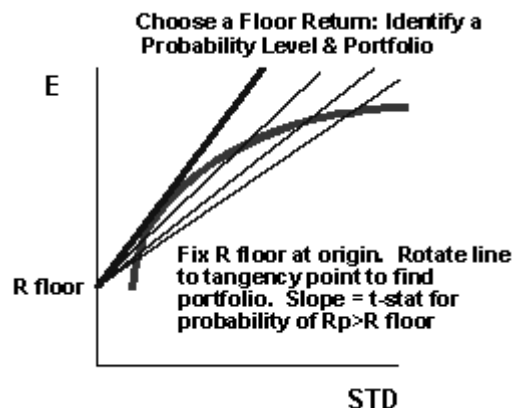
The Markowitz model is an elegant way to describe differences in distributions of returns among portfolios. One approach to the portfolio selection problem is to choose investment policies based upon the probability mass in the lower left-hand tail. This is called the shortfall criterion. Its simplicity has great appeal. It does not require a complete topological mapping of investor preferences. Instead it only requires the investor to specify a floor return, below which he or she wants to avoid

falling. The shortfall approach chooses a portfolio on the efficient frontier that minimizes the probability of the return dropping below that floor. Suppose, for instance, you specify a floor return level equal to the riskless rate, R_f . For every portfolio on the frontier, you calculate the ratio:

$$\frac{R_p - R_f}{\sigma_p}$$

Notice that the shortfall criterion is like a t-statistic, where the higher the value, the greater the probability. The portfolio that has the highest probability of exceeding R_f is the one for which this value is maximized. In fact, the similarity to a t-statistic extends even further, as we will see.

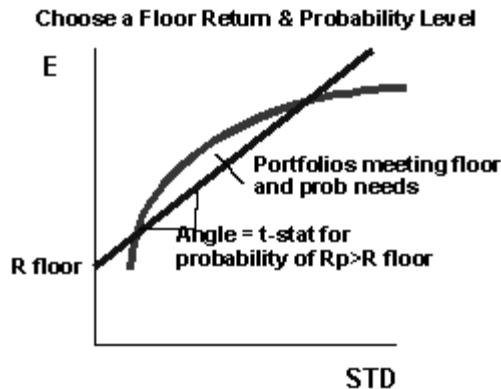
Another useful thing is that it turns out that it is quite simple to find the portfolio that maximizes the probability of exceeding the floor. You can do it graphically!



Identify the floor return level on the Y-axis. Then find the point of tangency to the efficient frontier. In the figure, for instance, the tangency point minimizes the probability of having a return that drops below R floor. One particular floor value is of interest - that is the floor given by the riskless rate, R_f . The slope of the shortfall line when R_f is the floor is called the Sharpe Ratio. The portfolio with the maximum Sharpe Ratio is the one portfolio in the economy that minimizes the probability of dropping below treasury bills. By the same token, it is the one portfolio in the economy that has the maximum probability of providing an equity premium! That is, if you must bet on one portfolio to beat t-bills in the future, the tangency portfolio found via the Sharpe Ratio would be it.

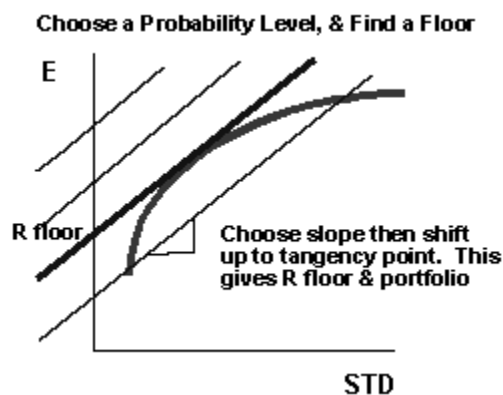
The "safety-first" approach is a versatile one. In the above example, we maximized probability of exceeding a floor by maximizing the slope, identifying a point of tangency. You can also find portfolios by other methods. For instance, you can check the feasibility of a desired floor and probability of exceeding that floor by fixing the Y intercept and fixing the slope. Either the ray will pass through the feasible set, or it will

not. If it does not, then there is no portfolio that meets the criteria you specified. If it does, then there are a number of such portfolios, and typically the one with the highest expected return is the one to choose.



Another approach is to **find** a floor that meets your probability needs. In other words, you ask “Which floor return may I specify that will give me a 90% confidence level that I will exceed it?” This is equivalent to setting the slope equal to the t-statistic value matching that probability level. Since this is equivalent to a one-tailed test, you would set the slope to 1.28 (i.e. the quantile of the normal distribution that gives you 90% to the left, or 10% in the right side of the distribution. For a 95% chance, you would choose a slope of 1.644. For a 99% chance you would choose a slope of 2.32.

Once you choose the slope, and then move the line vertically until it becomes a tangent. This will give you **both** a floor and a portfolio choice.

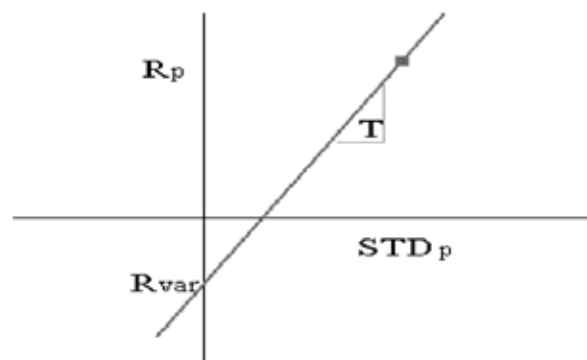


Value at Risk (VAR)

The safety first approach can be used to calculate the **value-at-risk** of the portfolio. Value-at-risk is an increasingly popular measure of the potential for loss over a given time horizon. It is applied in the banking industry to calculate capital requirements, and it is applied in the investment industry as a risk control for portfolios of securities.

Consider the problem of estimating how big a loss your portfolio could experience over the next month. If the distribution of portfolio returns is normal, then a three standard deviation drop is possible, but not very likely. Typically, the estimate of the maximum expected loss is defined for a given time horizon and a given confidence interval. Consider the type of loss that occurs once in twenty months. If you know the mean and standard deviation of the portfolio, and you specify the confidence interval as a 5% event (1 in twenty months) or a 1% event (1 in a hundred months) it is straightforward to calculate the “Value at Risk.”

Let R_p be the portfolio return and STD_p be the portfolio standard deviation. Let T be the t-statistic associated with the confidence interval. T of 1.64 corresponds to a one in 20 month event. Let R_{var} be the unknown negative return portfolio return that we expect to occur one in twenty times.



The equation for the line is: $R_p = R_{var} + T \cdot STD_p$ and thus, $R_{var} = R_p - T \cdot STD_p$. R_{var} multiplied times the value of the assets in the portfolio is the Value at Risk.

Suppose you are considering the VAR of a \$100 million pension portfolio over the monthly horizon. It is composed of 60% stocks and 40% bonds, and you are interested in the 95% confidence interval.

Let us assume that the monthly-expected stock return is 1% and the expected bond return is .7%, and their standard deviations are 5% and 3% respectively. Assume that the correlation between the two asset classes is .5. First we calculate the mean and standard deviation of the portfolio:

$$R_p = (.6) \cdot (.01) + (.4) \cdot (.007) = .0088$$

$$STD_p = \sqrt{.6^2 \cdot .05^2 + .4^2 \cdot .03^2 + 2 \cdot .6 \cdot .4 \cdot .05 \cdot .03} = .038$$

$$\text{Then, } R_{var} = .0088 - 1.64 \cdot .038 = -.054$$

Thus, the monthly value-at-risk of the portfolio is (\$100 million) $(.054) = \$5.4$ million.

Note that, despite the terminology, this does not really mean that \$94.6 is not at risk. The analysis only means that you expect a loss at least as large as \$5.4 million one month out of 20.

This approach to calculating value-at-risk depends on key assumptions. First, returns must be close to normally distributed. This condition is often violated when derivatives are in the portfolio. Second, historically estimated return distributions

and correlations must be representative of future return distributions and correlations. Estimation error can be a big problem when you have statistics on a large number of separate asset classes to consider. Third, returns are not assumed to be auto-correlated. When there are positive trends in the data, losses should be expected to mount up from month to month. In summary, value at risk is becoming pervasive in the financial industry as a summary measure of risk. While it has certain drawbacks, its major advantage is that it is a probability-based approach that can be viewed as a simple extension of safety-first portfolio selection models.

Conclusion

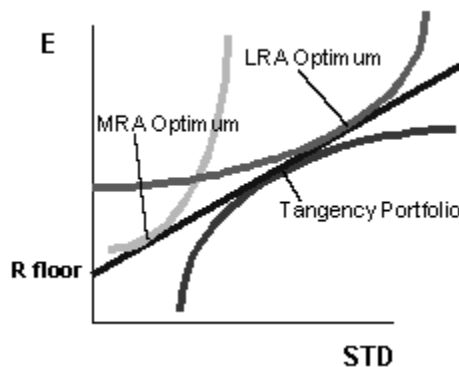
Creating an efficient frontier from historical or forecast statistics about asset returns is inherently uncertain due to errors in statistical inputs. This uncertainty is minor when compared to the problem of projecting investor preferences into mean-standard deviation space. Economists know relatively little about human preferences, especially when they are confined to a single-period model. We know people prefer more to less, and we know most people avoid risk when they are not compensated for holding it. Beyond that is guess-work. We don't even know if they are consistent, through time, in their choices. The theoretical approach to the portfolio selection problem relies upon specifying a utility function for the investor, using that to identify indifference curves, and then finding the highest attainable utility level in the feasible set. This turns out to be a tangency point. In practice, it is difficult to estimate a utility function, and even more difficult to explain it back to the investor.

An alternative to utility curve estimation is the "safety-first" technology, which is motivated by a simple question about preferences. What is your "floor" return? If you can pick a floor, you can pick a portfolio. In addition, you can identify a probability of exceeding that floor, by observing the slope of the tangency line. Safety-first also lets you find optimal portfolios by picking a floor and a probability, as well as simply picking a probability.

Value at risk is becoming increasingly popular method of risk measurement and control. It is a simple extension of the safety-first technology, when the assets comprising the portfolio have normally distributed returns.

The Quest for the Tangency Portfolio

In the 1960's financial researchers working with Harry Markowitz's mean-variance model of portfolio construction made a remarkable discovery that would change investment theory and practice in the United States and the world. The discovery was based upon an idealized model of the markets, in which all the world's risky assets were included in the investor opportunity set and one riskless asset existed, allowing both more and less risk averse investors to find their optimal portfolio along the tangency ray.



Assuming that investors could borrow and lend at the riskless rate, this simple diagram suggested that everyone in the world would want to hold precisely the same portfolio of risky assets! That portfolio, identified at the point of tangency, represents some portfolio mix of the world's assets. Identify it, and the world will beat a path to your door. The tangency portfolio soon became the centerpiece of a classical model in finance. The associated argument about investor choice is called the "Two Fund Separation Theorem" because it argues that all investors will make their choice between two funds: the risky tangency portfolio and the riskless "fund".

Identifying this tangency portfolio is harder than it looks. Recall that a major difficulty in estimating an efficient frontier accurately is that errors grow as the number of assets increase. You cannot just dump all the means, std's and correlations for the world's assets into an optimizer and turn the crank. If you did, you would get a nonsensical answer. Sadly enough, empirical research was not the answer, due to statistical estimation problems.

The answer to the question came from theory. Financial economist William Sharpe is one of the creators of the "Capital Asset Pricing Model," a theory that began as a quest to identify the tangency portfolio. Since that time, it has developed into much, much more. In fact, the CAPM, as it is called, is the predominant model used for estimating equity risk and return.

LESSON 28

CAPITAL ASSET PRICING MODEL

The Capital Asset Pricing Model

Because the CAPM is a theory, we must assume for argument that ...

- All assets in the world are traded
- All assets are infinitely divisible
- All investors in the world collectively hold all assets
- For every borrower, there is a lender
- There is a riskless security in the world
- All investors borrow and lend at the riskless rate
- Everyone agrees on the inputs to the Mean-STD picture
- Preferences are well-described by simple utility functions
- Security distributions are normal, or at least well described by two parameters
- There are only two periods of time in our world

This is a long list of requirements, and together they describe the capitalist's ideal world. Everything may be bought and sold in perfectly liquid fractional amounts — even human capital! There is a perfect, safe haven for risk-averse investors i.e. the riskless asset. This means that everyone is an equally good credit risk! No one has any informational advantage in the CAPM world. Everyone has already generously shared all of their knowledge about the future risk and return of the securities, so no one disagrees about expected returns. All customer preferences are an open book — risk attitudes are well described by a simple utility function. There is no mystery about the shape of the future return distributions. Last but not least, decisions are not complicated by the ability to change your mind through time. You invest irrevocably at one point, and reap the rewards of your investment in the next period — at which time you and the investment problem cease to exist. Terminal wealth is measured at that time. I.e. he who dies with the most toys wins! The technical name for this setting is “A frictionless one-period, multi-asset economy with no asymmetric information.”

The CAPM argues that these assumptions imply that the tangency portfolio will be a value-weighted mix of all the assets in the world.

The proof is actually an elegant equilibrium argument. It begins with the assertion that all risky assets in the world may be regarded as “slices” of a global wealth portfolio. We may graphically represent this as a large, square “cake,” sliced horizontally in varying widths. The widths are proportional to the size of each company. The number of shares times the price per share in this case determines size.

Here is the equilibrium part of the argument: Assume that all investors in the world collectively hold all the assets in the world, and that, for every borrower at the riskless rate there is a lender. This last condition is needed so that we can claim that the positions in the riskless asset “net-out” across all investors.

From the two-fund separation picture above, we already know that all investors will hold the same portfolio of risky assets, i.e. that the weights for each risky asset j will be the same across all investor portfolios. This knowledge allows us to cut the cake in another direction: vertically. As with companies, we vary the width of the slice according to the wealth of the individual.

Notice that each vertical “slice” is a portfolio, and the weights are given by the relative asset values of the companies. We can calculate what the weights are exactly:

$$\text{Weight on asset } i = [\text{price}_i \times \text{shares}_i] / \text{world wealth}$$

Each investor's portfolio weight is exactly proportional to the percentage that the firm represents of the world's assets. There you have it: the tangency portfolio is a capital-weighted portfolio of all the world's assets.

Investment Implications

The CAPM tells us that all investors will want to hold “capital-weighted” portfolios of global wealth. In the 1960's when the CAPM was developed, this solution looked a lot like a portfolio that was already familiar to many people: the S&P 500. The S&P 500 is a capital-weighted portfolio of most of the U.S.'s largest stocks. At that time, the U.S. was the world's largest market, and thus, it seemed to be a fair approximation to the “cake.” Amazingly, the answer was right under our noses — the tangency portfolio must be something like the S&P 500! Not co-incidentally, widespread use of index funds began about this time. Index funds are mutual funds and/or money managers who simply match the performance of the S&P. Many institutions and individuals discovered the virtues of indexing. Trading costs were minimal in this strategy: capital-weighted portfolios automatically adjust to changes in value when stocks grow, so that investors need not change their weights all the time — it is a “buy-and-hold” portfolio. There was also little evidence at the time that active portfolio management beat the S&P index — so why not?

Is the Capm True?

Any theory is only strictly valid if its assumptions are true. There are a few nettlesome issues that call into question the validity of the CAPM:

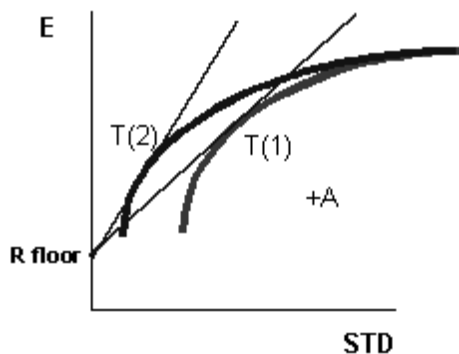
- Is the world in equilibrium?
- Do **you** hold the value-weighted world wealth portfolio?
- Can you even come close?
- What about “human capital?”

While these problems may violate the letter of the law, perhaps the spirit of the CAPM is correct. That is, the theory may be a good prescription for investment policy. It tells investors to choose a very reasonable, diversified and low cost portfolio. It also moves them into global assets, i.e. towards investments that are not too correlated with their personal human capital. In fact, even if the CAPM is approximately correct, it will have a

major impact upon how investors regard individual securities. Why?

Portfolio Risk

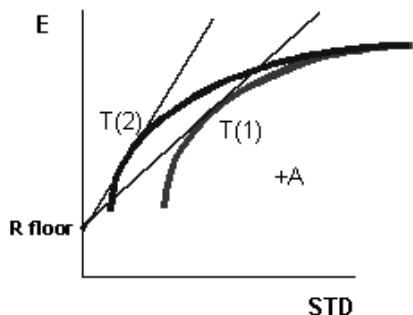
Suppose you were a CAPM-style investor holding the world wealth portfolio, and someone offered you another stock to invest in. What rate of return would you demand to hold this stock? The answer before the CAPM might have depended upon the standard deviation of a stock's returns. After the CAPM, it is clear that you care about the effect of this stock on the TANGENCY portfolio. The diagram shows that the introduction of asset A into the portfolio will move the tangency portfolio from T(1) to T(2).



The extent of this movement determines the price you are willing to pay (alternately, the return you demand) for holding asset A. The lower the average correlation A has with the rest of the assets in the portfolio, the more the frontier, and hence T, will move to the left. This is good news for the investor — if A moves your portfolio left, you will demand lower expected return because it improves your portfolio risk-return profile. This is why the CAPM is called the “Capital Asset Pricing Model.” It explains relative security prices in terms of a security's contribution to the risk of the whole portfolio, not its individual standard deviation.

Risk-return Tradeoff: A Technical Aside

Recall from last chapter that, when investors are well diversified, they evaluate the attractiveness of a security based upon its contribution to portfolio risk, rather than its volatility *per se*. The intuition is that an asset with a low correlation to the tangency portfolio is desirable, because it shifts the frontier to the left.



Suppose you are an investor who holds the market portfolio m and you are considering the purchase of a quantity dx of asset A, by financing it via borrowing at the riskless rate. This augments the return of the market portfolio by the quantity:

$$dE_m = [E_A - R_f]dx$$

Where *d* symbolizes a small quantity change. This investment also augments the variance of the market portfolio. The variance of the market portfolio after adding the new asset is:

$$v + dv = v + 2dx \text{ cov}(A,m) + (dx)^2 \text{ var}(a)$$

The change in the variance is then:

$$dv = 2 dx \text{ cov}(A,m) + (dx)^2 \text{ var}(A)$$

For small dx's this is approximately:

$$dv = 2 dx \text{ cov}(A,m)$$

This gives us the risk-return tradeoff to investing in a small quantity of A:

$$\text{Risk-Return Tradeoff for A} = dE_m/dv = [E_A - R_f]dx / 2 dx \text{ cov}(A,m)$$

$$\text{Risk-Return Tradeoff for A} = dE_m/dv = [E_A - R_f] / 2 \text{ cov}(A,m)$$

Now, if the expected return of asset A is in equilibrium, then an investor should be indifferent between augmenting his or her portfolio with a quantity of A and simply leveraging up the existing market portfolio position. If this were NOT the case, then either the investor would not be willing to hold A, or A would dominate the portfolio entirely. We can calculate the same Risk-Return Tradeoff for buying dx quantity of the market portfolio P instead of security A.

$$\text{Risk-Return Tradeoff for P} = dE_m / dv = [E_m - R_f] / 2 \text{ var}(m)$$

The equations are almost the same, except that the cov (A,m) is replaced with var (m). This is because the covariance of any security with itself is the variance of the security. These Risk-Reward Tradeoffs must be equal:

$$[E_A - R_f] / 2 \text{ cov}(A,m) = [E_m - R_f] / 2 \text{ var}(m)$$

$$\text{Thus, } [E_A - R_f] = [\text{cov}(A,m) / \text{var}(m)][E_m - R_f]$$

The value cov (A,m) / var (m) is also known as the β of A with respect to m. β is a famous statistic in finance. It is functionally related to the correlation and the covariance between the security and the market portfolio in the following way:

$$\beta = \rho_{i,m} \frac{\sigma_i}{\sigma_m} = \frac{\sigma_{i,m}}{\sigma_m^2}$$

A Model of Expected Returns

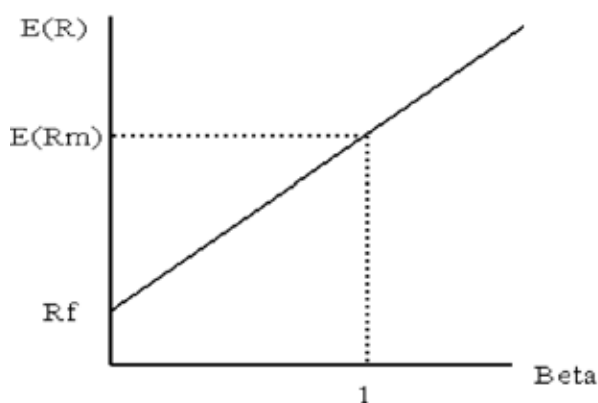
In the preceding example, notice that we used the expression expected returns. That is, we found an equation that related the expected future return of asset A (in excess of the riskless rate) to the expected future return of the market (in excess of the riskless rate). This expected return is the return that investors will demand when asset prices are in the equilibrium described by the CAPM. For any asset i, the CAPM argues that the appropriate rate at which to discount the cash flows of the firm is that same rate that investors demand to include the security in their portfolio:

$$E [R_i] = R_f + \beta_i (E [R_m] - R_f)$$

One surprising thing about this equation is what is not in it. There is no measure of the security's own standard deviation. The CAPM says that you do not care about the volatility of the security. You only care about its beta with respect to the market portfolio! Risk is now re-defined as the quantity of exposure the security has to fluctuations in the market portfolio.

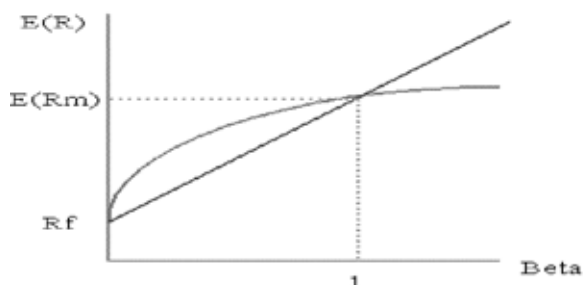
The Security Market Line

The CAPM equation describes a linear relationship between risk and return. Risk, in this case, is measured by beta. We may plot this line in mean and β space:



One remarkable fact that comes from the linearity of this equation is that we can obtain the beta of a **portfolio** of assets by simply multiplying the betas of the assets by their portfolio weights. For instance the beta of a 50/50 portfolio of two assets, one with a beta of .8 and the other with a beta of 1 is .9. Easy!

The line also extends out infinitely to the right, implying that you can borrow infinite amounts to lever up your portfolio. Why is the line straight? Well, suppose it curved, as the blue line does in the figure below. The figure shows what could happen. An investor could borrow at the riskless rate and invest in the market portfolio. Any investment of this type would provide a higher expected return than a security, which lies, on the curved line below. In other words, the investor could receive a higher expected return for the same level of systematic risk. In fact, if the security on the curve could be sold short, then the investor could take the proceeds from the short sale and enter into the levered market position — generating an arbitrage in expectation.



Expectations Vs. Realizations

It is important to stress that the vertical dimension in the security market line picture is expected return. Things rarely turn out the way you expect. However, the CAPM equation also tells us about the realized rate of return. Since the realization is just the expectation plus random error, we can write:

$$R_i = R_f + \beta_i [R_m - R_f] + e_i$$

This is useful, because it tells us that when we look at past returns, they will typically deviate from the security market line — not because the CAPM is wrong, but because random error will push the returns off the line. Notice that the realized R_m does not have to behave as expected, either. So, even the slope of the security market line will deviate from the average equity risk premium. Sometimes it will even be negative!

An Example

The appeal of the CAPM is clear — it radically simplifies an inherently complex and troublesome problem. The question of the appropriate discount rate becomes virtually a back-of-the-envelope calculation! In fact, if you know a security's beta, estimating the discount rate is a snap: multiply beta times the expected risk premia of the market portfolio over the riskless rate.

For example, suppose you are a banker considering a private equity investment in a company with a new drug process. The process is inherently risky, i.e. the standard deviation of the project is 75% per year. The beta of the project is .5. The $R_f = 5\%$ and the $E[R_m] = 13.5\%$. What is the required rate of return on the project?

Theory tells us that the answer does not depend upon the volatility associated with the returns. Instead we use the beta of the project.

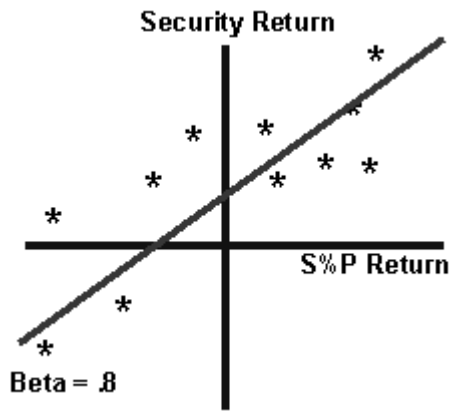
$$E[R_{\text{drug}}] = 5\% + (.5)(13.5\% - 5\%) = 9.25\%$$

This is the required rate of return on the project. The answer would not change if the range of outcome next year broadened or narrowed. The β is the only relevant piece information — now all that remains is to estimate it!

How do you Estimate β ?

β may be all we need, but it is not immediately clear how it should be estimated. What we really need is a quantitative estimate of how the future return changes in response to future changes in the world market portfolio. Good Luck! It is tough to even guess the empirical composition of the market portfolio, let alone estimate a beta. In practice (although it is not theoretically justified) analysts typically use the S&P 500 equity risk premium in this calculation. To estimate beta, regress the security returns for the past several periods (usually 60 months) on the market returns. The slope in this regression is an estimate of β .

Notice that this shows concretely that empirical property of β as it measures the co-movement of the security with the market. Unfortunately, since the S&P 500 is not the world market portfolio, we are somewhat in the dark about how well **this** beta measures the true systematic risk.



Assessing the CAPM

The CAPM is a classical model in finance. It is an equilibrium argument that, if true, answers most important investment questions. It tells us where to invest, how to invest and what discount rate to use for project cash flows. Not only that, it is a disarmingly simple model. The expected return of a security depends upon a simple statistic: β . The relationship between risk and return is linear. Calculation of portfolio risk is trivial. At the same time, the CAPM is revolutionary. It tells us that the variance of a project is NOT a factor in determining the appropriate, risk-adjusted discount rate. It turns financial research from roll-up-your-sleeves fundamental analysis into a statistics problem. In short, the CAPM turned Wall Street on its head.

Conclusion. Is the Capm True?

Here comes the bad news. Despite twenty years of attempts to verify or refute the Capital Asset Pricing Model, there is no consensus on its legitimacy. There are a few hints that the model is incorrect. For starters, we all hold different portfolios. Therefore, it cannot be exactly true. Researchers have focused upon the more interesting issue of whether rates of return depend upon β and whether the elegant, linear form of the model holds for stocks. What they have found is that real markets typically deviate broadly from the exact model. While there are long periods in U.S. Capital market history when realized returns are positively related to betas, there are also long periods when they are not. Among the most forceful arguments against the CAPM advanced in recent times is a study by Eugene Fama and Kenneth French. These authors found that beta did a relatively poor job at explaining differences in the actual returns of portfolios of U.S. stocks. Instead, Fama and French noted that there were other variables besides beta with respect to the market that explained returns. Some of these were “fundamental” ratios long used by financial analysts in the pre-CAPM era such as Book to Market Ratio and Earnings Price Ratio. Another was simply the relative size of the company. The evidence against the CAPM continues to grow and despite its elegance, most researchers have turned to more complex, but more powerful models.

Notes

LESSON 29
SELECTING THE BEST PORTFOLIO

Establishing efficient portfolios (minimum risk for a given expected return) comprising broad classes of assets (e.g., stocks, bonds, real estate) lends itself to the mean-variance methodology suggested by Markowitz. Determining efficient portfolios within an asset class (e.g., stocks) can be achieved with the single index (beta) model proposed by Sharpe.

The following pages will help us to understand how to select the best portfolio from an available set using both the Markowitz and the Sharpe techniques. It is imperative to remember that the outcomes are sensitive, as always, to the validity of the inputs. There is an old saw in computer science that says “Garbage-in, garbage-out” (GIGO, for short).

Simple Markowitz Portfolio Optimization

It is possible to develop a fairly simple decision rule, for selecting an optimal portfolio for an investor that can take both risk and return into account. This is called a risk-adjusted return. For simplicity, it can be termed the *utility* of the portfolio for the investor in question. Utility is the expected return of the portfolio minus a risk penalty. This risk penalty depends on portfolio risk and the investor’s risk tolerance.

The Risk Penalty

The more risk one must bear, the more undesirable is an additional unit of risk. Theoretically, and as a computational convenience, it can be assumed that twice the risk is four times as undesirable. The risk penalty is as follows:

$$\text{Risk penalty} = \text{Risk Squared} / \text{Risk tolerance}$$

Risk squared is the variance of return of the portfolio. Risk tolerance is a number from 0 through 100. The size of the risk tolerance number reflects the investor’s willingness to bear more risk for more return. Low (high) tolerance indicates low (high) willingness. Risk penalty is less as tolerance is increased.

For example, if a portfolio’s expected return is 13 percent, variance of return (risk squared) is 225 percent; and the investor’s risk tolerance is 50, the risk penalty is 4.5 percent:

$$\text{Risk Penalty} = 225\% / 50 = 4.5\%$$

Because utility is expected return minus the risk penalty, we have:

$$\text{Utility} = 13 - 4.5 = 8.50\%$$

The optimal (best) portfolio for an investor would be the one from the opportunity set (efficient frontier) that maximizes utility.

Illustration of Process

Study the following two tables, which provide the necessary inputs using nine asset classes to generate efficient portfolios.

Table A: Long term Expectations: Optimization Inputs

	Expected Return %	Risk %
Large Capitalization stocks	12.20	16.50
Small Capitalization stocks	13.85	22.00
International Stocks	12.60	20.50
Venture Capital	19.50	40.00
Domestic Bonds	8.70	8.50
International Rs Bonds	8.65	8.00
Non Rs Bonds	8.65	11.00
Real Estate	10.50	14.00
T-Bills	6.50	-

Table B: Long-Term Forecasts of Correlations between Assets Classes

	1	2	3	4	5	6	7	8	9
Large Cap Equity	1.00								
Small Cap Equity	0.85	1.00							
International Stocks	0.55	0.55	1.00						
Venture Capital	0.40	0.45	0.55	1.00					
Domestic Bonds	0.45	0.40	0.30	0.15	1.00				
International Rs Bonds	0.45	0.40	0.35	0.20	0.90	1.00			
Non Rs Bonds	0.15	0.25	0.75	0.40	0.40	0.40	1.00		
Real Estate	0.50	0.55	0.50	0.45	0.30	0.35	0.30	1.00	
Cash Equi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00

Following table uses only six asset classes for convenience of illustration. Various allocations are shown with resulting risk, return, and utility data.

Portfolio (%)					
	A	B	C	D	E
Real Estate			25.0		16.7
Fixed Income	50.0	33.3	25.0	20.0	16.7
International Fixed Income				20.0	16.7
Equities		33.3	25.0	20.0	16.7
Intl. Equities				20.0	16.7
Cash Equivalents	50.0	33.4	25.0	20.0	16.7
Total	100.0	100.0	100.0	100.0	100.0
Portfolio Parameters					
Expected Return	7.60	9.13	9.48	9.73	9.85
Expected Variance	0.19	0.52	0.61	0.74	0.75
Standard Deviation	4.32	7.24	7.79	8.59	8.67
Risk Tolerance	50.00	50.00	50.00	50.00	50.00
Risk Penalty	0.37	1.05	1.21	1.47	1.50
Utility	7.23	8.08	8.26	8.26	8.35

Parameters	Portfolios (%)				
	A	B	C	D	E
Expected Return	7.60	9.13	9.48	9.73	9.85
Expected Variance	0.19	0.52	0.61	0.74	0.75
Standard Deviation	4.32	7.24	7.79	8.59	8.67
Risk Tolerance	0.62	1.75	2.02	2.46	2.50
Risk Penalty	0.62	1.75	2.02	2.46	2.50
Utility	6.98	7.38	7.45	7.27	7.35

A risk tolerance of 50 suggests that the optimum portfolio is E because its utility of 8.35 percent is the highest. Table 2 alters the risk tolerance to 30. This suggests that the “best” portfolio is portfolio C.

Using risk-return data for various asset classes over the period 1926-81 Sharpe has shown the composition of optimal portfolios for investors with risk tolerance from 10 to 100. For example, someone with a risk tolerance of 100 would hold a

passive portfolio of roughly 20 percent corporate bonds, 35 percent real estate, 40 percent equities, and about 5 percent cash equivalents.

Simple Sharpe Portfolio Optimization

The construction of an optimal portfolio is simplified if a single number measures the desirability of including a stock in the optimal portfolio. If we accept the single-index model (Sharpe), such a number exists. In this case, the desirability of any stock is directly related to its excess - return - to - beta ratio:

$$(R_i - R_f) / b_i$$

Where:

R_i = expected return on stock i

R_f = return on riskless asset

b_i = expected change in the rate of return on stock i associated with a 1 percentage change in the market return.

If stocks are ranked by excess return to beta (from highest to lowest), the ranking represents the desirability of any stock's inclusion in a portfolio. The number of stocks selected depends on a unique cutoff rate such that all stocks with higher ratios of $(R_i - R_f) / b_i$ will be included and all stocks with lower ratios excluded.

To determine which stocks are included in the optimum portfolio, the following steps are necessary:

- Calculate the excess return-to-beta ratio for each stock under review and the rank from highest to lowest.
- The optimum portfolio consists of investing in all stocks for which $(R_i - R_f) / b_i$ is greater than a particular cutoff point C^* .

Ranking Securities

Table 3 and 4 represent an example of this procedure. Table 3 contains the data necessary to determine an optimal portfolio. It is the normal output generated from a single-index model, plus the ratio of excess- return to beta. There are ten securities in the tables. They are already ranked. Selecting the optimal portfolio involves the comparison of $(R_i - R_f) / b_i$ with C^* . For the moment, assume that $C^* = -5.45$. Examining Table 3 shows that for securities 1 to 5, $(R_i - R_f) / b_i$ is greater than C^* , while for security 6 it is less than C^* . Hence, an optimal portfolio consists of securities 1 to 5.

Establishing a Cutoff Rate

All securities whose excess return-to-risk ratio is above the cutoff rate are selected and all whose ratios are below are rejected. The value of C^* is computed from the characteristic of all the securities that belong in the optimum portfolio. To determine C^* it is necessary to calculate its value as if different numbers of securities were in the optimum portfolio. Suppose C_i is a candidate for C^* , the value C_i is calculated when i securities are assumed to belong to the optimal portfolio.

Table 4: Calculation of Determining Cutoff Rate with $s^2_m = 10$

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Security No	$(R_i - R_f) / \beta_i$	$(R_i - R_f) \beta_i / \sigma^2_{ei}$	$\beta_i^2 / \sigma^2_{ei}$	$\sum_{i=1} (R_i - R_f) \beta_i / \sigma^2_{ei}$	$\sum_{i=1} \beta_i^2 / \sigma^2_{ei}$	C
1	10	2 / 10	2 / 100	2 / 10	2 / 100	1.67
2	8	4.5 / 10	5.625 / 100	6.5 / 10	7.625 / 100	3.69
3	7	3.5 / 10	5 / 100	10 / 10	12.625 / 100	4.42
4	6	24 / 10	40 / 100	34 / 10	52.625 / 100	5.43
5	6	1.5 / 10	2.5 / 100	35.5 / 10	55.625 / 100	5.45
6	4	3 / 10	7.5 / 100	38.5 / 10	62.625 / 100	5.30
7	3	3 / 10	10 / 100	41.5 / 10	72.625 / 100	5.02
8	2.5	1 / 10	4 / 100	42.5 / 10	76.625 / 100	4.91
9	2.0	1 / 10	5 / 100	43.5 / 10	81.625 / 100	4.75
10	1.0	0.6 / 10	6 / 100	44.1 / 10	87.625/100	4.52

Because securities are ranked from highest excess return to beta to lowest, we know that if a particular security belongs in the optimal portfolio, all higher-ranked securities also belong in the optimal portfolio. We proceed to calculate values of a variable C_i as if the first-ranked security were in the optimal portfolio ($i = 1$), then the first- and second-ranked securities were in the optimal portfolio ($i = 2$), and so on. These C_i are candidates for C^* . We have found the optimum C_i , that is, C^* , when all securities used in the calculation of C_i have excess returns to beta above C_i ; and all securities not used to calculate C_i have excess return to betas below C_i . For example, in column (7) of Table 4 we see the C_i for which all securities used in the calculation i [rows (1) through (5) in the table] have a ratio of excess return to beta above C_i ; and all securities not used in the calculation of C_i [rows (6) through (10) in the table] have an excess return-to-beta ratio below C_i . C_5 serves the role of a cutoff rate in the way a cutoff rate was defined earlier. In particular, C_5 is the only C_i that when used as a cutoff rate selects only the stocks used to construct it. There will always be one and only one C_i with this property and it is C^* .

Finding the Cutoff Rate C^*

For a portfolio of I stocks, C_i is given by:

$$C_i = \{[\sigma^2_m \sum_{i=1}^i (R_i - R_f) \beta_i / \sigma^2_{ei}] / \{1 + \sigma^2_m \sum_{i=1}^i (\beta_i^2 / \sigma^2_{ei})\}$$

Where:

σ^2_m = variance in the market index

σ^2_{ei} = variance of a stock's movement that is not associated with the movement of the market index; this is the stock's unsystematic risk.

The value of C_i for the first security in our list is thus:

Expression	Calculation	Data Location Table
$(R_i - R_f) \beta_i / \sigma^2_{ei}$	$\{(15-5) 1\} / 50\} = 2 / 10$	Column (3)
$\sum_{i=1}^i (R_i - R_f) \beta_i / \sigma^2_{ei}$	Same as above (since $i = 1$)	Column (5)
$\beta_i^2 / \sigma^2_{ei}$	$(1)^2 / 50 = 2 / 100$	Column (4)

Putting all this information together yields:

$$C_i = \{10(2 / 10)\} / \{1 + 10(2 / 100)\} = 1.67$$

For security 2 ($i = 2$) column (3) is:

$$\{(17 - 5) 1.5\} / 40 = 4.5 / 10$$

Now column (5) is the sum of column (3) for security (1) and (2) or:

$$(2 / 10) + (4.50 / 10) = 6.5 / 10$$

Column (4) is:

$$(1.5)^2 / 40 = 5.625 / 100$$

Column (6) is the sum of column (4) for security (1) and (2) or:

$$(2 / 100 + 5.625 / 100) = 7.625 / 100$$

and C_2 is:

$$C_2 = \{10 (6.5 / 10)\} / \{1 + 10 (7.625 / 100)\} = 3.69$$

Arriving at the Optimal Portfolio

Once we know which securities are to be included in the optimal portfolio, we must calculate the percent invested in each security. The percentage invested in each security is:

$$X_i^0 = (Z_i / \sum_{j=1}^N Z_j)$$

Where:

$$Z_i = (\beta_i / \sigma$$

$$Z_{ei}) * [(R_i - R_f) / \beta_i] - C^*]$$

The second expression determines the relative investment in each security, and the first expression simply scales the weights on each security so that they sum to 1 (ensure full investment). The residual variance on each security σ^2_{ei} plays an important role in determining how much to invest in each security. Applying this formula to our example, we have:

$$Z_1 = 0.091, Z_2 = 0.095625,$$

$$Z_3 = 0.0775, Z_4 = 0.110, Z_5 = 0.01375$$

$$\sum_{i=1}^5 Z_i = 0.387875$$

Dividing each Z_i by the sum of Z_i we would invest 23.5% of our funds in security 1, 24.6% in security 2, 20% in security 3, 28.4% in security 4 and 3.5% in security 5.

The characteristics of a stock that make it desirable can be determined before the calculations of an optimal portfolio are begun. The desirability of any stock is solely a function of its excess return-to-

beta ratio.

Consideration of New Securities

The techniques discussed also simplify the problem of revising portfolios as new securities enter the decision universe.

In above example, C^* was equal to 5.45; thus if a security is suggested that has an excess return-to-risk ratio of less than C^* , we would know that it could not enter into the optimum portfolio. The existence of a cutoff rate is extremely useful because most new securities candidates that have an excess return-to-beta ratio above 5.45 would have to be included in the optimal portfolio.

Notes

TABLE 5						
	$(R_i - R_f) \beta_i / \sigma_{ei}^2$	$\beta_i^2 / \sigma_{ei}^2$	$\sum_{i=1} (R_i - R_f) \beta_i / \sigma_{ei}^2$	$\sum_{i=1} \beta_i^2 / \sigma_{ei}^2$		
	EX RTN. x BETA / RES. V AR	BETA SQD. / RES. V AR.	EX. RTN. x BETA / RES. V AR.	BETA - SQD. / RES. V AR.	C CUTOFF VALUE	Z VALUE
SECURITY						
USAir	0.119	0:01525	0.119	0:01525	2.24	0.021
Nucor	0.109	0.010419	0.228	0.02944	3.39	0.024
High- Voltage	0.107	0.01:497	0.336	0.04441	4.08	0.018
Raytheon	0.189	0.02634	0.525	0.07075	4.83	0.040
McDonald's	0.277	0.04273	0.801	0.11347	5.29	0.034
U.S. Shoe	0:077	0:01263	0818	0.12610	535	0.008
Pitney Bowes	0.102	0.01720	0.980	0.14329	5.41	0.008
Citicorp	0.268	0.05385	1.248	0.19715	5.31	
McDermott	0.051	0.00967	1.299	0.20681	5.31	
K Mart	0.144	0:0301	1.443	0.23695	5.25	
U.S. Steel	0.089	0.01966	1.532	0.25661	5.20	
Quaker Oats	0.000	0:01088	1.532	0.26749	5.01	
Aetna	0.000	0.01916	1.531	0.28664	4.72	
Southwest	0.000	0.01277	1.532	0.29941	4.54	
Pargas	0.000	0:00901	1.532	0.30842	4.42	
Wisconsin	0.000	0.04291	1.532	0.35133	3.93	
Texaco	0.000	0.03718	1.532	0.38852	3.59	

The impact of a new security on which securities are included in the optimal portfolio is easy to figure out. For example, consider a security with an excess return of 9, a beta of 1, and a residual risk of 10. Then, initially assuming that this security should be added to the previously optimum portfolio, we obtain a cutoff rate of 5.37. Because this is larger than the excess return-to-beta ratio for any security previously excluded from the portfolio, the optimum portfolio consists of the old portfolio with an addition of the new security. It is possible that the old portfolio will not remain optimal. The change may involve a change in one or two securities whose excess return-to-beta ratio is near the cutoff rate.

LESSON 30

TUTORIAL

Article: Managing Your Portfolio

Overview

Everybody has a personal style. Some people are extroverts, others introverts. Some people are restrained, while others are flamboyant. The same is true in investing. Investors have their own investing styles: Some are risk takers by nature, willing to gamble large amounts of money on highly speculative investments. Others prefer the absolute security of cash in the bank (or under the mattress) even if it means that the actual buying power of their money is slowly dwindling because of inflation. Most people fall somewhere in between these extremes, and are willing to assume some risk, with the expectation that they'll be rewarded with higher returns. The amount of risk you're willing to take is your investing style.

Finding your Style

Your investing style stems from a variety of things: your age, personality, personal experience, and financial circumstances to name a few. For instance, if you're approaching retirement, have burdensome financial responsibilities, or you've lived through major economic upheaval, such as a massive recession or currency devaluation, chances are you may be a more risk-averse, or conservative, investor.

On the other hand, if you're young, earning a high income, have few financial responsibilities, and have seen little in the way of economic hardship, you might be inclined to take more risk. While there are as many investing styles as there are investors, most people fall more or less into one of four broad categories: conservative, moderate, aggressive, and contrarian.

Conservative Investors

Generally, conservative investors feel that safeguarding what they have is their top priority. More formally, this approach is called capital preservation. These investors want to avoid risk — particularly the risk of losing any principal — even if that means they'll have to settle for very modest returns.

Playing it safe

Conservative investors allocate most of their portfolios to bonds, such as Treasury notes or high-rated municipal bonds, and cash equivalents, such as CDs and money market accounts. They're generally reluctant to invest in stocks, which may lose value, especially over the short term. When conservative investors do venture into stocks they're often inclined to choose blue chips or other large-cap stocks with well-known brands because they tend to change value more slowly than other types of stock and sometimes pay dividend income. Conservative investors usually have to settle for modest investment growth, which might make it difficult to meet long-term goals, such as having enough income during retirement.

But in some situations a conservative investing approach may be appropriate. For instance, if you have major financial responsibilities, such as large amounts of money invested in

your own business, or you're responsible for the care of an ailing or elderly relative, it might make sense to take on less risk in your investment portfolio. And if you're retired or expect to retire in the near future, it may be unwise to put a lot of your assets at risk in volatile securities, such as stocks, at this stage in the game, when your portfolio may not have time to recover from a market downturn.

Moderate Investors

Moderate investors want to increase the value of their portfolios while protecting their assets from the risk of major losses. They usually buffer the volatility of growth investments, such as stock, with a substantial portion of their portfolio allocated to produce regular income and preserve principal.

For example, a moderate investor might use an allocation model that has 60% in stock, 30% in bonds, and 10% in cash equivalents. While they will tend to favor blue chip and other large-cap stocks, they may be willing to invest a modest portion of their principal in higher risk securities — such as international stock, small-caps, and volatile sector funds — in order to increase their potential for higher returns.

If you're not a risk taker by nature, a moderate investing style may be suitable in any circumstance or financial situation.

Aggressive Investors

Aggressive investors concentrate on investments that have the potential for significant growth. They are willing to take the risk of losing some of their principal, with the expectation that they will realize greater returns.

Aggressive investors might allocate from 75 to 95% of their portfolios to individual stocks and stock mutual funds. While large- and small-cap stocks and funds may make up the core of their portfolios, many aggressive investors will have significant holdings in more speculative stocks and funds, such as emerging market and sector mutual funds.

Seeking Growth

Since aggressive investors focus on growth, they are usually less inclined to hold income-producing securities, such as bonds. However, they may take modest positions in bonds to lower the volatility of their portfolios. Aggressive investors may also keep a portion of their assets allocated to short-term cash equivalents as a holding place for their cash between other investments.

An aggressive investing style is definitely not for the faint of heart. It's best suited for investors with a long-term investing horizon of 15 years or more, who are willing to make a long-term commitment to the stocks they buy. But history has shown that an aggressive investing approach, combined with a well diversified portfolio, and the patience to stick to a long-term buy-and-hold investing strategy through inevitable market downturns, can be the most profitable in the long run.

CASE STUDY PIED PIPER ADVISORS

Aegis Incorporated is a cable television corporation based in Denver, Colorado. The company employs 4,500 people, most of them in two major media markets — Boston and New York City. Aegis offers a defined contribution pension plan to its employees. That is, the firm guarantees no specific future benefits, however Aegis commits to a regular contribution to the pension fund in the name of the employee. The workforce is a relatively young one. Average employee age is 32. The current average life expectancy is 73 and expected retirement age is 65. The employees are primarily non-union, blue collar and clerical, with jobs ranging from cable installers and electricians to bookkeepers, account managers and a telephone sales force. The pension committee, chaired by Joanne Whitcombe, oversees the management of their pension money, currently \$67.5 million. Aegis allocates assets among a number of investments. The company typically uses an outside consulting firm every three years to evaluate the performance of the mutual fund managers. Aegis currently uses eight equity managers and one bond manager, each of who has a long track record of performance.

Pied Piper Advisors is a consulting firm specializing in evaluating investment management performance. It publishes information about the behavior of managers over recent years, and also has its own method of measuring performance. The Pied Piper book has quickly become a standard in the industry. Pied Piper collects data on hundreds of currently available managers — if a fund has been incorporated into another one, then it disappears from Pied Piper's sample. Aegis has been impressed with Pied Piper, and is considering using them to evaluate their fund manager performance. She has copies of most of the Pied Piper analysis on several of the managers in which they invest.

Aegis Portfolio Composition	
Managers	Weight
LaSalle Street Capital MgCore Equity Fund	.20
Meridian Trust Company Employee Benefit Fund	.10
JP Morgan Investment Managers Small company	.05
Neuberger Berman Low Duration	.30
Panagora Asset Mgmt Tactical Asset Allocation	.05
JP Morgan Investment Mgmt Tactocal Asset Allocation	.05
Renaissance Investment Mgmt Tree Way Tactical Asset Allocation	.20
Feshbach Brothers Southgate Partners	.05

Jedida Baines works for Joanne Whitcombe at the Aegis pension fund. Whitcombe asks Baines to look over the Pied

Piper data and to see whether it would be useful in comparison of money managers. Write a report from Ms. Baines' perspective. Include the following:

1. Measure of the beta of each fund and the beta of the portfolio.
2. Estimate the Sharpe, Jensen and Traynor measures for each fund. Consider the confidence bands around these measures. Can you actually distinguish performance? Graph the measures in mean-std space or mean-beta space as appropriate, and place confidence bands around each point in both dimensions.
3. Suggest alternative measures of relative performance across the debt and equity managers. Do the same measures apply to both types? What else would you need to know about the different managers? Use whatever criteria seem appropriate in this context.
4. Two of the equity managers are "tactical allocators." The Ibbotson Attribution program allows you to examine the rolling style characteristics of these funds. Are their exposures to equity and debt changing through time? Should any of the other funds be considered timers? Is there any evidence that any manager are able to correctly time the stock market?
5. Write a preliminary evaluation of fund performance, according to your own evaluation methods.
6. Make a suggestion regarding future use of these managers. Do you wish to drop some or to reallocate among them? If you were to add managers, what criteria would you use and how reliable do you think they would be?
7. Write a consideration of Aegis' employees' particular needs. This could range from a multi-factor approach to whatever else you might consider relevant. If the Ibbotson bond synthesizer program is available, you may wish to use it to construct a portfolio of liability assets that match the projected future cash needs of the aggregate workforce.

Notes

LESSON 31
CONCEPTS OF INVESTING &
INVESTMENT IN MUTUAL FUNDS**Investing!! What's That?**

Knowledge is power. It is common knowledge that money has to be invested wisely. If you are a novice at investing, terms such as stocks, bonds, badla, undha badla, yield, P/E ratio may sound Greek and Latin. Relax. It takes years to understand the art of investing. You're not alone in the quest to crack the jargon. To start with, take your investment decisions with as many facts as you can assimilate. But, understand that you can never know everything. Learning to live with the anxiety of the unknown is part of investing. Being enthusiastic about getting started is the first step, though daunting at the first instance. That's why our investment course begins with a dose of encouragement: With enough time and a little discipline, you are all but guaranteed to make the right moves in the market. Patience and the willingness to pepper your savings across a portfolio of securities tailored to suit your age and risk profile will propel your revenues at the same time cushion you against any major losses. Investing is not about putting all your money into the "Next Infosys," hoping to make a killing. Investing isn't gambling or speculation; it's about taking reasonable risks to reap steady rewards. Investing is a method of purchasing assets in order to gain profit in the form of reasonably predictable income (dividends, interest, or rentals) and appreciation over the long term.

Why should you invest?

Simply put, you should invest so that your money grows and shields you against rising inflation. The rate of return on investments should be greater than the rate of inflation, leaving you with a nice surplus over a period of time. Whether your money is invested in stocks, bonds, mutual funds or certificates of deposit (CD), the end result is to create wealth for retirement, marriage, college fees, vacations, better standard of living or to just pass on the money to the next generation. Also, it's exciting to review your investment returns and to see how they are accumulating at a faster rate than your salary.

When to Invest?

The sooner the better. By investing into the market right away you allow your investments more time to grow, whereby the concept of compounding interest swells your income by accumulating your earnings and dividends. Considering the unpredictability of the markets, research and history indicates these three golden rules for all investors:

- Invest early
- Invest regularly
- Invest for long term and not short term

While it's tempting to wait for the "best time" to invest, especially in a rising market, remember that the risk of waiting may be much greater than the potential rewards of participating. Trust in the power of compounding. Compounding is growth via reinvestment of returns earned on your savings. Com-

pounding has a snowballing effect because you earn income not only on the original investment but also on the reinvestment of dividend/interest accumulated over the years. The power of compounding is one of the most compelling reasons for investing as soon as possible. The earlier you start investing and continue to do so consistently the more money you will make. The longer you leave your money invested and the higher the interest rates, the faster your money will grow. That's why stocks are the best long-term investment tools. The general upward momentum of the economy mitigates the stock market volatility and the risk of losses. That's the reasoning behind investing for long term rather than short term.

How much money do I need to invest?

There is no statutory amount that an investor needs to invest in order to generate adequate returns from his savings. The amount that you invest will eventually depend on factors such as:

- Your risk profile
- Your Time horizon
- Savings made

What can you invest in?

The investing options are many, to name a few

- Stocks
- Bonds
- Mutual funds
- Fixed deposits
- Others

Personal Finances. Why Bother?

There is always a first time for everything so also for investing. To invest you need capital free of any obligation. If you are not in the habit of saving sufficient amount every month, then you are not ready for investing. My advice is:

Save to at least 4-5 months of your monthly income for emergencies. Do not invest from savings made for this purpose. Hold them in a liquid state and do not lock it up against any liability or in term deposits.

Save at least 30-35 per cent of your monthly income. Stick to this practice and try to increase your savings.

Avoid unnecessary or lavish expenses as they add up to your savings. A dinner at Copper Chimney can always be avoided, the pleasures of avoiding it will be far greater if the amount is saved and invested.

Try gifting a bundle of share certificates to yourself on your marriage anniversary or your hubby's birthday instead of spending your money on a lavish holiday package.

Clear all your high interest debts first out of the savings that you make. Credit card debts (revolving credits) and loans from pawnbrokers typically carry interest rates of between 24-36%

annually. It is foolish to pay off debt by trying to first make money for that cause out of gambling or investing in stocks with whatever little money you hold. In fact its prudent to clear a portion of the debt with whatever amounts you have.

Retirement benefits are an ideal savings tool. Never opt out of retirement benefits in place of a consolidated pay cheque. You are then missing out on a substantial employer contribution into the fund.

Different Investment Options and their Current Market Rate of Returns

The investment options before you are many. Pick the right investment tool based on the risk profile, circumstance, time zone available etc. If you feel market volatility is something, which you can live with, then buy stocks. If you do not want to risk the volatility and simply desire some income, then you should consider fixed income securities. However, remember that risk and returns are directly proportional to each other. Higher the risk, higher the returns. A brief preview of different investment options is given below:

Equities: Investment in shares of companies is investing in equities. Stocks can be bought/sold from the exchanges (secondary market) or via IPOs – Initial Public Offerings (primary market). Stocks are the best long-term investment options wherein the market volatility and the resultant risk of losses, if given enough time, is mitigated by the general upward momentum of the economy. There are two streams of revenue generation from this form of investment.

1. **Dividend:** Periodic payments made out of the company's profits are termed as dividends.
2. **Growth:** The price of a stock appreciates commensurate to the growth posted by the company resulting in capital appreciation.

On an average an investment in equities in India has a return of 25%. Good portfolio management, precise timing may ensure a return of 40% or more. Picking the right stock at the right time would guarantee that your capital gains i.e. growth in market value of your stock possessions, will rise.

Bonds: It is a fixed income (debt) instrument issued for a period of more than one year with the purpose of raising capital. The central or state government, corporations and similar institutions sell bonds. A bond is generally a promise to repay the principal along with fixed rate of interest on a specified date, called as the maturity date. Other fixed income instruments include bank fixed deposits, debentures, preference shares etc. The average rate of return on bonds and securities in India has been around 10 - 12 % p.a.

Certificate of Deposits: These are short - to-medium-term interest bearing, debt instruments offered by banks. These are low-risk, low-return instruments. There is usually an early withdrawal penalty. Savings account, fixed deposits, recurring deposits etc are some of them. Average rate of return is usually between 4-8 %, depending on which instrument you park your funds in. Minimum required investment is Rs. 1,00,000.

Mutual Fund: These are open and close-ended funds operated by an investment company, which raises money from the public and invests in a group of assets, in accordance with a stated set

of objectives. It's a substitute for those who are unable to invest directly in equities or debt because of resource, time or knowledge constraints. Benefits include diversification and professional money management. Shares are issued and redeemed on demand, based on the fund's net asset value, which is determined at the end of each trading session. The average rate of return as a combination of all mutual funds put together is not fixed but is generally more than what earn in fixed deposits. However, each mutual fund will have its own average rate of return based on several schemes that they have floated. In the recent past, MFs have given a return of 18 – 30 %.

Cash Equivalents: These are highly liquid and safe instruments which can be easily converted into cash, treasury bills and money market funds are a couple of examples for cash equivalents.

Others: There are also other saving and investment vehicles such as gold, real estate, commodities, art and crafts, antiques, foreign currency etc. However, holding assets in foreign currency are considered more of a hedging tool (risk management) rather than an investment.

Investment in Mutual Funds

Introduction

The Mutual Fund Industry

The genesis of the mutual fund industry in India can be traced back to 1964 with the setting up of the Unit Trust of India (UTI) by the Government of India. Since then UTI has grown to be a dominant player in the industry. UTI is governed by a special legislation, the Unit Trust of India Act, 1963.

The industry was opened up for wider participation in 1987 when public sector banks and insurance companies were permitted to set up mutual funds. Since then, 6 public sector banks have set up mutual funds. Also the two Insurance companies LIC and GIC have established mutual funds. Securities Exchange Board of India (SEBI) formulated the Mutual Fund (Regulation) 1993, which for the first time established a comprehensive regulatory framework for the mutual fund industry. Since then several mutual funds have been set up by the private and joint sectors.

Growth of Mutual Funds

The Indian Mutual fund industry has passed through three phases. The first phase was between 1964 and 1987 when Unit Trust of India was the only player. By the end of 1988, UTI had total asset of Rs 6,700 crores. The second phase was between 1987 and 1993 during which period 8 funds were established (6 by banks and one each by LIC and GIC). This resulted in the total assets under management to grow to Rs 61,028 crores at the end of 1994 and the numbers of schemes were 167.

The third phase began with the entry of private and foreign sectors in the Mutual fund industry in 1993. Several private sectors Mutual Funds were launched in 1993 and 1994. The share of the private players has risen rapidly since then. Currently there are 34 Mutual Fund organisations in India. Kothari Pioneer Mutual fund was the first fund to be established by the private sector in association with a foreign fund.

This signaled a growth phase in the industry and at the end of financial year 2000, 32 funds were functioning with Rs. 1,13,005 crores as total assets under management. As on August end 2000, there were 33 funds with 391 schemes and assets under management with Rs. 1,02,849 crores. The Securities and Exchange Board of India (SEBI) came out with comprehensive regulation in 1993, which defined the structure of Mutual Fund and Asset Management Companies for the first time.

What is a Mutual Fund

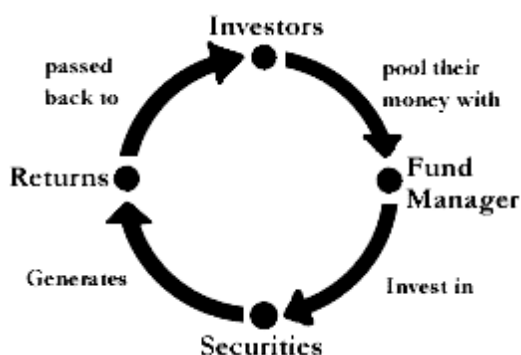
Like most developed and developing countries the mutual fund cult has been catching on in India. There are various reasons for this. Mutual funds make it easy and less costly for investors to satisfy their need for capital growth, income and/or income preservation.

And in addition to this a mutual fund brings the benefits of diversification and money management to the individual investor, providing an opportunity for financial success that was once available only to a select few.

Understanding Mutual funds is easy as it's such a simple concept: a mutual fund is a company that pools the money of many investors — its shareholders — to invest in a variety of different securities. Investments may be in stocks, bonds, money market securities or some combination of these. Those securities are professionally managed on behalf of the shareholders, and each investor holds a pro rata share of the portfolio — entitled to any profits when the securities are sold, but subject to any losses in value as well.

For the individual investor, mutual funds provide the benefit of having someone else manage your investments and diversify your money over many different securities that may not be available or affordable to you otherwise. Today, minimum investment requirements on many funds are low enough that even the smallest investor can get started in mutual funds.

A mutual fund, by its very nature, is diversified — its assets are invested in many different securities. Beyond that, there are many different types of mutual funds with different objectives and levels of growth potential, furthering your chances to diversify.



Why invest in Mutual Funds

Investing in mutual has various benefits, which makes it an ideal investment avenue. Following are some of the primary benefits.

Professional Investment Management

One of the primary benefits of mutual funds is that an investor has access to professional management. A good investment manager is certainly worth the fees you will pay. Good mutual fund managers with an excellent research team can do a better job of monitoring the companies they have chosen to invest in than you can, unless you have time to spend on researching the companies you select for your portfolio. That is because Mutual funds hire full-time, high-level investment professionals. Funds can afford to do so as they manage large pools of money. The managers have real-time access to crucial market information and are able to execute trades on the largest and most cost-effective scale. When you buy a mutual fund, the primary asset you are buying is the manager, who will be controlling which assets are chosen to meet the funds' stated investment objectives.

Diversification

A crucial element in investing is asset allocation. It plays a very big part in the success of any portfolio. However, small investors do not have enough money to properly allocate their assets. By pooling your funds with others, you can quickly benefit from greater diversification. Mutual funds invest in a broad range of securities. This limits investment risk by reducing the effect of a possible decline in the value of any one security. Mutual fund unit-holders can benefit from diversification techniques usually available only to investors wealthy enough to buy significant positions in a wide variety of securities.

Low Cost

A mutual fund let's you participate in a diversified portfolio for as little as Rs.5, 000, and sometimes less. And with a no-load fund, you pay little or no sales charges to own them.

Convenience and Flexibility

Investing in mutual funds has it's own convenience. While you own just one security rather than many, you still enjoy the benefits of a diversified portfolio and a wide range of services. Fund managers decide what securities to trade collect the interest payments and see that your dividends on portfolio securities are received and your rights exercised. It also uses the services of a high quality custodian and registrar. Another big advantage is that you can move your funds easily from one fund to another within a mutual fund family. This allows you to easily rebalance your portfolio to respond to significant fund management or economic changes.

Liquidity

In open-ended schemes, you can get your money back promptly at net asset value related prices from the mutual fund itself.

Transparency

Regulations for mutual funds have made the industry very transparent. You can track the investments that have been made on your behalf and the specific investments made by the mutual fund scheme to see where your money is going. In addition to

this, you get regular information on the value of your investment.

Variety

There is no shortage of variety when investing in mutual funds. You can find a mutual fund that matches just about any investing strategy you select. There are funds that focus on blue-chip stocks, technology stocks, bonds or a mix of stocks and bonds. The greatest challenge can be sorting through the variety and picking the best for you.

Types of Mutual Funds

Getting a handle on what's under the hood helps you become a better investor and put together a more successful portfolio. To do this one must know the different types of funds that cater to investor needs, whatever the age, financial position, risk tolerance and return expectations. The mutual fund schemes can be classified according to both their investment objective (like income, growth, tax saving) as well as the number of units (if these are unlimited then the fund is an open-ended one while if there are limited units then the fund is close-ended).

This section provides descriptions of the characteristics — such as investment objective and potential for volatility of your investment — of various categories of funds. The type of securities purchased by each fund organizes these descriptions: equities, fixed-income, money market instruments, or some combination of these.

Open-ended schemes

Open-ended schemes do not have a fixed maturity period. Investors can buy or sell units at NAV-related prices from and to the mutual fund on any business day. These schemes have unlimited capitalization, open-ended schemes do not have a fixed maturity, there is no cap on the amount you can buy from the fund and the unit capital can keep growing. These funds are not generally listed on any exchange.

Open-ended schemes are preferred for their liquidity. Such funds can issue and redeem units any time during the life of a scheme. Hence, unit capital of open-ended funds can fluctuate on a daily basis. The advantages of open-ended funds over close-ended are as follows:

Open-Ended schemes

Any time exit option, the issuing company directly takes the responsibility of providing an entry and an exit. This provides ready liquidity to the investors and avoids reliance on transfer deeds, signature verifications and bad deliveries. Any time entry option, An open-ended fund allows one to enter the fund at any time and even to invest at regular intervals.

Close-ended schemes

Close-ended schemes have fixed maturity periods. Investors can buy into these funds during the period when these funds are open in the initial issue. After that such schemes cannot issue new units except in case of bonus or rights issue. However, after the initial issue, you can buy or sell units of the scheme on the stock exchanges where they are listed. The market price of the units could vary from the NAV of the scheme due to demand and supply factors, investors' expectations and other market factors.

Classification according to investment objectives

Mutual funds can be further classified based on their specific investment objective such as growth of capital, safety of principal, current income or tax-exempt income.

In general mutual funds fall into three general categories:

- Equity Funds are those that invest in shares or equity of companies.
- Fixed-Income Funds invest in government or corporate securities that offer fixed rates of return are
- While funds that invest in a combination of both stocks and bonds are called Balanced Funds.

Growth Funds

Growth funds primarily look for growth of capital with secondary emphasis on dividend. Such funds invest in shares with a potential for growth and capital appreciation. They invest in well-established companies where the company itself and the industry in which it operates are thought to have good long-term growth potential, and hence growth funds provide low current income. Growth funds generally incur higher risks than income funds in an effort to secure more pronounced growth.

Some growth funds concentrate on one or more industry sectors and also invest in a broad range of industries. Growth funds are suitable for investors who can afford to assume the risk of potential loss in value of their investment in the hope of achieving substantial and rapid gains. They are not suitable for investors who must conserve their principal or who must maximize current income.

Growth and Income Funds

Growth and income funds seek long-term growth of capital as well as current income. The investment strategies used to reach these goals vary among funds. Some invest in a dual portfolio consisting of growth stocks and income stocks, or a combination of growth stocks, stocks paying high dividends, preferred stocks, convertible securities or fixed-income securities such as corporate bonds and money market instruments. Others may invest in growth stocks and earn current income by selling covered call options on their portfolio stocks.

Growth and income funds have low to moderate stability of principal and moderate potential for current income and growth. They are suitable for investors who can assume some risk to achieve growth of capital but who also want to maintain a moderate level of current income.

Fixed-Income Funds

Fixed income funds primarily look to provide current income consistent with the preservation of capital. These funds invest in corporate bonds or government-backed mortgage securities that have a fixed rate of return. Within the fixed-income category, funds vary greatly in their stability of principal and in their dividend yields. High-yield funds, which seek to maximize yield by investing in lower-rated bonds of longer maturities, entail less stability of principal than fixed-income funds that invest in higher-rated but lower-yielding securities. Some fixed-income funds seek to minimize risk by investing exclusively in securities whose timely payment of interest and principal is backed by the full faith and credit of the Indian Government. Fixed-income funds are suitable for investors who want to

maximize current income and who can assume a degree of capital risk in order to do so.

Balanced

The Balanced fund aims to provide both growth and income. These funds invest in both shares and fixed income securities in the proportion indicated in their offer documents. Ideal for investors who are looking for a combination of income and moderate growth.

Money Market Funds/Liquid Funds

For the cautious investor, these funds provide a very high stability of principal while seeking a moderate to high current income. They invest in highly liquid, virtually risk-free, short-term debt securities of agencies of the Indian Government, banks and corporations and Treasury Bills. Because of their short-term investments, money market mutual funds are able to keep a virtually constant unit price; only the yield fluctuates.

Therefore, they are an attractive alternative to bank accounts. With yields that are generally competitive with - and usually higher than — yields on bank savings account, they offer several advantages. Money can be withdrawn any time without penalty. Although not insured, money market funds invest only in highly liquid, short-term, top-rated money market instruments. Money market funds are suitable for investors who want high stability of principal and current income with immediate liquidity.

Specialty/Sector Funds

These funds invest in securities of a specific industry or sector of the economy such as health care, technology, leisure, utilities or precious metals. The funds enable investors to diversify holdings among many companies within an industry, a more conservative approach than investing directly in one particular company.

Sector funds offer the opportunity for sharp capital gains in cases where the fund's industry is "in favor" but also entail the risk of capital losses when the industry is out of favor. While sector funds restrict holdings to a particular industry, other specialty funds such as index funds give investors a broadly diversified portfolio and attempt to mirror the performance of various market averages.

Index funds generally buy shares in all the companies composing the BSE Sensex or NSE Nifty or other broad stock market indices. They are not suitable for investors who must conserve their principal or maximize current income.

Risk vs. Reward

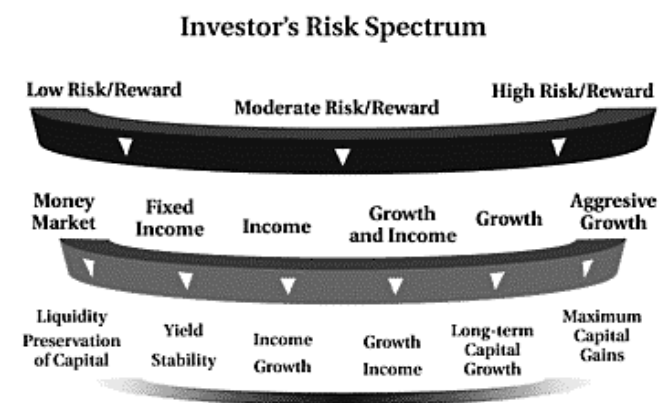
Having understood the basics of mutual funds the next step is to build a successful investment portfolio. Before you can begin to build a portfolio, one should understand some other elements of mutual fund investing and how they can affect the potential value of your investments over the years. The first thing that has to be kept in mind is that when you invest in mutual funds, there is no guarantee that you will end up with more money when you withdraw your investment than what you started out with. That is the potential of loss is always there. The loss of value in your investment is what is considered risk in investing.

Even so, the opportunity for investment growth that is possible through investments in mutual funds far exceeds that concern for most investors. Here's why.

At the cornerstone of investing is the basic principal that the greater the risk you take, the greater the potential reward. Or stated in another way, you get what you pay for and you get paid a higher return only when you're willing to accept more volatility.

Risk then, refers to the volatility — the up and down activity in the markets and individual issues that occurs constantly over time. This volatility can be caused by a number of factors — interest rate changes, inflation or general economic conditions. It is this variability, uncertainty and potential for loss, that causes investors to worry. We all fear the possibility that a stock we invest in will fall substantially. But it is this very volatility that is the exact reason that you can expect to earn a higher long-term return from these investments than from a savings account.

Different types of mutual funds have different levels of volatility or potential price change, and those with the greater chance of losing value are also the funds that can produce the greater returns for you over time. So risk has two sides: it causes the value of your investments to fluctuate, but it is precisely the reason you can expect to earn higher returns. You might find it helpful to remember that all financial investments will fluctuate. There are very few perfectly safe havens and those simply don't pay enough to beat inflation over the long run.



Types of Risks

All investments involve some form of risk. Consider these common types of risk and evaluate them against potential rewards when you select an investment.

Market Risk

At times the prices or yields of all the securities in a particular market rise or fall due to broad outside influences. When this happens, the stock prices of both an outstanding, highly profitable company and a fledgling corporation may be affected. This change in price is due to "market risk". Also known as systematic risk.

Inflation Risk

Sometimes referred to as “loss of purchasing power.” Whenever inflation rises forward faster than the earnings on your investment, you run the risk that you’ll actually be able to buy less, not more. Inflation risk also occurs when prices rise faster than your returns.

Credit Risk

In short, how stable is the company or entity to which you lend your money when you invest? How certain are you that it will be able to pay the interest you are promised, or repay your principal when the investment matures?

Interest Rate Risk

Changing interest rates affect both equities and bonds in many ways. Investors are reminded that “predicting” which way rates will go is rarely successful. A diversified portfolio can help in offsetting these changes.

Exchange risk

A number of companies generate revenues in foreign currencies and may have investments or expenses also denominated in foreign currencies. Changes in exchange rates may, therefore, have a positive or negative impact on companies which in turn would have an effect on the investment of the fund.

Investment Risks

The sectoral fund schemes, investments will be predominantly in equities of select companies in the particular sectors. Accordingly, the NAV of the schemes are linked to the equity performance of such companies and may be more volatile than a more diversified portfolio of equities.

Changes in the Government Policy

Changes in Government policy especially in regard to the tax benefits may impact the business prospects of the companies leading to an impact on the investments made by the fund. Effect of loss of key professionals and inability to adapt business to the rapid technological change.

An industries’ key asset is often the personnel who run the business i.e. intellectual properties of the key employees of the respective companies. Given the ever-changing complexion of few industries and the high obsolescence levels, availability of qualified, trained and motivated personnel is very critical for the success of industries in few sectors. It is, therefore, necessary to attract key personnel and also to retain them to meet the changing environment and challenges the sector offers. Failure or inability to attract/retain such qualified key personnel may impact the prospects of the companies in the particular sector in which the fund invests.

Choosing a Fund

Mutual fund is the best investment tool for the retail investor as it offers the twin benefits of good returns and safety as compared with other avenues such as bank deposits or stock investing. Having looked at the various types of mutual funds, one has to now go about selecting a fund suiting your requirements. Choose the wrong fund and you would have been better off keeping money in a bank fixed deposit. Keep in mind the points listed below and you could at least marginalise your investment risk.

Past performance

While past performance is not an indicator of the future it does throw some light on the investment philosophies of the fund, how it has performed in the past and the kind of returns it is offering to the investor over a period of time. Also check out the two-year and one-year returns for consistency. How did these funds perform in the bull and bear markets of the immediate past? Tracking the performance in the bear market is particularly important because the true test of a portfolio is often revealed in how little it falls in a bad market.

Know your Fund Manager

The success of a fund to a great extent depends on the fund manager. The same fund managers manage most successful funds. Ask before investing, has the fund manager or strategy changed recently? For instance, the portfolio manager who generated the fund’s successful performance may no longer be managing the fund.

Does it suit your risk profile?

Certain sector-specific schemes come with a high-risk high-return tag. Such plans are suspect to crashes in case the industry loses the market men’s fancy. If the investor is totally risk averse he can opt for pure debt schemes with little or no risk. Most prefer the balanced schemes, which invest in the equity and debt markets. Growth and pure equity plans give greater returns than pure debt plans but their risk is higher.

Read the prospectus

The prospectus says a lot about the fund. A reading of the fund’s prospectus is a must to learn about its investment strategy and the risk that it will expose you to. Funds with higher rates of return may take risks that are beyond your comfort level and are inconsistent with your financial goals. But remember that all funds carry some level of risk. Just because a fund invests in government or corporate bonds does not mean it does not have significant risk. Thinking about your long-term investment strategies and tolerance for risk can help you decide what type of fund is best suited for you.

How will the fund affect the diversification of your portfolio?

When choosing a mutual fund, you should consider how your interest in that fund affects the overall diversification of your investment portfolio. Maintaining a diversified and balanced portfolio is key to maintaining an acceptable level of risk.

What it costs you?

A fund with high costs must perform better than a low-cost fund to generate the same returns for you. Even small differences in fees can translate into large differences in returns over time.

Finally, don’t pick a fund simply because it has shown a spurt in value in the current rally. Ferret out information of a fund for at least three years. The one thing to remember while investing in equity funds is that it makes no sense to get in and out of a fund with each turn of the market. Like stocks, the right equity mutual fund will pay off big — if you have the patience. Similarly, it makes little sense to hold on to a fund that lags behind the total market year after year.

Tax Aspects of Mutual Funds

Tax Implications of Dividend Income

Equity Schemes

Equity Schemes are schemes, which have less than 50 per cent investments in Equity shares of domestic companies. As far as Equity Schemes are concerned no Distribution Tax is payable on dividend. In the hands of the investors, dividend is tax-free.

Other Schemes

For schemes other than equity, in the hands of the investors, dividend is tax-free. However, Distribution Tax on dividend @ 12.81 per cent to be paid by Mutual Funds.

Tax Implications of Capital Gains

The difference between the sale consideration (selling price) and the cost of acquisition (purchase price) of the asset is called capital gain. If the investor sells his units and earns capital gains he is liable to pay capital gains tax.

Capital gains are of two types: **Short Term and Long Term Capital Gains.**

Short Term Capital Gains

The holding period of the Mutual Fund units is less than or equal to 12 months from the date of allotment of units then short term capital gains is applicable. On Short Term capital gains no Indexation benefit is applicable.

Tax and TDS Rate (excluding surcharge)

Resident Indians and Domestic Companies

The Gain will be added to the total income of the Investor and taxed at the marginal rate of tax. No TDS.

NRIs: 30 per cent TDS from the gain.

Long Term Capital Gains

The holding period of Mutual Fund units is more than 12 months from the date of allotment of units. On Long Term capital gains Indexation benefit is applicable.

Tax and TDS Rate (excluding surcharge)

Resident Indians and Domestic Companies

The Gain will be taxed

- A. At 20 per cent with indexation benefit or
- B. At 10 per cent without indexation benefit, whichever is lower, No TDS.

NRIs: 20 per cent TDS from the Gain

Surcharge

Resident Indians: If the Gain exceeds Rs 8.5 lakhs, surcharge is payable by investors @ 10 per cent.

Domestic Companies: Payable by the investor @ 2.5 per cent.

NRIs: If the Gain from the Fund exceeds Rs 8.5 lakhs, surcharge is deducted at source @ 2.5 per cent.

Indexation

Indexation means that the purchase price is marked up by an inflation index resulting in lower capital gains and hence lower tax.

$$\text{Inflation index} = \frac{\text{Inflation index for the year of transfer}}{\text{Inflation index for the year of acquisition}}$$

Notes

LESSON 32

INVESTMENT IN SMALL SAVING SCHEMES

Objective

Small savings schemes are designed to provide safe & attractive investment options to the public and at the same time to mobilise resources for development.

Operating Agencies

- These schemes are operated through about 1.54 Lakh post offices throughout the country.
- Public Provident Fund Scheme is also operated through about 8000 branches of public sector banks in addition to the post offices.
- Deposit Schemes for Retiring Employees are operated through selected branches of public sector banks only.

Promotion

- National Savings Organization (NSO) is responsible for national level promotion of these schemes through publicity campaigns and advertisements in audio, video as well as print media.
- Through a large network of over 5 lakh small savings agents working under different categories viz:
 - Standardized Agency System (SAS),
 - Mahila Pradhan Kshetriya Bachat Yojana (MPKBY),
 - Public Provident Fund Agency Scheme,
 - Payroll Savings Groups,
 - School Savings Banks (Sanchayikas)
- In addition, the Extra Departmental Branch Postmasters (EDBPMs) also help in mobilizing savings, especially in rural and remote / far flung areas.

Institutional Investment in Small Savings Schemes

These schemes being primarily meant for small urban and rural investors; institutions are not eligible to invest in major small savings schemes.

NRIs' Investment in Small Savings Schemes

The Non-Resident Indians (NRIs) are not eligible to invest in small savings schemes including Public Provident Fund (PPF) and Deposit Schemes For Retiring Employees.

Current Small Savings Schemes with Main Features

Post Office Savings Accounts

Who can open:

- A single adult or two-three adults jointly,
- A pensioner to receive/credit his monthly pension,
- Group Accounts by Provident Fund, Superannuating Fund or Gratuity Fund,

- Public Account by a local authority/body,
- An employee, contractor, or agent of a government or of a government company or of a university for depositing security amounts,
- A Gazetted Officer or an officer of a government company or corporation or Reserve Bank of India or of a local authority in his official capacity.
- A cooperative society or a cooperative bank for payment of pay, leave salary, pension contribution of government servants on deputation with such society or bank.

Where can be opened:

- At any post office.

Deposits:

- Account can be opened with a minimum of Rs. 20.
- Maximum of Rupees One Lakh for single holder and Rs. Two lakhs for joint holders. If depositors have more than one account (single, pension or joint), the balances or shares of balances in all such accounts taken together should not exceed Rs. One Lakh for each of the depositors.

Maturity Period / Withdrawal:

- There is no lock-in / maturity period prescribed.
- Withdrawals: Any amount subject to keeping a minimum balance of Rs. 50 in simple and Rs. 500 for cheque facility accounts.
- Interest at the rate (s) 'as decided by the Central Government from time to time', is calculated on monthly balances and credited annually.
- Interest rate applicable w.e.f. 1.3.2001 is 3.5 per cent / per annum for general public.

Pass Book:

- Depositor is provided with a pass book with entries of all transactions duly stamped by the post Office.

Silent Accounts:

- An account, not operated during three complete years, shall be treated as 'Silent Account'.
- A service charge @ Rs. 20 per year is charged on the last day of each year until it is reactivated.
- In a silent account from which after deduction of service charge, the balance becomes NIL, the account stands automatically closed.

Final closure / withdrawal:

- Final withdrawal / closure of account shall be allowed by Sub Postmaster / Extra departmental Sub / Branch Postmaster on obtaining sanction from Head Postmaster.

Tax treatment:

- Income tax relief is available on the amount of interest under the provisions of section 80L of Income Tax Act.

Post Office Time Deposit Accounts**Types of Accounts**

- 1 Year maturity,
- 2 Years maturity,
- 3 Years maturity &
- 5 Years maturity.

Who can open:

- A single adult or two adults jointly,
- A pensioner to receive/credit his monthly pension,
- Group Accounts by Provident Fund, Superannuating Fund or Gratuity Fund, Authority controlling funds of the Sanchayikas.
- Public Account by a local authority/body,
- Institutional Accounts by the Treasurer of Charitable Endowments for India, Trust Regimental Fund & Welfare Fund,
- A cooperative society / cooperative bank or scheduled bank on behalf of its members, clients or employees
- Gazetted Officer in his official capacity.

Where can be opened:

At any post office.

Deposits:

A deposit with a minimum of Rs. 200 with no maximum limit.

Maturity period / withdrawal:

Withdrawals: The deposited amount is repayable after expiry of the period for which it is made viz: 1 year, 2 years, 3 years or 5 years.

Interest:

- Interest, 'calculated on quarterly compounding basis', is payable annually.
- Interest rates applicable w.e.f. the **1st day of March, 2003** are:

Period of deposit Rate of Interest per cent / per annum

1 YEAR	6.25
2 YEARS	6.50
3 YEARS	7.25
5 YEARS	7.50

Pass Book:

Depositor is provided with a passbook with entries of the deposited amount and other particulars duly stamped by the post office.

Tax treatment:

Income tax relief is available on the amount of interest under the provisions of section 80L of Income Tax Act.

Premature withdrawal:

Premature withdrawals from all types of Post Office Time Deposit accounts are permissible after expiry of 6 months with certain conditions.

Post maturity interest:

Post maturity interest "at the rate applicable to the post office savings accounts from time to time", is payable for a maximum period of 2 years.

Post Office Recurring Deposit Accounts**Who can open:**

- A single adult or two adults jointly,
- A guardian on behalf of a minor or a person of unsound mind;
- A minor who has attained the age of ten year, in his own name.

Where can be opened:

At any post office.

Maturity:

Period of maturity of an account is five years.

Deposits:

Sixty equal monthly deposits shall be made in an account in multiples of Rs. Five subject to a minimum of ten rupees.

Defaults in deposits:

- Accounts with not more than four defaults in deposits can be regularized within a period of two months on payment of a default fee.
- Account becomes discontinued after more than four defaults.

Interest & Repayment on maturity:

- On maturity of the accounts opened on or after 1st March 2003, an amount (inclusive of interest) of Rs. 728.90 is payable to a subscriber of Rupees: Ten-denomination account.
- Amount repayable, inclusive of interest, on an account of any other denomination shall be proportionate to the amount specified above.

Pass Book:

Depositor is provided with a passbook with entries of the deposited amount and other particulars duly stamped by the post Office.

Premature closure:

Premature closure of accounts is permissible after expiry of three years provided that interest at the rate applicable to post office savings account shall be payable on such premature closure of account.

Continuation after maturity:

Permissible for a maximum period of five years.

Post Office Monthly Income Accounts**Who can open:**

- A single adult or 2-3 adults jointly.
- More than one account can be opened subject to maximum deposit limits.

Where can be opened:

At any post office.

Maturity:

Period of maturity of an account is **six** years.

Deposits:

Only one deposit shall be made in an account.

Deposit limits:

- Minimum: rupees one thousand.
- Maximum: rupees three lakhs in case of single and rupees six lakhs in case of joint account. Deposits in all accounts taken together shall not exceed Rs. three lakhs in single account and Rs. six lakhs in joint account. The depositor's shares in the balances of joint accounts shall be taken as one half or one third of such balance according as 2 or 3 adults hold the account.

Interest:

- Interest @ 8 per cent / per annum, payable monthly in respect of the accounts opened on or after the 1st March, 2003.
- In addition, bonus equal to ten per cent of the deposited amount is payable at the time of repayment on maturity.

Pass Book:

Depositor is provided with a passbook with entries of the deposited amount and other particulars duly stamped by the post Office.

Premature closure:

Premature closure facility is available after one year subject to condition.

Closure of account:

Account shall be closed after expiry of 6 years; bonus equal to ten per cent of deposits shall be paid along with principle amount.

Income Tax relief:

Income tax relief is available on the interest earned as per limits fixed vide section 80L of Income Tax, as amended from time to time.

National Savings Certificate (VIII Issue)**Who can purchase:**

- An adult in his own name or on behalf of a minor,
- A minor,
- A trust,
- Two adults jointly,
- Hindu Undivided Family.

Where available:

Available for purchase/issue at Post Offices.

Maturity:

Period of maturity of a certificate is **six** Years.

Nomination / Transferability:

- Nomination facility is available.
- Certificates can be transferred from one post office to any other post office.

- Transfer from one person to another person permissible in certain conditions.

Denomination / Deposit limits:

- Certificates are available in denominations (face value) of Rs. 100, Rs. 500, and Rs. 1000, Rs. 5000 & Rs. 10,000.
- There is no maximum limit for purchase of the certificates.

Interest/maturity value:

- With effect from 1st March 2003, Maturity value a certificate of Rs. 100 denomination is Rs. 160.
- Maturity value of a certificate of any other denomination shall be at proportionate rate.
- Interest accrued on the certificates every year is liable to income tax but deemed to have been reinvested.

Premature encashment:

Premature encashment of the certificate is not permissible except at a discount in the case of death of the holder(s), forfeiture by a pledgee and when ordered by a court of law.

Place of Encashment/discharge on maturity:

Can be encashed /discharged at the post office where it is registered or any other post office.

Income Tax relief:

Income Tax rebate is available on the amount invested and interest accruing every year under Section 88 of Income tax Act, as amended from time to time. ?Income tax relief is also available on the interest earned as per limits fixed vide section 80L of Income Tax, as amended from time to time.

Kisan Vikas Patra**Who can purchase:**

- An adult in his own name or on behalf of a minor,
- A minor,
- A Trust,
- Two adults jointly.

Where available:

Available for purchase / issue at Post Offices.

Maturity amount / period:

With effect from 1st March, 2003, invested amount doubles on maturity after Eight Years and Seven months.

Nomination:

Nomination facility is available.

Denomination / Deposit limits:

- Certificates are available in denominations (face value) of Rs. 100, Rs. 500, Rs. 1000, Rs. 5000, Rs. 10,000 & Rs. 50,000.
- There is no maximum limit for purchase of the certificates.

Tax Benefits:

No income tax benefit is available under the scheme. However the deposits are exempt from Tax Deduction at Source (TDS) at the time of withdrawal.

Premature encashment:

Premature encashment of the certificate is not permissible except at a discount in the case of death of the holder(s), forfeiture by a pledgee and when ordered by a court of law.

Place of Encashment / discharge on maturity:

Can be encashed/discharged at the post office where it is registered or any other post office.

Public Provident Fund Scheme**Who can open account under the scheme:**

An individual: in his own name, on behalf of a minor of whom he is a guardian, a Hindu Undivided Family.

Where to open an account:

- At designated post offices throughout the country and
- At designated branches of Public Sector Banks throughout the country.

Maturity period:

- The account matures for closure after 15 years.
- Account can be continued with or without subscriptions after maturity for block periods of five years.

Nomination:

Nomination facility is available.

Deposit limits:

- Minimum deposit required is Rs. 500 in a financial year.
- Maximum deposit limit is Rs. 70,000 in a financial year.
- Maximum number of deposits is twelve in a financial year.

Loans:

Loans from the amount at credit in PPF account can be taken after completion of one year from the end of the financial year of opening of the account and before completion of the 5th year. The amount of withdrawal cannot exceed 40% of the amount that stood to credit at the end of fourth year preceding the year of withdrawal or at the end of preceding year whichever is lower.

Withdrawal:

Premature withdrawal is permissible every year after completion of 5 years from the end of the year of opening the account.

Transferability:

Account can be transferred from one post office to another post office, from a bank to another bank; and from a bank to post office and vice-versa.

Pass Book:

Depositor is provided with a passbook with entries of the deposited amounts, interest credited every year and other particulars duly stamped by the post Office.

Interest:

- Interest at the rate, notified by the Central Government from time to time, is calculated and credited to the accounts at the end of each financial year.
- Present rate of interest is eight per cent / per year since: 1st March 2003.

Income Tax relief:

- Income Tax rebate is available 'on the deposits made', under Section 88 of Income tax Act, as amended from time to time.
- Interest credited every year is tax-free.

Deposit Scheme for Retiring Government Employees**Who can open an account:**

- Retired Central and State Governments' employees.
- Retired Judges of the Supreme Court and High Courts.

Where to open an account:

At designated branches of Public Sector Banks throughout the country.

Maturity period:

- The account matures for closure after 3 years.
- Account can be continued with the whole or a part of the deposits after maturity.

Nomination:

- The account can be opened individually or jointly with his/her spouse.
- Nomination facility is available in respect of individual accounts.

Deposit limits:

One time deposit with a minimum of Rs. 1000 to the maximum of the total retirement benefits in multiple of one thousand rupees. Retirement benefits means:

- Balance at the credit of employee in any of the Government Provident Funds.
- Retirement/Superannuation gratuity.
- Commuted value of pension.
- Cash equivalent of leave,
- Savings element of Government insurance scheme payable to the employee on retirement, and
- Arrears of retirement benefits, as defined in (i) to (v) above on implementation of Fifth Pay Commission's recommendations.

Withdrawals:

Whole or a part of the deposits can be withdrawn at any time after expiry of the normal maturity period of 3 years. Premature withdrawal is not permissible before completion of one year. Permissible after completion of one year and before completion of three years on reduced interest rate.

Interest:

Interest at the rate, notified by the Central Government from time to time, is credited and payable on half yearly basis at any time after 30th June and 31st December every year. Present rate of interest is Seven per cent / per annum since: 1st March 2003.

Transferability:

Account can be transferred from one public sector bank to another public sector bank operating the scheme due to change of residence.

Pass Book:

Depositor is provided with a passbook with entries of the deposited amount, interest and other particulars by the bank.

Income Tax relief:

- Interest accrued / credited / paid is fully tax-free.
- Amount deposited under the scheme is free from wealth tax.

Banks authorised to accept deposits:

Selected branches of the following banks are authorised to accept deposits under the scheme.

Deposit Scheme for Retiring Employees of Public Sector Companies**Who can open an account:**

Retired/retiring employees of Public Sector Undertakings, Institutions, Corporations, viz:
Public Sector Banks, Life Insurance Corporation of India, General Insurance Corporation, Public Sector Companies, etc.

Where to open an account:

At designated branches of Public Sector Banks throughout the country.

Maturity period:

The account matures for closure after 3 years. Account can be continued with the whole or a part of the deposits after maturity.

Nomination:

The account can be opened individually or jointly with his/her spouse. Nomination facility is available in respect of individual accounts.

Deposit limits:

One time deposit with a minimum of Rs. 1000 to the maximum of the total retirement benefits in multiple of one thousand rupees.

Retirement benefits means:

- Balance at the credit of employee in any of the Government Provident Funds.
- Retirement/Superannuation gratuity.
- Commuted value of pension.
- Cash equivalent of leave,
- Savings element of Government insurance scheme payable to the employee on retirement, and
- Arrears of retirement benefits, as defined in (i) to (v) above on implementation of Fifth Pay Commission's recommendations.

Withdrawals:

Whole or a part of the deposits can be withdrawn at any time after expiry of the normal maturity period of 3 years.

Premature withdrawal:

Not permissible before completion of one year. Permissible after completion of one year and before completion of three years on reduced interest rate.

Interest:

Interest at the rate, notified by the Central Government from time to time, is credited and payable on half yearly basis at any time after 30th June and 31st December every year. Present rate of interest is Seven per cent / per annum since: 1st March 2003.

Transferability:

Account can be transferred from one public sector bank to another public sector bank operating the scheme due to change of residence.

Pass Book:

Depositor is provided with a passbook with entries of the deposited amount, interest etc. and other particulars by the bank.

Income Tax relief:

- Interest accrued / credited / paid is fully tax-free.
- Amount deposited under the scheme is free from wealth tax.
- Banks authorised to accept deposits: Selected branches of the following banks are authorised to accept deposits under the scheme.

Notes

LESSON 33

INVESTMENT IN EQUITIES

Introduction To Equity Investing

Many investors go about their investing in an irrational way:

1. They are tipped of a 'news'/'rumor' in a 'hot stock' from their broker.
2. They impulsively buy the scrip.
3. And after the purchase wonder why they bought the stock.

He is a fool to act in such an irrational manner. We suggest a three-step approach to investing in equities.

The news, if any, will be on the sites. Be it announcements earnings, dividend payoffs, corporate move to buy another company, flight of top management to another company, these sites should be your first stop.

Do some number crunching. Check out the growth rate of the stock's earnings, as shown in a percentage and analyze those graphs shown on your broker's site. You will learn to do it in Chapter II of our learning center under the module named 'Technical tutorials'. Learn more about the P/E ratio (price-to-earnings ratio), earning per share (EPS), market capitalization to sales ratio, projected earnings growth for the next quarter and some historical data, which will tell what the company has done in the past. Get the current status of the stock movement such as real-time quote, average trades per day, total number of shares outstanding, dividend, high and low for the day and for the last 52 weeks. This information should give you an indication of the nature of the company's performance and stock movement. Also its ideal that you be aware of the following terms: -

1. High: The highest price for the stock in the trading day.
2. Low: The lowest price for the stock in the trading day.
3. Close: The price of the stock at the time the stock market closes for the day.
4. Chg: The difference between two successive days' closing price of the stock.
5. Yld (Yield): Dividend divided by price

Bid and Ask (Offer) Price

When you enter an order to buy or sell a stock, you will essentially see the "Bid" and "Ask" for a stock and some numbers. What does this mean?

The 'Bid' is the buyer's price. It is this price that you need to know when you have to sell a stock. Bid is the rate/price at which there is a ready buyer for the stock, which you intend to sell.

The 'Ask' (or offer) is what you need to know when you're buying i.e. this is the rate/ price at which there is seller ready to sell his stock. The seller will sell his stock if he gets the quoted "Ask" price.

Bid size and Ask (Offer) size

If an investor looks at a computer screen for a quote on the stock of say ABC Ltd, it might look something like this:

Bid Price: 3550

Offer Price: 3595

Bid Qty: 40T

Offer Qty: 20T

What this means is that there is total demand for 40,000 shares of company ABC at Rs 3550 per share. Whereas the supply is only of 20,000 shares, which are available for sale at a price of Rs 3595 per share. The law of demand and supply is a major factor, which will determine which way the stock is headed.

Armed with this information, you've got a great chance to pick up a winning stock. Again don't be in a hurry, ferret out some more facts, try to find out as to who is picking up the stock (FIIs, mutual funds, big industrial houses? The significance of which you will learn in section II of our learning center). Watch for the daily volume in a day: is it more/less than the average daily volume? If it's more, maybe some fund is accumulating the stock.

Next time you hear or read a 'hot tip': do some research; try to know all you can about the stock and then shoot your investing power into the stock. With practice, you'll be hitting a bull's eye more often than not. Investors need to be aware of the technical tools of measuring stock performances before investing.

Basics on Stock Market

Working of a stock market

To learn more about how you can earn on the stock market, one has to understand how it works. A person desirous of buying/selling shares in the market has to first place his order with a broker. When the buy order of the shares is communicated to the broker he routes the order through his system to the exchange. The order stays in the queue exchange's systems and gets executed when the order logs on to the system within buy limit that has been specified. The shares purchased will be sent to the purchaser by the broker either in physical or demat format

Indian Stock Market Overview

The Bombay Stock Exchange (BSE) and the National Stock Exchange of India Ltd (NSE) are the two primary exchanges in India. In addition, there are 22 Regional Stock Exchanges. However, the BSE and NSE have established themselves as the two leading exchanges and account for about 80 per cent of the equity volume traded in India. The NSE and BSE are equal in size in terms of daily traded volume. The average daily turnover at the exchanges has increased from Rs 851 crore in 1997-98 to Rs 1,284 crore in 1998-99 and further to Rs 2,273 crore in 1999-2000 (April - August 1999). NSE has around 1500 shares listed

with a total market capitalization of around Rs 9,21,500 crore (Rs 9215-bln). The BSE has over 6000 stocks listed and has a market capitalization of around Rs 9,68,000 crore (Rs 9680-bln). Most key stocks are traded on both the exchanges and hence the investor could buy them on either exchange. Both exchanges have a different settlement cycle, which allows investors to shift their positions on the bourses. The primary index of BSE is BSE Sensex comprising 30 stocks. NSE has the S&P NSE 50 Index (Nifty) which consists of fifty stocks. The BSE Sensex is the older and more widely followed index. Both these indices are calculated on the basis of market capitalization and contain the heavily traded shares from key sectors. The markets are closed on Saturdays and Sundays. Both the exchanges have switched over from the open outcry trading system to a fully automated computerized mode of trading known as BOLT (BSE On Line Trading) and NEAT (National Exchange Automated Trading) System. It facilitates more efficient processing, automatic order matching, faster execution of trades and transparency. The scrips traded on the BSE have been classified into 'A', 'B1', 'B2', 'C', 'F' and 'Z' groups. The 'A' group shares represent those, which are in the carry forward system (Badla). The 'F' group represents the debt market (fixed income securities) segment. The 'Z' group scrips are the blacklisted companies. The 'C' group covers the odd lot securities in 'A', 'B1' & 'B2' groups and Rights renunciations. The key regulator governing Stock Exchanges, Brokers, Depositories, Depository participants, Mutual Funds, FIIs and other participants in Indian secondary and primary market is the Securities and Exchange Board of India (SEBI) Ltd.

Rolling Settlement Cycle

In a rolling settlement, each trading day is considered as a trading period and trades executed during the day are settled based on the net obligations for the day. At NSE and BSE, trades in rolling settlement are settled on a T+2 basis i.e. on the 2nd working day. For arriving at the settlement day all intervening holidays, which include bank holidays, NSE/BSE holidays, Saturdays and Sundays are excluded. Typically trades taking place on Monday are settled on Wednesday, Tuesday's trades settled on Thursday and so on.

Concept Of Buying Limit

Suppose you have sold some shares on NSE and are trying to figure out that if you can use the money to buy shares on NSE in a different settlement cycle or say on BSE. To simplify things for ICICI Direct customers, we have introduced the concept of Buying Limit (BL). Buying Limit simply tells the customer what is his limit for a given settlement for the desired exchange. Assume that you have enrolled for a ICICI Direct account, which requires 100% of the money required to fund the purchase, be available. Suppose you have Rs 1,00,000 in your Bank A/C and you set aside Rs 50,000 for which you would like to make some purchase. Your Buying Limit is Rs 50,000. Assume that you sell shares worth Rs 1,00,000 on the NSE on Monday. The BL therefore for the NSE at that point of time goes upto Rs 1,50,000. This means you can buy shares upto Rs 1,50,000 on NSE or BSE. If you buy shares worth Rs 75,000 on Tuesday on NSE your BL will naturally reduce to Rs 75,000. Hence your BL is simply the amount set aside by you from your

bank account and the amount realized from the sale of any shares you have made less any purchases you have made.

Your BL of Rs 50,000, which is the amount set aside by you from your Bank account for purchase is available for BSE and NSE. As you have made the sale of shares on NSE for Rs.100000, the BL for NSE & BSE rises to 1,50,000. The amount from sale of shares in NSE will also be available for purchase on BSE. ICICI Direct makes it very easy for its customers to know their BL on the click of a mouse. You just have to specify the Exchange and settlement cycle and on a click of your mouse, you will know the BL.

What Is Dematerialization?

Dematerialization in short called as 'demat is the process by which an investor can get physical certificates converted into electronic form maintained in an account with the Depository Participant. The investors can dematerialize only those share certificates that are already registered in their name and belong to the list of securities admitted for dematerialization at the depositories.

Depository: The organization responsible to maintain investor's securities in the electronic form is called the depository. In other words, a depository can therefore be conceived of as a "Bank" for securities. In India there are two such organizations viz. NSDL and CDSL. The depository concept is similar to the Banking system with the exception that banks handle funds whereas a depository handles securities of the investors. An investor wishing to utilize the services offered by a depository has to open an account with the depository through a Depository Participant.

Depository Participant: The market intermediary through whom the depository services can be availed by the investors is called a Depository Participant (DP). As per SEBI regulations, DP could be organizations involved in the business of providing financial services like banks, brokers, custodians and financial institutions. This system of using the existing distribution channel (mainly constituting DPs) helps the depository to reach a wide cross section of investors spread across a large geographical area at a minimum cost. The admission of the DPs involves a detailed evaluation by the depository of their capability to meet with the strict service standards and a further evaluation and approval from SEBI. Realizing the potential, all the custodians in India and a number of banks, financial institutions and major brokers have already joined as DPs to provide services in a number of cities.

Advantages of a depository services:

Trading in demat segment completely eliminates the risk of bad deliveries. In cas ctronic shares, you save 0.5% in stamp duty. Avoids the cost of courier/ notarization/ the need for further follow-up with your broker for shares returned for company objection No loss of certificates in transit and saves substantial expenses involved in obtaining duplicate certificates, when the original share certificates become mutilated or misplaced. Increasing liquidity of securities due to immediate transfer & registration Reduction in brokerage for trading in dematerialized shares Receive bonuses and rights into the depository account as a direct credit, thus eliminating risk of loss in transit. Lower interest charge for loans taken against demat shares as compared

to the interest for loan against physical shares. RBI has increased the limit of loans availed against dematerialized securities as collateral to Rs 20 lakh per borrower as against Rs 10 lakh per borrower in case of loans against physical securities. RBI has also reduced the minimum margin to 25% for loans against dematerialized securities, as against 50% for loans against physical securities. Fill up the account opening form, which is available with the DP. Sign the DP-client agreement, which defines the rights and duties of the DP and the person wishing to open the account. Receive your client account number (client ID). This client id along with your DP id gives you a unique identification in the depository system. Fill up a dematerialization request form, which is available with your DP. Submit your share certificates along with the form; (write “surrendered for demat” on the face of the certificate before submitting it for demat) Receive credit for the dematerialized shares into your account within 15 days.

Procedure of opening a demat account:

Opening a depository account is as simple as opening a bank account. You can open a depository account with any DP convenient to you by following these steps:

Fill up the account opening form, which is available with the DP. Sign the DP-client agreement, which defines the rights and duties of the DP and the person wishing to open the account. Receive your client account number (client ID). This client id along with your DP id gives you a unique identification in the depository system.

There is no restriction on the number of depository accounts you can open. However, if your existing physical shares are in joint names, be sure to open the account in the same order of names before you submit your share certificates for demat.

Procedure to dematerialize your share certificates:

Fill up a dematerialization request form, which is available with your DP. Submit your share certificates along with the form; (write “surrendered for demat” on the face of the certificate before submitting it for demat) Receive credit for the dematerialized shares into your account within 15 days.

In case of directly purchasing dematerialized shares from the broker, instructs your broker to purchase the dematerialized shares from the stock exchanges linked to the depositories. Once the order is executed, you have to instruct your DP to receive securities from your broker’s clearing account. You have to ensure that your broker also gives a matching instruction to his DP to transfer the shares purchased on your behalf into your depository account. You should also ensure that your broker transfers the shares purchased from his clearing account to your depository account, before the book closure/record date to avail the benefits of corporate action.

Stocks traded under demat

Securities and Exchange Board of India (SEBI) has already specified for settlement only in the dematerialized form in for 761 particular scripts. Investors interested in these stocks receive shares only in demat form without any instruction to your broker. While SEBI has instructed the institutional investors to sell 421 scripts only in the demat form. The shares by non-institutional investors can be sold in both physical and demat form. As there is a mix of both forms of stocks, it is possible

if you have purchased a stock in this category, you may get delivery of both physical and demat shares.

Opening of a demat account through ICICI Direct

Opening an e-Invest account with ICICI Direct, will enable you to automatically open a demat account with ICICI, one of the largest DP in India, thereby avoiding the hassles of finding an efficient DP. Since the shares to be bought or sold through ICICI Direct will be only in the demat form, it will avoid the hassles of instructing the broker to buy shares only in demat form. Adding to this, you will not face problems like checking whether your broker has transferred the shares from his clearing account to your demat account.

Going Short:

If you do not have shares and you sell them it is known as going short on a stock. Generally a trader will go short if he expects the price to decline. In a rolling settlement cycle you will have to cover by end of the day on which you had gone short.

Concept Of Margin Trading:

Normally to buy and sell shares, you need to have the money to pay for your purchase and shares in your demat account to deliver for your sale. However as you do not have the full amount to make good for your purchases or shares to deliver for your sale you have to cover (square) your purchase/sale transaction by a sale/purchase transaction before the close of the settlement cycle. In case the price during the course of the settlement cycle moves in your favor (risen in case of purchase done earlier and fallen in case of a sale done earlier) you will make a profit and you receive the payment from the exchange. In case the price movement is adverse, you will make a loss and you will have to make the payment to the exchange. Margins are thus collected to safeguard against any adverse price movement. Margins are quoted as a percentage of the value of the transaction.

Important facts for NRI customers:

Buying and selling on margin in India is quite different than what is referred to in US markets. There is no borrowing of money or shares by your broker to make sure that the settlement takes place as per SE schedule. In Indian context, buying/selling on margin refers to building a leveraged position at the beginning of the settlement cycle and squaring off the trade before the settlement comes to end. As the trade is squared off before the settlement cycle is over, there is no need to borrow money or shares.

Buying On Margin: Suppose you have Rs 1,00,000 with you in your Bank account. You can use this amount to buy 10 shares of Infosys Ltd. at Rs 10,000. In the normal course, you will pay for the shares on the settlement day to the exchange and receive 10 shares from the exchange which will get credited to your demat account. Alternatively you could use this money as margin and suppose the applicable margin rate is 25%. You can now buy upto 40 shares of Infosys Ltd. at Rs 10,000 value Rs 4,00,000, the margin for which at 25% i.e. Rs 1,00,000. Now as you do not have the money to take delivery of 40 shares of Infosys Ltd. you have to cover (square) your purchase transaction by placing a sell order by end of the settlement cycle. Now suppose the price of Infosys Ltd rises to Rs. 11000 before end of the settlement cycle. In this case your profit is Rs 40,000,

which is much higher than on the 10 shares if you had bought with the intent to take delivery. The risk is that if the price falls during the settlement cycle, you will still be forced to cover (square) the transaction and the loss would be adjusted against your margin amount.

Selling On Margin: You do not have shares in your demat account and you want to sell as you expect the prices of share to go down. You can sell the shares and give the margin to your broker at the applicable rate. As you do not have the shares to deliver you will have to cover (square) your sell transaction by placing a buy order before the end of the settlement cycle. Just like buying on margin, in case the price moves in your favor (falls) you will make profit. In case price goes up, you will make loss and it will be adjusted against the margin amount.

Types of Orders:

There are various types of orders, which can be placed on the exchanges:

Limit Order : The order refers to a buy or sell order with a limit price. Suppose, you check the quote of Reliance Industries Ltd.(RIL) as Rs. 251 (Ask). You place a buy order for RIL with a limit price of Rs 250. This puts a cap on your purchase price. In this case as the current price is greater than your limit price, order will remain pending and will be executed as soon as the price falls to Rs. 250 or below. In case the actual price of RIL on the exchange was Rs 248, your order will be executed at the best price offered on the exchange, say Rs 249. Thus you may get an execution below your limit price but in no case will exceed the limit buy price. Similarly for a limit sell order in no case the execution price will be below the limit sell price.

Market Order: generally investors, who expect the price of share to move sharply and are yet keen on buying and selling the share regardless of price, use a market order. Suppose, the last quote of RIL is Rs 251 and you place a market buy order. The execution will be at the best offer price on the exchange, which could be above Rs 251 or below Rs 251. The risk is that the execution price could be substantially different from the last quote you saw. Please refer to Important Fact for Online Investors.

Stop Loss Order: A stop loss order allows the trading member to place an order, which gets activated only when the last traded price (LTP) of the Share is reached or crosses a threshold price called as the trigger price. The trigger price will be as on the price mark that you want it to be. For example, you have a sold position in Reliance Ltd booked at Rs. 345. Later in case the market goes against you i.e. go up, you would not like to buy the scrip for more than Rs.353. Then you would put a SL Buy order with a Limit Price of Rs.353. You may choose to give a trigger price of Rs.351.50 in which case the order will get triggered into the market when the last traded price hits Rs.351.50 or above. The execution will then be immediate and will be at the best price between 351.50 and 353. However stock movements can be so violent at times. The prices can fluctuate from the current level to over and above the SL limit price, you had quoted, at one shot i.e. the LTP can move from 350...351...and directly to 353.50. At this moment your order will immediately be routed to the Exchange because the LTP has crossed the trigger price specified by you. However, the trade

will not be executed because of the LTP being over and above the SL limit price that you had specified. In such a case you will not be able to square your position. Again as the market falls, say if the script falls to 353 or below, your order will be booked on the SL limit price that you have specified i.e. Rs. 353. Even if the script falls from 353.50 to 352 your buy order will be booked at Rs. 353 only. Some seller, somewhere will book a profit in this case from your buy order execution. Hence, an investor will have to understand that one of the foremost parameters in specifying on a stop loss and a trigger price will have to be its chances of execution ability as and when the situation arises. A two rupee band width between the trigger and stop loss might be sufficient for execution for say a script like Reliance, however the same band hold near to impossible chances for a script like Infosys or Wipro. This vital parameter of volatility bands of scrips will always have to be kept in mind while using the Stop loss concept.

Circuit Filters And Trading Bands:

In order to check the volatility of shares, SEBI has come with a set of rules to determine the fixed price bands for different securities within which they can move in a day. As per SEBI directive, all securities traded at or above Rs.10/- and below Rs.20/- have a daily price band of $\pm 25\%$. All securities traded below Rs. 10/- have a daily price band of $\pm 50\%$. Price band for all securities traded at or above Rs. 20/- has a daily price band of $\pm 8\%$. However, the now the price bands have been relaxed to $\pm 8\% \pm 8\%$ for select 100 scrips after a cooling period of half an hour. The previous day's closing price is taken as the base price for calculating the price. As the closing price on BSE and NSE can be significantly different, this means that the circuit limit for a share on BSE and NSE can be different.

Badla financing

In common parlance the carry-forward system is known as 'Badla', which means something in return. Badla is the charge, which the investor pays for carrying forward his position. It is a hedge tool where an investor can take a position in scrip without actually taking delivery of the stock. He can carry-forward his position on the payment of small margin. In the case of short selling the charge is termed as 'undha badla'. The CF system serves three needs of the stock market:

Quasi-hedging: If an investor feels that the price of a particular share is expected to go up/down, without giving/taking delivery of the stock he can participate in the volatility of the share. ? **Stock lending:** If he wishes to short sell without owning the underlying security, the stock lender steps into the CF system and lends his stock for a charge. ? **Financing mechanism:** If he wishes to buy the share without paying the full consideration, the financier steps into the CF system and provides the finance to fund the purchase The scheme is known as "Vyaj Badla" or "Badla" financing. For example, X has bought a stock and does not have the funds to take delivery; he can arrange a financier through the stock exchange 'badla' mechanism. The financier would make the payment at the prevailing market rate and would take delivery of the shares on X's behalf. You will only have to pay interest on the funds you have borrowed. Vis-à-vis, if you have a sale position and do not have the shares to deliver you can still arrange through the stock exchange for a lender of securities. An investor can either

take the services of a badla financier or can assume the role of a badla financier and lend either his money or securities. On every Saturday a CF system session is held at the BSE. The scrips in which there are outstanding positions are listed along with the quantities outstanding. Depending on the demand and supply of money the CF rates are determined. If the market is over bought, there is more demand for funds and the CF rates tend to be high. However, when the market is oversold the CF rates are low or even reverse i.e. there is a demand for stocks and the person who is ready to lend stocks gets a return for the same. The scrips that have been put in the Carry Forward list are all group scrips, which have a good dividend paying record, high liquidity, and are actively traded. The scrips are not specified in advance because it is then difficult to get maximum return. The Trade Guarantee Fund of BSE guarantees all transactions; hence, there is virtually no risk to the badla financier except for broker defaults. Even in the worst scenario, where the broker through whom you have invested money in badla financing defaults, the title of the shares would remain with you and the shares would be lying with the "Clearing house". However, the risk of volatility of the scrip will have to be borne by the investor.

Securities lending

Securities lending program is from the NSE. It is similar to the Badla from the BSE, only difference being the carry forward system not being allowed by the NSE. Meaning this is a where in a holder of securities or their agent lends eligible securities to borrowers in return for a fee to cover short positions.

Insider trading:

Insider trading is illegal in India. When information, which is sensitive in the form of influencing the price of scrip, is procured or/and used from sources other than the normal course of information output for unscrupulous inducement of volatility or personal profits, it is called as Insider trading. Insider trading refers to transactions in securities of some company executed by a company insider. Although an insider might theoretically be anyone who knows material financial information about the company before it becomes public, in practice, the list of company insiders (on whom newspapers print information) is normally restricted to a moderate-sized list of company officers and other senior executives. Most companies warn employees about insider trading. SEBI has strict rules in place that dictates when company insiders may execute transactions in their company's securities. All transactions that do not conform to these rules are, in general, prosecutable offenses under the relevant law.

Set your Goals Right, Right at the Beginning

Investment Goals

Investment avenues should always be treated as tools, which will generate good returns over a period of time. To take a short term view would be fatal. In the stock markets, prices fluctuate very fast for the lay investor. To get the maximum returns begin with a two-year perspective.

Begin with an understanding of yourself.

What do you want from your investments? It could be growth, income or both.

How comfortable are you to take risks? It's only human if your first reaction on an adverse market movement is to sell and run away. To shield you against short term trading risks one has to take a long-term view. Renowned experts such as Benjamin Graham and Warren Buffet rarely shuffle their portfolio unless there is some change in the fundamentals of a company. Once you see the kind of returns you can generate over time, you'll come to realize that it really doesn't matter if your stock drops or rises over the course of a few hours or days or weeks or even months. Mutual funds are a good way to begin investing in the stock market. Funds render investment services with professionalism and give a good diversification over many sectors. If volatility is not your cup of tea, then you might consider buying fixed income securities.

Planning and Setting Goals: Investment requires a lot of planning. Decide on your basic framework of investments and chart your risk profile.

Ask yourself: What is the investment "time horizon"? Time horizon is the time period between the age at which you would like to start investing and at the age by which you would need a consolidated amount of money for any said purpose of yours.

One should also find out if there are there any short-term financial needs?

Will be a need to live off the investment in later years? Your investments could be for retirement, a down payment for a house, your child's education, a second home or just for incremental income to take up a better standard of living.

Make clear-cut, measurable and reasonable goals. Be more specific when you decide your goals. For example you must reasonably predict how much amount of money would require and at what time in order to satisfy any of the above stated needs?

If arriving at these figures looks cumbersome or daunting, our online interactive calculators will help you figure out your future money requirements. The answers to the above will lead you directly to "The type of investments will you make".

Is time on your side?

The time frame you seek to invest on, your investment profile and the mobilizable resources are interdependent and are not mutually exclusive.

How much time do you want to spend on investing? You can be active, allocate an hour every day or just spend a few hours every month.

Another important factor is when do you need the money? To help put all of this into context, you also need to look at how various types of investments have performed historically. Bonds and stocks are the two major asset classes that have been used by investors over the past century. Knowing the total return on each of the above and the associated volatility is crucial in deciding where you should put your money.

Mobilizable Resources

After you zero in on your investments its time to decide on how much money you want to invest. Setting investment goals and checking out on allocable monetary resources go hand in hand. It is necessary to fix your monetary considerations as soon as you decide on the basic investment framework.

Some of your basic monetary considerations could be:-

1. The amount of initial investments that you can pump in.
2. The sources for the money that you need for investments.
3. The foreseeable bulk expense which prevents you from saving or which may force you to liquidate your existing portfolio (this expense itself may be your investment goal).
4. Money that you need to have as back up for emergencies.
5. The amount of savings that you can afford to allocate every month on a continual basis for such number of year that you may desire.

Answers to all or at least the most important of these would logically lead you to where you ideally have to invest your money in, can it be equity, mutual funds or bonds.

Can you Match upto Market Experts

Can an individual investor match upto market experts?

Yes, he can. The popular opinion is that an investor has no chance in today's volatile markets. The methodology used by professionals, investment strategies and links to worldwide happenings imply that there is no scope for the individual investor in today's institutionalized markets. Nothing could be further away from the truth. E-broking is one solution to the lay investor as these websites provide online information from wire agencies such as Reuters, expert investment advice, research database that is available with the institutions. The advent of online broking has bridged the gap between institutions and the retail investor.

A fund manager is faced with many disadvantages. Typically, a fund manager will not buy high-growth stocks, which are available in small volumes. In some cases an attractive position cannot be capitalized by a fund, as the situation might be ultra vires to the fund's objectives. Sometimes, the fund manager's risk exposure is high in particular scrips and volumes held, high too. Hence his liquidity is curbed while smaller volumes give the individual investor a higher level of liquidity. A researched view can tilt the scales in favour of the small investor.

Singing the market's tune. Not always. Be a contrarian!

When markets start rising, more people step aboard. And when the indices start falling there is panic selling. Most of the times new investors are late in identifying a rally and are late entrants, leaving them with high-priced stocks.

Contrarians buy on bad news, and sell on good news. "Buy low, sell high" is a well-known cliché. That's how an investor must think in order to profit from stock investing. All stock-market investors embrace the motto "Buy low, sell high." But few act accordingly. The herd mentality restricts us from pursuing a contrarian investment strategy, though it consistently beats the market. There are proven techniques for selecting undervalued stocks, which are rarely followed.

The contrarian strategy advises you to pay a cursory look at a company's business fundamentals, stocks trading at below-market multiples of EPS, cash flow, book value, or dividend yield before taking an investment decision. Historically, stocks that are cheap by any of the above measures tend to outperform the market. To do contrary, you would require to go

against the crowd, buying stocks that are out of favour and sell a few of Dalal Street's darlings. This requires overriding powerful instincts.

Power of the World Wide Web (www)

Internet has changed the way the retail investor invests. Stock prices, volume information, investment tools, technical analysis is at his fingertips. Many sites offer Spot Reviews of newsbreaks and result analysis, which help investors to form an opinion on a particular stock. As the world is networked with the Web you can consult with experts from across cities states. As the Internet is flooded with information, an overload, its imperative that you learn to figure out which information is useful and which is not.

Forming Investment Clubs

If you as an individual investor do not have enough money to invest, or know not enough about investing and do not have the time to learn too. Well, a perfect solution then will be to join or form an investment club.

Investment clubs are formed by people who pool in their money to invest in stocks, bonds, mutual funds and other investments. The appeal is simple: A club has the funds to diversify its investments better than an individual and the knowledge base is wider. Investment clubs can be formed between family, friends and people who work together. However, forming a club with co-workers is a lot easier. But bear in mind that the biggest complaint among club members is finding a convenient time and place to meet each month. Forget not, you can talk about club news over the water cooler or canteen too. To form a club

First step, send out a memo or email asking select members to come to an introductory meeting. During that first meeting, discuss monthly dues. How much can people afford?

Secondly, give members a profile personality test to see where everyone stands. Are they risk takers or conservative investors? Club members should be compatible when it comes to investment goals.

Make sure you recruit people who are truly committed, which means meeting once a month and sharing the workload when it comes to researching companies, picking stocks and reviewing the club's portfolio. It's common for members to get impatient and to jump ship shortly after the club's formation. Alternatively, member participation tends to drag due to a personal or financial crisis arises. The first few years are the crucial building blocks of a club. Members who survive the two-year hump tend to hang on for the long haul — 20 years or more. Still, every club must prepare in its bylaws how to bring in new recruits and handle departing members who want to cash out.

Finally, once you have hammered out the goals and operation of the proposed club, if a sufficient number — around 10 — are still interested, then you are ready to forge ahead.

Basic Investment Strategies

A few benchmarks for stocks - A quick and easy measuring stick

These are a few benchmarks that can help you decide if you should spend more time on a stock or not. They are easily available and can be of great use in screening good stocks.

Revenues/Sales growth

Revenues are how much the company has sold over a given period. Sales are the direct performance indicators for companies. The rate of growth of sales over the previous years indicates the forward momentum of the company, which will have a positive impact on the stock's valuation.

Bottom line growth

The bottom-line is the net profit of a company. The growth in net profit indicates the attractiveness of the stock. The expected growth rate might differ from industry to industry. For instance, the IT sector's growth in bottom-line could be as high as 65-70% from the previous years whereas for the old economy stocks the range could be anywhere in range of 10- 15%.

ROI - Return on Investment

ROI in layman terms is the return on capital invested in business i.e. if you invest Rs 1 crore in men, machines, land and material to generate 25 lakhs of net profit, then the ROI is 25%. Again the expected ROI by market analysts could differ from industry to industry. For the software industry it could be as high as 35-40%, whereas for a capital intensive industry it could be just 10-15%.

Volume

Many investors look at the volume of shares traded on a day in comparison with the average daily volume. The investor gets an insight of how active the stock was on a certain day as compared with previous days. When major news are announced, a stock can trade tens of times its average daily volume.

Volume is also an indicator of the liquidity in a stock. Highly liquid stocks can be traded in large batches with low transaction costs. Illiquid stocks trade infrequently and large sales often cause the price to rise/fall dramatically. Illiquid stocks tend to carry large spreads i.e. the difference between the buying price and the selling price. Volume is a key way to measure supply and demand, and is often the primary indicator of a new price trend. When a stock moves up in price on unusually high volumes it could indicate that big institutional investors are accumulating the stock. When a stock moves down in price on unusually heavy volume, major selling could be the reason.

Market Capitalization.

This is the current market value of the company's shares. Market value is the total number of shares multiplied by the current price of each share. This would indicate the sheer size of the company; its stocks' liquidity etc.

Company management

The quality of the top management is the most important of all resources that a company has access to. An investor has to make a careful assessment of the competence of the company management as evidenced by the dynamism and vision. Finally, the results are the single most important barometer of the company's management. If the company's board includes certain directors who are well known for their efficiency, honesty and integrity and are associated with other companies of proven excellence, an investor can consider it as favorable. Among the directors the MD (Managing Director) is the most important person. It is essential to know whether the MD is a person of proven competence.

PSR (Price-to-Sales Ratio)

This is the number you want below 3, and preferably below 1. This measures a company's stock price against the sales per share. Studies have shown that a PSR above 3 almost guarantees a loss while those below 1 give you a much better chance of success.

Return on Equity

Supposedly Warren Buffet's favorite number, this measures how much your investment is actually earning. Around 20% is considered good.

Debt-to-Equity Ratio

This measures how much debt a company has compared to the equity. The debt-to-equity ratio is arrived by dividing the total debt of the company with the equity capital. You're looking for a very low number here, not necessarily zero, but less than .5. If you see it at 1, then the company is still okay. A D/E ratio of more than 2 or greater is risky. It means that the company has a high interest burden, which will eventually affect the bottom-line. Not all debt is bad if used prudently. If interest payments are using only a small portion of the company's revenues, then the company is better off by employing debt pushing growth. Also note capital intensive industries build on a higher Debt/Equity ratio, hence this tool is not a right parameter in such cases.

Beta

The Beta factor measures how volatile a stock is when compared with an index. The higher the beta, the more volatile the stock is. (A negative beta means that the stock moves inversely to the market so when the index rises the stock goes down and vice versa).

Earnings Per Share (EPS)

This ratio determines what the company is earning for every share. For many investors, earnings are the most important tool. EPS is calculated by dividing the earnings (net profit) by the total number of equity shares. Thus, if AB ltd has 2 crore shares and has earned Rs 4 crore in the past 12 months, it has an EPS of Rs 2. EPS Rating factors the long-term and short-term earnings growth of a company as compared with other firms in the segment. Take the last two quarters of earnings-per-share increase and combine that with the three-to-five-year earnings growth rate. Then compare this number for a company to all other companies in your watch list within each sector and rate the results on how it outperforms all other companies in your watch list in terms of earnings growth. Its advisable to invest in stocks that rank in the top 20% of companies in your watch list. This is based on the assumption that your portfolio of stocks in the "Watch List" have been selected by using some basic screening tools so as to include the best of the stocks as perceived and authenticated by the screening tools that you had used.

The P/E ratio as a guide to investment decisions

Earnings per share alone mean absolutely nothing. In order to get a sense of how expensive or cheap a stock is, you have to look at earnings relative to the stock price and hence employ the P/E ratio. The P/E ratio takes the stock price and divides it by the last four quarters' worth of earnings. If AB ltd is currently

trading at Rs. 20 a share with Rs. 4 of earnings per share (EPS), it would have a P/E of 5. Big increase in earnings is an important factor for share value appreciation. When a stock's P-E ratio is high, the majority of investors consider it as pricey or overvalued. Stocks with low P-E's are typically considered a good value. However, studies done and past market experience have proved that the higher the P/E, the better the stock.

A Company that currently earns Re 1 per share and expects its earnings to grow at 20% p.a will sell at some multiple of its future earnings. Assuming that earnings will be Rs 2.50 (i.e Re 1 compounded at 20% p.a for 5 years). Also assume that the normal P/E ratio is 15. Then the stock selling at a normal P/E ratio of 15 times of the expected earnings of Rs 2.50 could sell for Rs 37.50 (i.e rs 2.5*15) or 37.5 times of this years earnings.

Thus if a company expects its earnings to grow by 20% per year in the future, investors will be willing to pay now for those shares an amount based on those future earnings. In this buying frenzy, the investors would bid the price up until a share sells at a very high P/E ratio relative to its present earnings.

First, one can obtain some idea of a reasonable price to pay for the stock by comparing its present P/E to its past levels of P/E ratio. One can learn what is a high and what is a low P/E for the individual company. One can compare the P/E ratio of the company with that of the market giving a relative measure. One can also use the average P/E ratio over time to help judge the reasonableness of the present levels of prices. All this suggests that as an investor one has to attempt to purchase a stock close to what is judged as a reasonable P/E ratio based on the comparisons made. One must also realize that we must pay a higher price for a quality company with quality management and attractive earnings potential.

Fundamental Analysis

Fundamental Analysis is a conservative and non-speculative approach based on the "Fundamentals". A fundamentalist is not swept by what is happening in Dalal street as he looks at a three dimensional analysis.

1. The Economy
2. The Industry
3. The Company

All the above three dimensions will have to be weighed together and not in exclusion of each other. In this section we would give you a brief glimpse of each of these factors for an easy digestion

The Economy Analysis

In the table below are some economic indicators and their possible impact on the stock market are given in a nut shell.

	Economic Indicators	Impact on Stock Market
1	GNP -Growth -Decline	-Favorable -Unfavorable
2	Price Conditions - Stable - Inflation	-Favorable -Unfavorable
3	Economy - Boom - Recession	-Favorable -Unfavorable
4	Housing Construction Activity - Increase in activity - Decrease in Activity	-Favorable -Unfavorable
5	Employment - Increase - Decrease	-Favorable -Unfavorable
6	Accumulation of Inventories	- Favorable under inflation - Unfavorable under deflation
7	Personal Disposable Income - Increase - Decrease	-Favorable -Unfavorable
8	Personal Savings	- Favorable under inflation - Unfavorable under deflation
9	Interest Rates - low - high	-Favorable -Unfavorable
10	Balance of trade - Positive - Negative	-Favorable -Unfavorable
11	Strength of the Rupee in Forex market - Strong - Weak	-Favorable -Unfavorable
12	Corporate Taxation (Direct & Indirect - Low - High	-Favorable -Unfavorable

The Industry Analysis

Every industry has to go through a life cycle with four distinct phases

1. Pioneering Stage
2. Expansion (growth) Stage
3. Stagnation (mature) Stage
4. Decline Stage

These phases are dynamic for each industry. You as an investor is advised to invest in an industry that is either in a pioneering stage or in its expansion (growth) stage. Its advisable to quickly get out of industries which are in the stagnation stage prior to its lapse into the decline stage. The particular phase or stage of an industry can be determined in terms of sales, profitability and their growth rates amongst other factors.

The Company Analysis

There may be situations where the industry is very attractive but a few companies within it might not be doing all that well; similarly there may be one or two companies which may be doing exceedingly well while the rest of the companies in the industry might be in doldrums. You as an investor will have to consider both the financial and non-financial aspects so as to form a qualitative impression about a company. Some of the factors are

1. History of the company and line of business
2. Product portfolio's strength
3. Market Share
4. Top Management
5. Intrinsic Values like Patents and trademarks held
6. Foreign Collaboration, its need and availability for future
7. Quality of competition in the market, present and future
8. Future business plans and projects
9. Tags - Like Blue Chips, Market Cap - low, medium and big caps
10. Level of trading of the company's listed scripts
11. EPS, its growth and rating vis-à-vis other companies in the industry.
12. P/E ratio
13. Growth in sales, dividend and bottom line

Value, Growth and Income

Growth, Value, Income and GARP are one of the most rational ways of stock analysis. A brief on each of them is given here for your understanding.

Growth Stocks

The task here is to buy stock in companies whose potential for growth in sales and earnings is excellent. Companies growing faster than the rest of the stocks in the market or faster than other stocks in the same industry are the target i.e. the Growth Stocks. These companies usually pay little or no dividends, since they prefer to reinvest their profits in their business. Individuals who invest in growth stocks should make up their portfolio with established, well-managed companies that can be held onto for many, many years. Companies like HLL, Nestle, Infosys, and Wipro have demonstrated great growth over the years, and are the cornerstones of many portfolios. Most investment clubs stick to growth stocks, too.

Value Stocks

The task here is to look for stocks that have been overlooked by other investors and that which may have a "hidden value." These companies may have been beaten down in price because of some bad event, or may be in an industry that's looked down upon by most investors. However, even a company that has seen its stock price decline still has assets to its name—buildings, real estate, inventories, subsidiaries, and so on. Many of these assets still have value, yet that value may not be reflected in the stock's price. Value investors look to buy stocks that are undervalued, and then hold those stocks until the rest of the market (hopefully!) realizes the real value of the company's assets. The value investors tend to purchase a

company's stock usually based on relationships between the current market price of the company and certain business fundamentals. They like P/E ratio being below a certain absolute limit; dividend yields above a certain absolute limit; Total sales at a certain level relative to the company's market capitalization, or market value. Templeton Mutual funds are one of the major practitioners of this strategy. Growth is often discussed in opposition to value, but sometimes the lines between the two approaches become quite fuzzy in practice.

Income

Stocks are widely purchased by people who expect the shares to increase in value but there are still many people who buy stocks primarily because of the stream of dividends they generate. Called income investors, these individuals often entirely forego companies whose shares have the possibility of capital appreciation for high-yielding dividend-paying companies in slow-growth industries.

Keep investing, panic not on your existing stocks

Here's the best tip we can give you if the volatility in the market has spooked you or if you had seen a large profit wash away in the falling market: ignore your stocks right now and keep your investing attention to something else.

Focus all your efforts and time on the company your stock represents. That's because there are really two elements at work when investing: the stock, which is part of the stock market, and the company, something the stock is supposed to represent. But the company works in a different universe from the stock market, involved more in the real world of profits and losses rather than the emotional tide of fear and greed, the two major forces behind the stock market. With the uncertainty prevailing in the market, fear is rampant and some of it is justified, but there are lots of good companies that might be hammered by that emotion. That's why you'll do better if you research your companies in depth rather than trying to figure out if the morning sell off is the beginning of the end or just a hick up on the road to true wealth. But let's say you've done all your numbers, and everything looks great. You've checked for the latest news and you still can't tell why your stock is down. Then you might want to call the company directly and ask for the Investor Relations department. Don't expect the investor relations person to tell you any secrets or unpublished information but you can ask a few questions and get a better feeling about the company:

1. Why is the stock down so dramatically? Are there rumors the company has heard? If so, what is the company's response to them?
2. Is there anything the company can say about the stock being down?
3. Are the officers of the firm buying or selling the stock?
4. Is the company buying its own shares right now?

You will hence get a sense of how the company is responding to its stock being down, and maybe hear about news that has just been published but you haven't read. Then, when you've done all you can to determine that the company in which you've invested is indeed doing everything well, you can ignore the stock and be assured that this too shall pass. If you determine

that the stock is down for a good reason and seems to be going lower, then you can sell it and move on to another company. In either case, you can make a decision based on the company and not the stock.

Go for quality stocks and not quantity

New investors often want to make a quick buck (some old investors do, too). Sometimes you can do that if you get lucky. But the really big money in investing is made from holding quality stocks a long time. Many investors ask for information on cheap stocks. The usual premise is that they don't have much money, and they want to own thousands of shares of something, that way when it goes up, they'll make big money. The problem is these stocks don't go up. They're a scam for the brokers, and the spread between the bid and the ask on these stocks is enormous, making it impossible to sell them at a profit.

Instead of trying to buy thousands of shares of a worthless stock for Rs 10000, let's see what else you can do with it. These examples are all split adjusted and show what that Rs. 10000 can do when you buy the right stocks.

If you had bought Infosys in 1991 for Rs share (split adjusted), you would own n shares

Obviously it's easy to look back to find great stocks. And you had to hold onto these volatile issues to reap these rewards. But the point is that quality stocks are worth holding. In the above examples, the owners have paid no taxes because there have not been any gains taken. The only commission paid was the original one. And as long as the stocks continue to produce good earnings, there's no reason to sell them. Again, it's easy to pick the good ones looking back, going forward, which stocks are the best ones to own? Do your research thoroughly. Build a portfolio of stocks, one stock at a time, even with Rs 10000. Be sure to diversify over several industries over time. And only buy the best, no matter how few shares that might be. Then be patient, keep up with the news on the stock, and let the stock grow. That's the way the big money is made.

How many stocks should you own?

Buying a large number of stocks is time-consuming and will distract you from focusing on the absolute best stocks. Most investors simply cannot keep track of a large number of stocks, so concentrate on just a few of the best. Use this simple guideline to determine the number of stocks to own:

Less than Rs. 20,000	1 or 2 stocks
Rs. 20,000 to Rs. 50,000	2 or 3 stocks
Rs. 50,000 to Rs. 2,00,000	3 to 5 stocks
Rs. 2,00,000 to Rs. 5,00,000	5 to 7 stocks
Rs. 5,00,000 or more	7 to 10 stocks

Some more Stock tips

1. New products, services or leadership. If a company has a dynamic new product or service, or is capitalizing on new conditions in the economy, this can have a dramatic impact on the price of a stock.

2. Leading stock in a leading industry group. Nearly 50% of a stock's price action is a result of its industry group's performance. Focus on the top industry groups, and within those groups select stocks with the best price performance. Don't buy laggards just because they look cheaper.
3. High-rated institutional sponsorship. You want at least a few of the better performing mutual funds owning the stock. They're the ones who will drive the stock up on a sustained basis.
4. New Highs. Stocks that make new highs on increased volume tend to move higher. Outstanding stocks usually form a price consolidation pattern, and then go on to make their biggest gains when their price breaks above the pattern on unusually high volume.
5. Positive market. You can buy the best stocks out there, but if the general market is weak, most likely your stocks will be weak also. You need to study our "The market talks. Listen, to spot the best." - Module 8 and learn how to interpret shifts in the market's trend.
6. You should not buy on dips. This is a strategy that doesn't give you a strong probability of making a profit. Remember a stock that has dipped 25% needs to rise 33% to recover the loss and a stock that has dipped 50% needs to double to get back to its old high.

Market Direction

Is the Market Heading South?

Observe the price and volume changes, there may be some selling on a rising day. The key is that volumes may increase on a day as the index closes lower or is range-bound. Studying the general market averages is not the only tool. There are other indicators to spot a topping market: A number of the market's leading stocks will show individual selling signals. In a falling market start selling your worst performing stocks first. If the market continues to do poorly, consider selling more of your stocks. You may need to sell all your stocks if the market doesn't turn around. If any stocks fall 8% below your purchase price, sell immediately. However, if you have tremendous confidence on the company stick to your pick.

Is the Market Turning Upwards?

After a prolonged fall, the market will try to bounce back and try to rally from the low levels. However, you can't tell on the first or second day if the rally is going to last, so you don't buy on the first or second day of a rally. You can afford to wait for a second confirmation that the market has really turned and a new up trend or bull market has begun. A follow-through will occur if the market rallies for the second time, showing overwhelming strength by closing higher by one per cent with the volume higher than the day's volume. A strong rebound usually occurs between the fourth and seventh session of an attempted rally. Sometimes, it can be as late as the 10th or 15th day, but this usually shows the turn is not as powerful. Some rallies will fail even after a follow-through day. Confirmed rallies have a high success rate, but those that fail usually does so within a few days of the follow-through. Usually, the market turns lower on increasing volume within a few days.

When the market begins a new rally, stocks from all sectors don't rush out of the gates at the same time. The leading industry groups usually set the pace, while laggards trail behind. After a while, the top sprinters may slow down and pass the baton to other strong groups who lead the market still higher.

Investors improve their chances of success by homing in on these leading groups. Investors should be wary of stocks that are far beyond their initial base consolidated point/stage. After the market has corrected and then turns around, stocks will begin shooting out of bases. Count that as a first-stage of a breakout. Most investors are wary of jumping back into the market after a correction. Plus, the stock hasn't done much lately; so many investors won't even notice the breakout. But the fund managers would take buy positions at this stage.

After a stock has run up 25 per cent or more from its pivot point, it may begin to consolidate and form a second-stage base. A four-week or other brief pause doesn't count. A stock should form a healthy base, usually at least seven weeks before it qualifies. Also, when a stock consolidates after rising around 10 per cent, it's forming a base on top of a base. Don't count that it as a second stage.

When the stock breaks out of the second-stage base, a few more investors see this as a powerful move. But the average investor doesn't spot it. By the time the stock breaks out of the third-stage base, a lot of people see what's going on and start jumping in. When a stock looks obvious to the investment community, it's usually a bad sign. The stock market tends to disappoint most investors. About 50-60% of third-stage bases fail.

But some stocks keep going and eventually form a fourth-stage base. At this point, everybody and their sisters know about this stock. The company's beaming CEO shows up on the cover of business publications. But while thousands of small investors rush into this "sure thing," the top mutual funds may quietly trim or liquidate their holdings.

Most fourth-stage breakouts fail, though not necessarily right way. Some will rise 10% or so before reversing. Fourth-stage failures usually undercut the lows of their old bases. But a stock can be reborn and begin a new four-base life cycle all over again. All it takes is a sizable correction.

How Do You Define A Bear Market?

Typically, market averages falling 15% to 20% or more.

Buying Volatile Stocks

Buying at the right moment is the best defense against a volatile market. When the stock of a top-class company rises out of a sound price base on heavy volume, don't chase it more than five per cent past its buy point. Great stocks can rise 20-25% in a few days or weeks. If you purchase at those extended levels, what may turn out to be a normal pullback could shake you out. That risk rises with a more volatile stock.

Caution Signals from the Market!!!

There are several signs in the stock market that suggest caution, even though they're all very bullish. Here are some of them and what they might mean, based on past experience. First, everybody's bullish. If everyone's bullish, that means they've already bought their stock and are hoping more people will

follow their enthusiasm. Most individual investors are fully invested. And as long as large inflows are still going into equity mutual funds, everything's fine. Watch out when the flows turn into trickles. There won't be buying power to keep boosting stocks.

Second, fear of the Economy/Political scenario. This is an initial indicator, which would pull off sporadic selling that could eventually mount into an outright bear market.

Third, new records for the SEBI week after week. That's exuberance and won't continue. The technology sector is leading this market, and there's plenty of growth ahead for the group, but the pricing for many of the tech stocks is way ahead of the earnings. Most of the tech stocks are priced to perfection, meaning that if they don't report earnings above the analysts' expectations, they'll be in for a bashing. Too much good is already priced into many of these stocks. Fourth, a record season for IPOs. While there's always been a push to get financing done when the market is upbeat, this last penultimate (second last) season had been one for the records. Records never last. That's not how the market works. The penultimate season saw IPOs such as Hughes Software, HCL Technologies being subscribed several times over, with premium listings as they opened. This was followed by dismal erosion of value for those IPOs. What followed is issues such as Ajanta Pharma, Cadilla etc, opened at deep discounts. Two emotions drive markets: fear and greed. Usually there is some fear and some greed. Markets usually do best when they climb a wall of fear, meaning that every one expresses fear of investing but stocks continue to go higher. When that sentiment changes to bullish, the market roars ahead. Because the market is depressed, the next psychological state will be fear, and there will be a pull back, nothing severe. This great economy isn't going to stop growing, but many stocks are too far ahead of their numbers and will be pulling back when the market has a bad day.

Selection & Timing of Trade

Sky rocketing stocks — What is the right price?

Investors' dilemma is that they want to participate in the tech rally but the numbers look too high. While many of these gravity-defying stocks aren't worth their current prices, a few are. Here's how to tell the difference and when to buy them.

First, when a stock has stratospheric valuations, there's a reason: extremely high expectations. Investors expect the company to perform in an exceptional way in two areas: growth in revenues and growth in earnings. The challenge for investors is to discern which of these high-flying stocks deserve their attention.

Look for a stock that is essential, better performing. Does that mean you just buy the stock and hope? Definitely not, it does mean you start to monitor it and when the stock misses an earnings report or doesn't grow revenues fast enough, you look to buy. That takes patience. There's also the risk that the company won't make a misstep, and you won't buy it. If it happens that way, it will be the first company in history to do so. Granted the level may be much higher than the current one when you finally buy it, but the value of the stock may be much better. In other words, the P/E would be lower than the current levels.

The characteristics of the stocks you want to focus on are:

1. Market leaders who dominate their niche. The big tend to get bigger, win more contracts and have the largest R&D budgets.
2. Earnings that are growing, at an increasing rate, every year.
3. Revenue growth that exceeds the industry average.
4. Strong management.
5. Competing in a high and long-term growth oriented industry sector.

When you find all of these factors in a stock, it won't be a cheap one. But if you want to own it, sometimes you have to pay more than you would like. Currently, that's the entry fee for owning the best stocks in the technology areas. If you are patient and wait for some time you can pick some scrips at a relatively good price.

The key to making the big money with these stocks is to own them for a long time, letting them continue to grow. Even if you buy only a few shares, over time you can do very well as the stock grows, splits, and grows again. Many Infosys shareholders started with 10 shares and now own hundreds. When you buy a great company, you own part of it, so having a small piece of a great one is much better than owning a lot of shares in a loser. If you're interested in making the big bucks, add some skyrocketing stocks to your portfolio.

Discount sales in most sectors – Buy at a bargain.

There are lots of good stocks available at bargain prices. There are ways of finding the stocks, which are currently out of favor.

First, look for stocks that are out of favor for a temporary reason.

Second, look for stocks within sectors that are currently out of favor.

Third, use the tight screening methods to bring stock into your. Here are some of the parameters to use and benchmarks to begin your search:

P/E ratio: Use a minimum of 10 and a maximum of 30. With current P/E ratios closer to 30, stocks with low P/Es can sometimes signal out of favor stocks.

Price-to-Sales Ratio: Also called PSR. This is a macro way of looking at a stock. Many investors like to find stocks with a PSR below 1. It's a good number to start with, so put in .5 as a maximum and leave the minimum open. Be careful though, because many stocks will always carry a low PSR. You're looking for the stocks that have historically been high and are temporarily low.

Earnings growth: Look for at least 20 per cent. If you can find a stock that has its earnings growing at 20% and its P/E at 10, you've got something worth investigating further. This is known as the PEG or P/E-to-Growth ratio. Sharp investors are looking for a ratio well below 1. In this example, the stock would have had a PSR of .5 (10/20).

Return on Equity: Start at 20% as the minimum and see who qualifies. The return on equity tells you how much your invested rupee is earning from the company. The higher the number, the better your investment should do.

By using just this combination of variables, you can find some interesting stocks. Try to squeeze your search each time you screen by tightening your numbers on each variable. And when you do find a stock, make sure you read all the relevant information from all the stock resources on the Web.

Should you buy more if the stock you own keeps climbing?

You can buy additional shares if your stock advances 20% to 25% or more in less than eight weeks, provided the stock-still shows signs of strength

Cracking Buying Points

Here are some buying points for your reference

1. Strong long-term and short-term earnings growth. Look for annual earnings growth for the last three years of 25% or greater and quarterly earnings growth of at least 25% in the most recent quarter.
2. Impressive sales growth, profit margins and return on equity. The latest three-quarters of sales growth should be a minimum of 25%, return on equity at least 15%, and profit margins should be increasing.
3. New products, services or leadership. If a company has a dynamic new product or service or is capitalizing on new conditions in the economy, this can have a dramatic impact on the price of a stock.
4. Leading stock in a leading industry group. Nearly 50% of a stock's price action is a result of its industry group's performance. Focus on the top industry groups and within those groups select stocks with the best price performance. Don't buy laggards just because they look cheaper.
5. High-rated institutional sponsorship. You want at least a few of the better performing mutual funds owning the stock. They're the ones who will drive the stock up on a sustained basis.
6. New Highs. Stocks that make new highs on increased volume tend to move higher. Outstanding stocks usually form a price consolidation pattern, and then go on to make their biggest gains when their price breaks above the pattern on unusually high volume.
6. Positive market. You can buy the best stocks out there, but if the general market is weak, most likely your stocks will be weak also.

Cracking Selling Point

The decision of when and how much to buy is a relatively easy task as against when and what to sell. But then here are some pointers, which will assist you in deciding when to sell. Keep in mind that these parameters are not independent pointers but when all of them scream together then its time to step in and sell.

1. When they no longer meet the needs of the investor or when you had bought a stock expecting a specific announcement and it didn't occur. Most Pharma stocks fall into this category. Sometimes when they are on the verge of medical breakthroughs as they so claim, in reality if doesn't materialize into real medicines; the stock will go down because every one else is selling. It's then time to sell yours too immediately, as it didn't meet your need.

2. When the price in the market for the securities is an historical high. It's done even better than you initially imagined, went up five or ten times what you paid for it. When you get such a spectacularly performing stock, the last thing you should do is to sell all of it. Don't be afraid of making big money. While you liquidate a part of your holding in the stock to get back your principal and some neat profit, hold on to the rest to get you more money; unless there is some fundamental shift necessitating to sell your whole position. To repeat do not sell your whole position.
3. When the future expectations no longer support the price of the stock or when yields fall below the satisfactory level. You need to constantly monitor the various ratios and data points over time, not just when you buy the stock but also when you sell. When most ratios suggest the stock is getting expensive, as determined by your initial evaluation, then you need to sell the stock. But don't sell if only one of your variables is out of track. There should be a number of them screaming that the stock is fully valued.
4. When other alternatives are more attractive than the stocks held, then liquidate your position in a stock which is least performing and reinvest the same in a new buy.
5. When there is tax advantage in the sale for the investor. If you have made a capital gain somewhere, you can safely buy a stock before dividend announcements i.e. at cum-interest prices and sell it after dividend pay out at ex-interest prices, which will be way below the price at which you had bought the stock. This way the capital loss that you make out of the buy and sell can be offset against the capital gain that you had made elsewhere and will hence cut your taxes on it.
6. Sell if there has been a dramatic change in the direction of the company. Its usually a messy problem when a company successful in one business decides to enter another unrelated venture. Such a decision even though would step up the price initially due to the exuberant announcements, it would begin to fall heavily after a short span. This is because the new venture usually squeezes the successful venture of its reserves and reinvesting capability, thus hurting its future earnings capability.
7. If the earnings and if they aren't improving over two to three quarters, chuck out the stock from your portfolio. To get a higher price on a stock, it needs to constantly improve earnings, not just match past quarters. However, as an investor, you need to read the earnings announcements carefully and determine if there are one-time charges that are hurting current earnings for the benefit of future earnings.
8. Cut losses at the right level. But do not sell on panic. The usual rule for retail investor is to sell if a stock falls 8% below the purchase price. If you don't cut losses quickly, sooner or later you'll suffer some very large losses. Cutting losses at 8% will always allow investors to survive to invest another day.

However, this is not exactly the right way to do it. Some investors have certain disciplines: take only a 10% or 20% loss, then get out. Cut your losses, let your winners ride, etc. The only problem with that is that you often get out just as the stock turns around and heads up to new highs. If you have done your homework on a stock, you will experience a great deal

of volatility and a 5 to 8 % move in the stock is part of the trading day. To simply get out of a stock that you've worked hard to find because it goes down, especially without any news attached to it, only guarantees you'll get out and lose money. Stay with a good stock. Keep up with the news and the quarterly reports. Know your stock well, and the fluctuations every investor must endure won't trouble you as much as the uninformed investor. In fact, many of these downdrafts are great opportunities to buy more of a good stock at a great price, not a chance to sell at a loss and miss out on a winner.

Common Pitfalls to be Avoided

1. Not being disciplined and failing to cut losses at 8% below the purchase price A strategy of selling while losses are small is a lot like buying an insurance policy. You may feel foolish selling a stock for a loss — and downright embarrassed if it recovers. But you're protecting yourself from devastating losses. Once you've sold, your capital is safe. The 7%-8% sell rule is a maximum, not an average. Time your buys right, and if the market goes against you the average loss might be limited to only 3% or 4%. Again its to be kept in mind, do not to sell a winning stock just because it pulls back a little bit.
2. Do not purchase low-priced, low quality stocks.
3. One should follow a system or set of rules.
4. Do not let emotions or ego get in the way of a sound investing strategy You may feel foolish buying a stock at 60, selling at 55, only to buy it back at 65. Put that aside. You might have been too early before, but if the time is right now, don't hesitate. Getting shaken out of a stock should have no bearing on whether you buy it at a later date. It's a new decision every time.
5. Invest in equities for long term and not short term.
6. Do not make unplanned investing and starting without setting clear investment objectives and time frame for achieving the same.
7. Not having an eye on what the big players / mutual funds buy & sell is a pitfall and an opportunity lost to pick the right stocks. It takes big money to move markets, and institutional investors have the cash. But how do you find out where the smart money is going? Make sure the stock you have your eye on is owned by at least one top-rated fund. If the stock has passed muster with leading portfolio managers and analysts, it's a good confirmation its business is in order. Plus, mutual funds pack plenty of buying power, which will drive the stock higher.
8. Patience is a virtue in investing. Do not panic on your existing stocks. It's so important, we repeat: Be patient for your stocks to reap rewards.
9. Do not be unaware of what is happening around in the market. As always, knowledge is power and in investing, it's also a comfort. Dig for more information other than just the top stories that are flashed.
10. Do not put all your money on the same horse. Diversify your portfolio ideally into five industries and ten stocks.

LESSON 34

INVESTING IN FIXED DEPOSITS

Fixed deposits remain the most popular instrument for financial savings in India. They are the middle path investments with adequate returns and sufficient liquidity. There are basically three avenues for parking savings in the form of fixed deposits. The most common are bank deposits. For nationalized banks, the yield is generally low with a maximum interest of 10 to 10.5% per annum for a period of three years or more. As opposed to that, NBFCs and company deposits are more attractive.

The idea is to select the right company to minimize the risk. Company deposits as a saving instrument have declined in popularity over the last three years. The major reasons being the slowdown in economy resulting in default by some companies. Also, some NBFCs simply vanished with the depositors' money.

All that is likely to change for the better. Corporate performance is likely to improve and stricter control by RBI should improve NBFCs record. But one still needs to be selective. Let us help you in making the right decision.

Post office is a very safe and secure investment avenue. The money is used in the development of the society as a whole, while it provides steady returns. The biggest advantage of investing in post office schemes is the tax benefit that they provide. Thus a lot of savings go through this channel to dual advantage - tax benefits and steady returns.

Why Invest in Fixed Investment

The term "fixed" in fixed deposits denotes the period of maturity or tenor. Fixed Deposits, therefore, presupposes a certain length of time for which the depositor decides to keep the money with the bank and the rate of interest payable to the depositor is decided by this tenor. The rate of interest differs from bank to bank and is generally higher for private sector and foreign banks. This, however, does not mean that the depositor loses all his rights over the money for the duration of the tenor decided. The deposits can be withdrawn before the period is over. However, the amount of interest payable to the depositor, in such cases goes down (usually 1% to 2% less than the original rate). Moreover, as per RBI regulations there will be no interest paid for any premature withdrawals for the period 15 days to 29 or 15 to 45 days as the case may be.

Other than banks, there are non-banking financial companies and companies who float schemes from time to time for garnering deposits from the public. In the recent past, however, many such schemes have gone bust and it is very essential to look out for danger signals before putting all your eggs in one basket.

Things To Look Out For...

- Credit rating/ reputation of the group
- The rating is possibly the best way to judge the credit worthiness of a company. However, for manufacturing company deposits, it is not mandatory to get a rating. In such cases, it is better to check the size and reputation of the company or the industrial group it belongs to.
- Interest rate
- Within the same safety level (or rating), a higher interest rate is a better option. The difference in some cases can be as high as 1%.
- Diversify
- The portfolio principle applies to company deposits also. It is always better to spread deposits over different companies and industries so as to reduce risk.
- Period of deposit:
- The ideal period for a company deposit is 6 months to one year as it offers the liquidity option. Also, it gives an opportunity to review the company's performance.
- Periodic review of the company: As your principal and interest rests in the hand of the company, it is advisable to review the company's performance periodically.

Where Not To Invest?

- Companies, which offer very high rates of interest, say 16% or above, when others are offering 12-13%.
- Companies with poor cash flows.
- Avoid unincorporated companies/ private limited companies, as it is difficult to judge their performance in absence of information.
- Companies with accumulated losses on their balance sheets.
- Companies with a poor dividend paying record.

Types of Fixed Deposits

1. Bank Fixed Deposits
2. Company Fixed Deposits

Bank Fixed Deposits

When you deposit a certain sum in a bank with a fixed rate of interest and a specified time period, it is called a bank Fixed Deposit (FD). At maturity, you are entitled to receive the principal amount as well as the interest earned at the pre-specified rate during that period. The rate of interest for Bank Fixed Deposits varies between 4 and 6 per cent, depending on the maturity period of the FD and the amount invested. The interest can be calculated monthly, quarterly, half-yearly, or annually, and varies from bank to bank. They are one of the most common savings avenue, and account for a substantial portion of an average investor's savings. The facilities vary from bank to bank. Some services offered are withdrawal through cheques on

maturity; break deposit through premature withdrawal, and overdraft facility etc.

Interest Rates Payable on Deposits

Duration	Interest Rate Per Annum
7 days to 14 days (Rs. 15 Lakh & Above)	4
15 days to 45 days	4.25
45 days to 179 days	5.00
180 days to Less than 1 year	5.25
1 Year to Less than 2 Years	5.50
2 Year to Less than 3 Years	5.75
3 Years & Above	6.00

Investment Objectives

How Suitable are Fixed Deposits for an Increase in my Investment?

While a Bank FD does provide for an increase in your initial investment, it may be at a lower rate than other comparable fixed-return instruments. Since capital appreciation in any investment option depends on the safety of that option, and banks being among the safest avenues, the increase in investment is modest.

Are Fixed Deposits Suitable for Regular Income?

A Bank FD does not provide regular interest income, but a lump-sum amount on its maturity. Since the lump-sum amount depends on the rate of interest, currently between 4 and 6 per cent, Bank FDs are not suitable for regular income.

To What Extent Does a Bank FD Protect me Against Inflation?

With a fixed return, which is lower than other assured return options, banks cannot guard against inflation. In fact, this is the main problem with Bank FDs as any return has to be calculated keeping inflation in mind.

Can I Borrow Against Bank FDs?

Yes, in some cases, loans upto 90 per cent of the deposit amount can be taken from the bank against fixed deposit receipts.

Risk Considerations

How assured can I be of Getting My Full Investment Back?

Almost 100 per cent. Bank Deposits are the safest investment option after post-office schemes since the banks function according to the parameters set by the Reserve Bank of India (RBI), which frames regulations keeping in mind the interest of the investors.

How Assured is my Income?

There is no regular income in this option as the payment is made in one lump sum after the expiry of the tenure of the Bank Fixed Deposit.

Are there any Risks Unique to Bank FDs?

Not really. Since all the banks operating in the country, irrespective of whether they are nationalised, private, or foreign, are governed by the RBI's rules and regulations, which give due

weightage to the interest of the investor, there is little chance of an investment in a bank deposit going under. In fact, till recently, all bank deposits were insured under the Deposit Insurance & Credit Guarantee Scheme of India, which has now been made optional. Nevertheless, bank deposits are still among the safest modes of investment.

The thing to consider before investing in a FD is the rate of interest and the inflation rate. A high inflation rate can simply chip away your real returns. So, it is critical to take the inflation rate into consideration to arrive at the real rate of interest.

Are Bank FDs rated for their credit quality?

No, Bank FDs are not commercially rated. Since Bank FDs are extremely secure, the only thing to check out while investing in one is the interest rate being offered and your convenience.

Buying, Selling, and Holding

How Do I Open A Bank Fixed Deposit Account?

You can get a bank FD at any bank, be it nationalised, private, or foreign. You have to open a FD account with the bank, and make the deposit. However, some banks insist that you maintain a savings account with them to operate a FD.

What is The Minimum Investment and the Range of Investment for Bank FDs?

Minimum investment in an FD varies from bank to bank. It could be as low as Rs 500 in case of nationalised banks, and could go up to Rs 10,000 in private banks and Rs 50,000 in some foreign banks. Banks are free to offer interest rates on their FDs, depending on the interest rate scenario, the government's monetary policy, and their own money supply position.

What is the Duration of a Bank FD?

Bank FDs have varying duration: from 15 days to more than 5 years. Depending on their duration, the interest also varies.

Can Bank FDs Be Sold in The Secondary Market?

No, a bank FD can only be encashed from the bank it was taken from.

What is the Liquidity Of Bank FDs?

Bank FDs are liquid to the extent that premature withdrawal of a bank FD is allowed. However, that involves a loss of interest.

How is the Market Value of a Bank FD Determined, And How do I Keep Track of it?

Since Bank FDs cannot be sold in the market; they do not have a market value. Individual banks, keeping the market forces in mind, determine the interest on a Bank FD. Banks periodically mail to you account statements or issue passbooks through which you can track your account status.

What is the Mode of Holding a Bank FD?

When a depositor opens an FD account with a bank, a pass-book or an account statement is issued to him, which can be updated from time to time, depending on the duration of the FD and the frequency of the interest calculation.

Tax Implications

Interest income from a Bank FD qualifies for exemption under section 80L, which means that interest income upto Rs 12,000 is tax-exempt.

Company Fixed Deposits

Fixed deposits in companies that earn a fixed rate of return over a period of time are called Company Fixed Deposits. Financial institutions and Non-Banking Finance Companies (NBFCs) also accept such deposits. Deposits thus mobilized are governed by the Companies Act under Section 58A. These deposits are unsecured, i.e., if the company defaults, the investor cannot sell the company to recover his capital, thus making them a risky investment option.

NBFCs are small organisations, and have modest fixed and manpower costs. Therefore, they can pass on the benefits to the investor in the form of a higher rate of interest.

NBFCs suffer from a credibility crisis. So be absolutely sure to check the credit rating. AAA rating is the safest. According to latest RBI guidelines, NBFCs and companies cannot offer more than 14 per cent interest on public deposits.

Investment Objectives

Are Company Fixed Deposits Suitable for an increase in my investment?

A Company/NBFC Fixed Deposit provides for faster appreciation in the principal amount than bank fixed deposits and post-office schemes. However, the increase in the interest rate is essentially due to the fact that it entails more risk as compared to banks and post-office schemes.

Are company fixed deposits suitable for income?

Yes, Company/NBFC Fixed Deposits are suitable for regular income with the option to receive monthly, quarterly, half-yearly, and annual interest income. Moreover, the interest rates offered are higher than banks.

To What Extent Does A Company Deposit Protect Me Against Inflation?

A Company/NBFC Fixed Deposit provides you with limited protection against inflation, with comparatively higher returns than other assured return options.

Can I Borrow Against A Company Fixed Deposit?

Yes, you can borrow against a Company/NBFC Fixed Deposit from banks, but it depends on the credit rating of the company you have invested in. Moreover, some NBFCs also offer a loan facility on the deposits you maintain with them.

Risk Considerations

How Assured Can I Be Of Getting My Full Investment Back?

Company Fixed Deposits are unsecured instruments, i.e., there are no assets backing them up. Therefore, in case the company/NBFC goes under, chances are that you may not get your principal sum back. It depends on the strength of the company and its ability to pay back your deposit at the time of its maturity. While investing in an NBFC, always remember to first check out its credit rating. Also, beware of NBFCs offering ridiculously high rates of interest.

How Assured Is My Income?

Not at all secured. Some NBFCs have known to default on their interest and principal payments. You must check out the liquidity position and its revenue plan before investing in an NBFC.

Are There Any Risks Unique To Company Fixed Deposits?

If the Company/NBFC goes under, there is no assurance of your principal amount. Moreover, there is no guarantee of your receiving the regular-interval income from the company.

Inflation and interest rate movements are one of the major factors affecting the decision to invest in a Company/NBFC Fixed Deposit. Also, you must keep the safety considerations and the company/NBFCs credit rating and credibility in mind before investing in one.

Are Company/NBFC Deposits rated for their credit quality?

Yes, Company/NBFC Fixed Deposits are rated by credit rating agencies like CARE, CRISIL and ICRA. A company rated lower by credit rating agency is likely to offer a higher rate of interest and vice-versa. An AAA rating signifies highest safety, and D or FD means the company is in default.

Buying, Selling, and Holding

How Do I Buy A Company/NBFC Fixed Deposit?

Company Fixed Deposits forms are available through various broking agencies or directly with the companies. Similar is the case for the NBFCs.

Some of the options available are:

- Monthly income deposits, where interest is paid every month.
- Quarterly income deposits, where interest is paid once every quarter.
- Cumulative deposits, where interest is accumulated and paid along with the principal at the time of maturity.
- Recurring deposits, similar to the recurring deposits of banks.

What Is the Minimum Investment and the Range of Investment for A Company/NBFC Fixed Deposit?

Minimum investment in a Company/NBFC Fixed deposit varies from company to company. Normally, the minimum investment is Rs 5,000. For individual investors, there is no upper ceiling. In case of recurring deposits, the minimum amount is normally Rs 100 per month.

What is the Duration of the Company/NBFC Fixed Deposit Scheme?

Company/NBFC Fixed Deposits have varying duration; they may vary from a minimum of 6 months to 5 years or even more.

Can a Company FD be Sold in the Secondary Market?

No, a company/NBFC Fixed Deposit can only be encashed at the Company/ NBFC it was invested in.

What Is The Liquidity Of A Company/NBFC Fixed Deposit?

A company/NBFC Fixed Deposit is liquid to the extent that premature withdrawal is allowed, but it entails a loss of interest.

How Is The Market Value Of A Company/NBFC Fixed Deposit Determined, And How Do I Keep Track Of It?

Company/NBFC Fixed Deposits do not have a market value since they can't be sold or purchased in the secondary market.

What is the Mode of Holding a Company/NBFC Fixed Deposit?

When a depositor invests in a Company/NBFC Fixed Deposit, a receipt and acknowledgement is issued to him.

Tax Implications

Interest from a Company/NBFC Fixed Deposit is fully taxable, and is not covered under Section 80L of the Income Tax Act. Therefore no deductions are allowed from interest income.

Notes

Horizontal lines for notes and answers, organized in two columns.

LESSON 35

INVESTMENT IN INSURANCE

Introduction

Why is insurance necessary? The question contains the answer within itself. After all, life is fraught with tensions and apprehensions regarding the future and what it holds for the individual. Despite all the planning and preparation one might make, no one can accurately guarantee or predict how or when death might result and the circumstances that might ensue in its aftermath.

We are not saying that life and existence are constantly fraught with danger and uncertainty. But then it is essential that you plan for the future. The chances for a fatality or an injury to occur to the average individual may not be particularly high but then no one can really afford to completely disregard his or her future and what it holds.

People generally regard insurance as a scheme when and where you have to lose a lot to gain a little. Nevertheless, insurance is still the most reliable tool an individual can use to plan for his future.

Classification of Insurance

Life is full of uncertainty. Trials and tribulations abound in each and every aspect of life. No one can truly predict or even estimate what the future has in store for him. Life offers no guarantees by itself, except the incidences of death and taxation.

This lack of security present throughout life can be overcome partially through insurance. Insurance can never replace or repair a loss. But the monetary value offered by insurance helps in adjusting to the new circumstances.

Despite offering innumerable options and immense scope, insurance can be classified into four main categories.

- Insurance of Person
- Insurance of Property
- Insurance of Interest
- Insurance of Liability

Insurance of Person

Under the purview of this class of insurance, the risks associated with human life in general can be covered up to the limit specified. A person can insure his or her life and his health against any unplanned contingencies.

In event of his death, his dependants will be reimbursed to the full amount that he was insured for. Or if the insured person meets with an accident or suffers from an illness that cripples him forever, he will be compensated with the complete sum assured anyway since he may not be able to lead a normal life again.

In case, the accident is not that severe, he should be able to recover after medical treatment and rehabilitation. If he has opted for medical cover, then his medical expenses, treatment and medication will be paid for by his insurance policy.

Insurance of Property

Everyone possesses material value in the form of tangible assets. Assets can be in the form of a landed estate or a vehicle, share holdings or plain old paper money.

Since tangible property has a physical shape and consistency, it is subject to many risks ranging from fire, allied perils to theft and robbery. An individual's lifetime of hard work can be wiped out in a blink of an eye.

But if a person judiciously invests in insurance for his property prior to any unexpected contingency then he will be suitably compensated for his loss as soon as the extent of damage is ascertained.

Insurance of Interest

Every individual has to discharge certain specific duties. Everyone is expected to maintain a standard of conduct. But then, it is an intrinsic part of human nature to err. No one is infallible and no one will ever be.

Owing to an occasional error or omission committed by us, our clients or customers might suffer a loss. In turn we might have to pay them damages or compensation out of our own personal resources.

However, if our chosen profession qualifies for insurance of interest, then our insurance policy will more than suffice in arranging for the funds and court formalities that might ensue in the aftermath of legal libel.

Insurance of Liability

Every person has to regulate his actions and behaviour so as not to cause injury or damage to other people and their property. Everyone is personally responsible and liable for his actions.

If due to lack of control over his actions or prejudiced behaviour, a person incurs any liability then he has to provide compensation out of his personal resources. Liabilities: legal, civil or criminal can have severe repercussions on social standing and prestige besides the financial status.

By investing in liability insurance, an individual can ward off any liabilities he might incur due to his actions and behaviour. Besides, the premiums payable on liability insurance are fairly minimal when compared to the damages that have to be compensated in the long run.

Why Life Insurance

You think twice before taking the plunge into buying insurance. Is buying insurance a necessity now? Spending an 'extra' amount as premium at regular intervals where you do not see immediate benefits does not seem a necessity at the moment. May be later.

Well you could be wrong. Buying Insurance cannot be compared with any other form of investment. Insurance gives you a life long benefit and the returns will definitely come but only

when you need it the most i.e. at the right time. Besides buying insurance early in life is one of the wise decisions you could take. Because the premium you would be paying would be comparatively lower.

Insurance is not about how much more it can offer you when the stock market is at its peak. It may not be an attractive investment option. But weigh the pros and cons and consider how much more it offers at a small price.

Most important of all it provides you with that unique sense of security that no other form of investment provides. It gives you a sense of financial support especially during that time of crisis irrespective of the fluctuations in the stock market. Insurance provides for your career goals right from your childhood years.

If the earning member of the family is no more your child's educational needs will not suffer. In fact his higher education too will be provided for. You need not spend sleepless nights thinking about how to save for your child's marriage. Life Insurance will take care of that typical once-in-a-life-time spending on marriages.

An accident or a disability may be devastating but an insurance policy can be of utmost support for the family during such times too. Besides it provides for additional benefits such as bonuses. You need not worry about your retirement years. The rising prices, taxes, and your lifestyle will be taken care of easily. And you can relax and spend your old age in comfort and peace.

Life insurance today plays a major role in ones life at various stages. Considering the benefits it offers one cannot but give a thought to buying an insurance policy at the earliest.

Need for Life Insurance

The need for life insurance comes from the need to safeguard our family. If you care for your family's needs you will definitely consider insurance.

Today insurance has become even more important due to the disintegration of the prevalent joint family system, a system in which a number of generations co-existed in harmony, a system in which a sense of financial security was always there as there were more earning members.

Times have changed and the nuclear family has emerged. Apart from other pitfalls of a nuclear family, a high sense of insecurity is observed in it today besides, the family has shrunk. Needs are increasing with time and fulfillment of these needs is a big question mark.

How will you be able to satisfy all those needs? Better lifestyle, good education, your long desired house. But again - you just cannot fritter away all your earnings. You need to save a part of it for the future too - a wise decision.

This is where insurance helps you.

Factors such as fewer numbers of earning members, stress, pollution, increased competition, higher ambitions etc are some of the reasons why insurance has gained importance and where insurance plays a successful role.

Insurance provides a sense of security to the income earner as also to the family. Buying insurance frees the individual from unnecessary financial burden that can otherwise make him

spend sleepless nights. The individual has a sense of consolation that he has something to fall back on.

From the very beginning of your life, to your retirement age insurance can take care of all your needs. Your child needs good education to mould him into a good citizen. After his schooling he need to go for higher studies, to gain a professional edge over the others - a necessity in this age where cutthroat competition is the rule. His career needs have to be fulfilled.

Insurance is a must also because of the uncertain future adversities of life. Accidents, illnesses, disability etc are facts of life, which can be extremely devastating. Other than the hospitalization, medication bills these may run up it's the aftermath of the incident, the physical well being of the individual that has to be taken into consideration. Will the individual be in a position to earn as before? A pertinent question. But what if he is not? Disability can be taken care of by insurance. Your family will not have to go through the grind due to your present inability.

Moreover, retirement, an age when every individual has almost fulfilled his responsibilities and looks forward to relaxing can be painful if not planned properly. Have you considered the increasing inflation and taxes? Will your investment offer you attractive returns under such circumstances? Will it take care of your family after you? An insurance policy will definitely take care of these and a lot more.

Insurance today has opened up new vistas for every section of society. Even for the village farmer insurance holds a lot of potential. Considering how dependent our agricultural system is on the monsoon, the farmer sees a dim future. The uncertainty of the monsoon too can be taken care of by insurance. Looking at the advantages of an insurance policy a number of farmers have gone in for insurance. Insurance has become a necessity today. It provides timely financial as also rewards with bonuses.

When is the Right Time to Buy Life Insurance?

Buying Life Insurance cannot ever be compared with other investment decisions since it is very much in contrast with those stock market investments where you wait for the right time to buy and sell. Neither is this like receiving tips on a particular scrip doing well in the market and holding great future prospects.

Buy life insurance at the earliest. Do you know when you would fall ill? Are you sure about your future income earning potential? Are you sure you will never meet with an accident? If not buy insurance now.

This is because the future is always uncertain. Just as buying insurance is a necessity so also buying insurance early in life is important too. With proper financial planning one can work out as to how much money an individual is entitled to after the end of a particular term. A policy that will fulfill your child's future educational needs would have to be timed appropriately so that he receives the policy amount at that time when he needs it the most.

By taking a policy early in life you not only benefit in forking out a lower premium amount but also make a wise decision as far as insuring risks to yourself and your family is concerned.

Are you Planning your Retirement?

As old age approaches, security and comfort become the most sought after. Advances in science and technology have thankfully lead to an increase in life span but at the same time there exists a requirement of funds for the individual during his retirement period to carry off a certain standard of living and fulfill the day-to-day essentials of life.

Proper financial planning during an individuals' productive years can put to rest these issues but sadly, such savings habits in every individual is hard to come by. By foreseeing the growing needs of the future and saving an appropriate amount well in advance can help the individual tide over the financial problems that may arise in his old age.

Retirement planning has not been taken seriously in our country. One of the reasons for the pension market not being very attractive may be the not -so -attractive financial options that were available earlier.

Professionalism:

Today, things have changed for the better. More professionalism is expected to come in with the entry of foreign companies in insurance.

Multiple options:

These insurance companies will also bring in a variety of financial products to choose from. Besides the insurance plans will be designed in a manner to suit every individual, be it the urban or the rural customer.

Flexibility in Plans:

The individual need not compromise anymore by merely accepting whatever was handed over to him whether it suited his needs or no. The customer is king today and can purchase just the right product according to his financial needs. In this changed environment, he can have tailor made products too. Insurance companies may come out with policies combining healthcare and pension as also taking into consideration the rising inflation. Such combinations will find a number of beneficiaries.

Improved Service:

An important area that will go through a total revamp is service. The insurance agents will have to brush up their skills in order to gear up for the competitive market. And you as a customer can expect prompt service unlike yesteryears.

Multiple information channels:

Informed decision-making is another of those upcoming areas. The customer can take an informed decision today. Insurance agents will not be the only source of information. With dime a dozen channels of information mushrooming each day the customer is bombarded with information explosion. The internet contains a wealth of information and each and every customer can now look forward to receiving every minute detail of the product he plans to purchase at his finger tips.

Buying an insurance policy is a long-term investment and it would only do well if you consider all those benefits you will receive in comparison with your financial outflow. With an increased number of financial options available and an equal number of sources for information a proper analysis could help you gain much more than you actually expected.

What Does Life Insurance Provide?

The proceeds accruing from Life Insurance policy can be utilised for

1. Final expenses resulting from death
2. Guaranteed maintenance of lifestyle
3. Replacement of income
4. Mortgage or liquidation payments
5. Costs of education
6. Estate and other taxes
7. Continuity & security of interest

Final expenses resulting from death

After an individual's untimely death, his survivors and heirs are entrusted with the responsibility of conducting his last rites according to customs and traditions as propagated by religion. Almost all religious sects follow certain rules that need to be bidden regardless of the social circumstances. As it is, the deceased individual's family members are likely to be emotionally devastated by their loss. And if they are saddled with monetary expenditure resulting from the death of their family member, their condition might become dangerously unstable.

Thankfully, the proceeds from the deceased's insurance policy will more than provide for the final expenses and rituals associated with the funeral. At least this way, the deceased's family is absolved from the shame and sacrifice that might be expected of them after their family member's death.

Guaranteed maintenance of lifestyle

As long as there is a steady and assured supply of income, an individual's family and dependants are able to keep a self-professed standard of living. The family's eating and drinking habits, entertainment and lifestyle expenses are maintained at a certain level during their earning member's lifespan.

In case of the unexpected death of the earning member, his or her family will be hard-pressed in trying to arrange for funds that would assist them in maintaining the standard of living that they've grown accustomed to. After all, no one really likes to make sacrifices, despite their miniscule fiscal value.

And this is exactly where the proceeds from insurance will prove extremely useful for the family members. They will be able to maintain their standard of living without making any sacrifices whatsoever.

Replacement of income

Most families in India depend on the earnings of the breadwinner to sustain their existence. Routine day-to-day expenses like provisions and ration supplies, milk, newspapers, medical bills and general maintenance are normally met through a regular supply of income.

Additionally the income also provides for any outstanding payments arising from rent, loans or mortgages. These liabilities have to be minimized by making payments at regular intervals. In case there is a default in payments, there are chances of legal intervention and repossession of the utility made available.

And having to do without a service that the family has grown accustomed to can prove to be severely detrimental to their metaphysical and social well-being. The proceeds from insurance

if invested wisely can support the insured's family members and dependants for the remainder of their lives with relative ease and in creature comfort.

Mortgage or liquidation payments

These days, people tend to constantly compete within their peers and social groups with regards to their lifestyles and related expenses. The spending pattern is governed by advertising and credit facilities offered by numerous financial institutions.

Since liquid funds are available at a very marginal rate from various financial institutions, people go forth and borrow without a care being seduced by the "Buy now, Pay later" philosophy. They are able to make the installment payments from their regular sources of income and sustain a standard of living that would have been beyond their means under ordinary circumstances.

As long as income is flowing in on a regular basis, there is no cause of concern. But in case of any default in payments, the lending company will obviously initiate legal proceedings. Legal proceedings initiated by a corporate body against an individual can have devastating consequences on the individual's social and economic status.

And the only salvation from such painful ignominy comes from the proceeds due to the insured's family thanks to his or her insurance policy. The funds that will be obtained from the insurance company will provide a buffer that will curtail any impending calamity before it can come close enough to cause any real damage.

Costs of Education

Education used to be considered as a sacrosanct field until a decade back. With the advent of privatisation into mainstream education, the cost of higher studies has escalated beyond all reasonable limits. And to add fuel to this fire is an annual inflation rate of 6.32 percent.

Most families start planning for their child's future education costs as soon as he clears his kindergarten papers. After all, every parent wants his or her child to grow and become a professionally qualified engineer or physician or likewise. And this is a fairly mean task since year after year since capitation fees charged by even run-of-the-mill colleges come up to lakhs of rupees.

In case either of the child's guardians or parents happens to expire before the end of his education, there are chances that he will not be able to complete his education. Nothing aids an individual in his life as much as what he or she knows. In any case, every parent wants to plan for his children's future and security.

And to achieve success in this plan, it is vital that the guardian or parents uses insurance as a tool to plan for his children's future, regardless of his or her presence. In case of the demise of a parent, the proceeds from his or her insurance can be channeled into their dependant children's education fund.

Estate and other taxes

Normally after a family member's death, his family or dependants are usually flooded with notices from creditors or taxation officers. At a time like this when the family is strug-

gling to recover from such a severe shock, it might seem inhuman for them to be subjected to such humiliation.

However in today's materialistic world, chivalry is no longer in demand. In case of an emergency, women and children rarely come first but creditors always do. Not only is it prudent for any individual to clear his debts prior to his demise but it would also spare his or her family the shame of having to clear debts that they did not incur, at least directly.

Since no one knows when his or her time may come, there is always a chance that the dependants will have to pay the existing dues regardless of their economic status. Thanks to insurance, all existing debts and taxes can be cleared from the proceeds in no time at all. And the dependent family will be spared from the ignominy of having to pay what they did not owe, in the first place.

Continuity & security of interests

At times after an individual's death, his family might have to sacrifice their interests in business or investments to arrange for their expenses and maintain a decent standard of living. In extreme cases, the dependent spouse might also have to suffer and sacrifice everything the family owns in a desperate bid to maintain the family name and crest above everything else.

After all, India is still a country where honour is regarded higher than life itself. Surely, making prudent investments in insurance from time to time can aid in averting such a disgraceful situation for any self-respecting individual's family. Only then will the family be able to maintain its standard of living prior to the demise of the head of the family.

Obviously, the proceeds from insurance will help secure the family's status and position in society as well as maintain their socio-economic level in life. Thus insurance serves the perfect hedging tool for securing the interests of the family and maintaining the continuity of their interests.

What does Life Insurance have to Offer?

Life insurance is many different things to many different people. For some, it is a premium to be paid on time. For others it offers liquidity since cash can be borrowed when needed. For the investment-minded, it denotes a constantly growing capital account and numerous other benefits.

Life insurance is nothing but the creation of capital funds on an installment basis. Only here, the results are guaranteed. Life insurance is basically a property that is bought under a contract, accompanied by contractual guarantees that ensure large sums of money at the death of the insured.

The contractual guarantee is the promise to pay, backed by one of the oldest and most stably regulated financial industry operating in the Indian sub-continent today.

Insurance Buys Time and Money

People like to refer to life insurance as time insurance, the reason being that life insurance proceeds are paid to the insured's beneficiaries in case of death. The money proffered by life insurance helps buy time to adjust to the change of circumstances. Insurance provides large amounts of cash that will keep the lifestyle for the survivors the way it was before the insured's death.

Insurance Offers Peace of Mind

For the person who buys an insurance policy, it offers absolute and complete peace of mind. He or she knows that the decision made by him will provide sound benefits in the future, whether or not the individual may live to see it. The life insurance policy will subsequently prove this in the future if and when funds are needed. This is the guarantee of the insurance contract.

Multiple Applications

The future is uncertain for each and every one. No one knows how long he or she will live. The investment benefit is paid to the insured's beneficiaries after his death or it can be used during the life as well. Life insurance policy owners can turn to the cash value of the policy in case of a financial emergency when all avenues are either blocked or denied. They know that they can avail of loans based on their insurance policies.

Insurance policy owners can use the cash value of their policies to meet their long-term financial needs as well. They may have purposefully invested in insurance to use the cash in the policy for their children's future marriage expenses or higher education fees.

Enduring Elasticity

Since life insurance is flexible enough to serve several needs, the insured can keep several long-term goals in mind once he or she invests in the insurance plan. The cash value of the policy can be allocated towards augmenting the monthly income during the retirement years. Leisure years should be turned into pleasure years. Permanent life insurance is designed on the concepts of long-term flexibility.

Financial Security

The insurance policy offers contractual guarantees to people looking for peace of mind when they buy life insurance. Life insurance offers complete financial security. The purchase of life insurance demonstrates concern for a family's future financial well being.

Regard for Family

The purchase of life insurance clearly displays care and concern for the people the policy owner loves.

Insurance is Safer

No financial institution can do what life insurance does. No industry can back its products with reserves and surplus as sound as those of the insurance industry.

The proof of strength and safety that insurance companies have ensured even under the most adverse of conditions is a matter of pride for the entire insurance industry. For generation after generation, life insurance has been acclaimed as the very benchmark of security against which the other industries are measured.

Why is Life Insurance Necessary?

A well-planned life insurance fund can clear the pending debts of the insured after his or her imminent demise. At times, this can mean the difference between retaining the family house & heirlooms and losing it by default to the creditors.

It can also avoid the possibility of a distress sale whereby an item might have to be sold at a much lower price owing to the urgency of funds. Insurance can also pay for the cost of higher

specialized education. Education in certain specialized fields can cost a staggering amount and owing to the intense competition in the job market today, not many people have the liberty of choice.

The need of education is clear. Parents who want to provide for their ward's education must carefully save money to provide for their future. Scholarships are not easily available either. Life insurance can easily provide for expected educational costs even if the insured dies before his children's education is complete.

At times, after the death of the sole-earning member of a household, the surviving spouse may need a secondary qualification current to the prevailing employment market situation. This additional education is critical since only one parent has to bear the responsibility of the entire family. A life insurance policy can provide the funds required to stabilize the family situation until the pending tension has eased off.

Do you need life insurance?

Every person has an economic value in life, which is connected to the income potential of the individual. So every income provider or producer has to be properly insured against any shortfall that might result from his or her death when some one else will be dependent on that person's income for financial security.

Without proper planning, a sudden financial emergency can force a family to act in a manner that would be inconceivable or unthinkable for most parents. They might have to halt children's education and/or have to sell the house and/ or the car and/ or fall deep into debt.

Life insurance does not replace the intrinsic value of a person's metaphysical self. Nothing and no one can. What it does attempt to provide is solid and tangible security to weather the storm that might befall the individual's family and dependents after his demise.

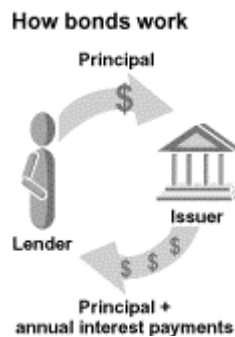
Notes

LESSON 36

INVESTMENT IN BONDS

A bond is a debt investment. When you buy a bond, you invest by lending money to a corporation, government, or government agency that issues, or sells, the bond. The issuer has the use of the money for a specific term, or period of time, and promises to repay the loan, or principal, when the bond matures at the end of the term. The issuer also promises to pay interest, figured as a percentage of the par value, or face value, of the bond for the term.

Bonds are also known as fixed-income investments because you earn interest at a specific rate on a regular schedule until the maturity date. Some investors buy bonds primarily for this income, while other investors trade bonds to realize a profit when they sell.



Types of Bonds

Corporate bonds

Bonds are major sources of corporate borrowing. Debentures, the most common type of corporate bond, are backed by the general credit of the corporation, while specific corporate assets, such as property or equipment, back asset-backed bonds.

Municipal bonds

State and local governments have issued millions of bonds. General obligation bonds are backed by the full faith and credit of the issuer, and revenue bonds by the income generated by the particular project being financed.

Agency bonds

Some government sponsored but privately owned corporations (like Fannie Mae and Freddie Mac), and certain federal government agencies (like Ginnie Mae and Tennessee Valley Authority) issue bonds to raise funds either to make loan money available or to pay off new projects.

Treasury Notes

Treasury notes are a major source of government funding. Notes have intermediate terms, and promise to pay the principal on or before the maturity date. Treasury bills, or T-bills, are the largest components of the money market, where short-term securities are bought and sold. Investors use T-bills for part of their cash reserve or as an interim holding place.

Interest is the difference between the discounted buying price and the amount paid at maturity.

Prices

While most bonds have a par value of Rs. 1,000, the prices of different types of bonds are quoted in slightly different ways.

Prices of corporate and municipal bonds are quoted in points and 8ths of a point, and each point is a unit of \$10. You can multiply the listed price by 10 to get the actual price. For example, if a bond's price is quoted as 96 1/2, it's selling at \$965 ($96.5 \times 10 = 965$).

Prices of Treasury bills and notes are quoted in units of 100 and 32nds of 100 (rather than 8ths) to permit subtler price differences. As with corporate and municipal bonds, you multiply the number by 10 to get the actual price. Let's say a T-bond's price is 100 and 9/32 (sometimes abbreviated as 100:09). To get the actual price you convert the fraction to a decimal ($9/32 = 9 \times 0.3125 = 2.8125$). Then you attach it to the end of the whole number. So a bond quoted as 100 and 9/32 is selling for \$1,002.81.

A bond quoted at 100 is trading at its exact par value (\$1,000). A bond quoted over 100 is trading at a premium. And, a bond quoted under 100 is trading at a discount.

Zero coupons

Some bonds pay no interest while the loan is maturing. These bonds, called zero coupon bonds, are popular with some investors. Instead of separate fixed-interest payments, the interest of a zero coupon bond accrues, or builds up, and is paid in a lump sum at maturity. Corporate, municipal, and Treasury bonds are also available as zero coupon bonds.

You buy zero-coupon bonds — or zeros — at a deep discount, far lower than par value. When the zero matures, the accrued interest and the original investment add up to the bond's par value.

The pros and cons

Bond issuers like zeros because there's an extended period to use the money they have raised without paying periodic interest. Investors like zeros because the discounted price means you can buy more bonds with the money you have to invest, and you can buy bonds of different maturities, timed to coincide with anticipated expenses.

Zeros have two potential drawbacks. They are extremely volatile in the secondary market, so you risk losing money if you need to sell before maturity. And, unless you buy tax-exempt municipal zeros, or buy zeros in a tax-free account, you have to pay taxes every year on the interest you would have received had the interest, in fact, been paid.

Measuring value

You can measure a bond's value, or what it's worth, in at least three different ways.

The market value of a bond, which is the price at which it's bought or sold, changes constantly during the bond's term, although its par value remains fixed, usually at \$1,000. Those price changes are the result of a changing combination of:

- External forces, such as interest rates.
- The bond's term.
- The economic strength of the issuer, reflected in the bond's rating.

Interest rates

The interest rate a bond pays is a measure of its value, since the higher the rate, the more the bond is worth as an investment. Unlike stocks, the prices of which can differ dramatically, interest rates among similar types of bonds may vary by a fraction of a percentage point — depending on the type of bond, the length of a bond's term, and its credit rating.

Terms

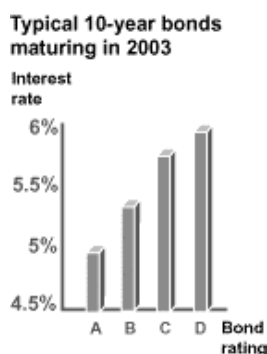
When bonds have different terms and maturity dates, those with longer terms typically pay higher interest rates. This higher rate helps offset risks, and encourages investors to commit money for an extended period. The higher rates also help offset the interest-rate risk of putting your money in a longer-term investment. Both the term and the rate can affect the bond's return, and therefore affect its price on the secondary market.

Ratings

Another way to measure the value of a bond is by its credit rating. These ratings indicate the risk you take to get the anticipated return of the bond investment.

As the chart at left shows, the credit ratings influence the interest rate an issuer must pay to attract investors. In comparing bonds of the same maturity, typically the higher the bond's rating, the lower the interest it pays and the lower its yield.

Similarly, lower-rated bonds must typically pay higher rates, providing higher yields, to entice investors who might be concerned about whether the interest will be paid on time or the principal will be repaid. That's why the lowest-rated bonds are sometimes described as high-yield bonds.



Yield

Yield is the amount you actually earn in bond interest, expressed as a percentage. If you buy a 10-year \$1,000 bond paying 6% and hold it until it matures, you'll earn \$60 a year for ten years — an annual yield of 6%, which is the same as the interest rate. But if you buy in the secondary market, after the

date of issue, the bond's yield may not be the same as its interest rate. That's because the price you pay affects the yield.

For example, if a bond's current yield is 5%, it means your interest payments will be 5% of what you pay for the bond today — or 5% back on your investment annually. You can use the yield to compare the relative value of bonds. Return, on the other hand, is what you make on the investment when the par value of the bond, your profit or loss from trading it, and the yield, are computed.

There's an even more precise measure of a bond's current value called the yield to maturity. It takes into account:

- The interest rate in relation to the price
- The purchase price in relation to the par value
- The years remaining until the bond matures

Yield to maturity is a way to predict return over time, but it is calculated by a complicated formula — and it isn't often stated in newspaper bond tables. Brokers have access to the information, and it's available on websites that specialize in bond information or bond trading.

Making money

There are two ways to make money with bonds: You can either buy or hold a bond until it fully matures, or you can trade it to make money on its resale value. Buying and holding allows you to collect interest payments, while trading allows you to profit from a bond's appreciation in value.

Buy and hold

You can use bonds conservatively to provide a steady income. In that case, you would buy a bond when it's issued and hold it, expecting to receive regular, fixed-interest payments until the bond matures. Then you would get the principal back to reinvest.

If you buy at par, and hold the bond to maturity, inflation, or the shrinking value of the dollar, is your worst enemy. The further in the future the bond matures, the greater the risk that at some point inflation will rise dramatically and reduce the value of the dollars that you are repaid. Conversely, if the rate of inflation is modest, the risk is minimized.

If a bond's yield is higher than newly issued bonds, other investors and traders may want to purchase the bond. This increase in demand for the bond leads to an increase in its value. When this occurs, it may become profitable to sell the bond. In this way, an increase in the price of a bond, or its capital appreciation, can produce more profits than would hold the bonds to maturity.

Trading

One investor doesn't hold many bonds, particularly those with maturities of five or more years, from the date of issue to the date of maturity. Rather, investors trade bonds in the secondary market. The prices fluctuate according to the interest rate the bond pays, the degree of certainty of repayment, and overall economic conditions — especially the rate of inflation, which influence interest rates. If interest rates go up, you can lose money by selling an older bond that is paying a lower rate of interest. In this instance, potential buyers will typically pay less for the bond than you paid to buy it.

More aggressive investors trade bonds, or buy and sell them as investors might with stocks, hoping to make money by selling a bond for more than they paid for it. Bonds that are issued when interest rates are high become increasingly valuable when interest rates fall. That's because investors are willing to pay more than the face value of a bond with an 8% interest rate if the current rate is 5%. Similarly, the higher the bond's yield, or yield to maturity, the higher the return you'll receive from your investment.

Research and evaluation

Since bonds come in such variety, it's important to research bond investments so you can make the best selection. Investors want to know the risks in buying a bond. Those risks include not getting your interest payments and principal back at maturity. It's almost impossible for an individual to do the necessary research, since public information is limited. But rating services make a business of it.

Rating services

When you buy a bond issued by a corporation or municipal government, you can use rating services to research the investment risks that you face. You can get the rating information directly from the rating services, the financial press, or from your broker or financial adviser.

Among the best-known services are Standard & Poor's and Moody's Investors Service, Inc. The rating services pass judgment on municipal bonds, all kinds of corporate bonds, and international bonds. U.S. Treasury bonds, bills, and notes are not rated. The assumption is that they're absolutely solid since they're obligations of the federal government, backed by its full faith and credit. This means the government has the authority to raise taxes to pay off its debts.

How bonds are rated

Rating services consider many key issues in deciding how to rate a bond, such as:

- The bond issuer's overall financial condition
- The issuer's debt profile
- How fast the company's revenues and profits are growing
- The state of the economy
- How well similar corporations or governments are doing given the current economic environment

The primary concern of these rating services is to alert investors to the risks of a particular issue, and to continue evaluating the financial condition of the bond's issuer until the bond reaches maturity.

Depending on the issuer's current and ongoing financial condition, a bond's rating may rise or fall in quality. A drop in a bond's rating is one of the risks you face as a bond investor. If an issuer's financial condition deteriorates, rating services may downgrade the rating of a corporate or municipal bond. In the worst-case scenario, the bond goes into default. Default occurs when the bond issuer fails to pay interest as it comes due and/or fails to repay the par value of the bond at maturity.

Rating Systems

The bond quality rating systems of the two major services are similar, but not identical. Both services also make distinctions

within categories Aa/AA and lower. Moody's uses a numerical system (1,2,3,) and Standard & Poor's uses a + or -.

Investment-grade generally refers to any bonds rated Baa or higher by Moody's, or BBB or higher by Standard & Poor's. Junk bonds are the lowest-rated corporate and municipal bonds — meaning there's a greater-than-average chance that the issuer will fail to repay its debt. But investors may be willing to take the risk of buying these low-rated bonds because the yields are often much higher than on other, safer investments. However, the prices are volatile as well, exposing investors to additional risk if they have to sell before maturity.

Buying and Selling

Newly issued bonds are sold in the primary market, where bonds are available directly to investors without any intermediary — or any commission. Brokers and banks may buy large amounts of bonds in the primary market, and then sell them to investors in the secondary market, where bonds are bought and sold after they are issued. It is common for a bond to change hands a number of times on the secondary market before it matures.

The primary market

If you buy a bond when it's issued, or sold for the first time, you typically pay par value, or the face value of the bond. If you hold the bond until it matures, you earn the coupon rate for as long as you own the bond, and the yield is the same as the coupon rate. At maturity, you get par value back.

For example, if you buy \$10,000 worth of 10-year fixed-rate bonds paying 4.5% at issue and hold your investment to maturity, the rate and the yield are both 4.5%. You would earn \$4,500 in interest (\$450 a year for ten years) and get \$10,000 back at the end of the term.

Buying Government Bonds

Government bonds (U.S. Treasury bills and notes) are available directly to investors through a program known as Treasury Direct, as well as through brokers. Most agency bonds and municipal bonds are sold at a par value of \$1,000, but require you to buy them in quantity, sometimes as much as \$10,000 or \$15,000 worth of that particular issue. Brokers, who often buy large denomination Treasuries (\$25,000 or more), sell smaller amounts of these bonds to individual investors.

The secondary market

When you buy or sell bonds after the date they are issued, they trade on what's known as the secondary market, which is where most bond trading occurs. The corporation, government, or agency that issued the bond gets no income from these secondary trades as it does when it first issues the bonds in the primary market. But when the bond matures, the issuer repays the par value to the current owner.

If you buy in the secondary market, you may buy at par value, at a premium, or at a discount.

- **At a premium:** If you buy a bond at a premium, you'll pay more than the par value. Usually, bonds sell at a premium when their coupon rate is higher than the prevailing rate on similar bonds. Although you'll earn a higher rate, your yield will be lower than the bond's coupon rate since you paid more for the bond.

- **At a discount:** If you buy a bond at a discount, you'll pay less than par. The bond is likely to be paying an interest rate that's lower than the current rate. But your yield will be higher than the coupon rate since you paid less for the bond.

Trading and selling

The National Stock Exchange and Mumbai Stock Exchange, despite their names, also list a large number of bonds. Their bond rooms are the scene of the same kind of brisk auction-style trading that occurs on the stock-trading floor.

Most bonds that have already been issued are traded over the counter (OTC) — a term that really means over the phone. Bond dealers across the country are connected via electronic display terminals that give them the latest information on bond prices. A broker buying a bond communicates electronically to find out which dealer is currently offering the best price and calls that dealer to negotiate.

Brokerages also have inventories of bonds that they want to sell to clients looking for bonds of particular maturities or yields. Sometimes investors pay less by buying bonds brokers already own or make a market in as opposed to bonds the brokers have to buy from another brokerage firm.

Risks

As with any investment, there are risks inherent in buying even the most highly rated bonds. For example, your bond investment may be called, or redeemed by the issuer, before the maturity date. Economic downturns and poor management on the part of the bond issuer can also negatively affect your bond investment. These risks can be difficult to anticipate, but learning how to better recognize the warning signs — and knowing how to respond — will help you succeed as a bond investor.

Calls

If a company, agency, or the government calls the bonds you own, it redeems your investment and pays back your principal. Issuers may call bonds if the interest rates drop and they have enough money on hand to pay back outstanding debt. By calling the bonds, they eliminate the expense of making further fixed-interest payments for the duration of the bond term, and can issue new bonds at a lower rate and save money.

If your bond is called, you receive no more interest payments from the investment, forcing you to find another place to invest the money earlier than you anticipated. And if the company called your bonds due to an interest rate drop, you will find yourself reinvesting the money at a lower, less attractive interest rate.

Economic risks

Economic conditions affect the value of bond investments. Interest rates and inflation are two major economic factors that directly affect the worth and future of a bond.

Interest rates

Changing interest rates represent a significant risk. If you own a bond that was issued before an interest rate increase, you may lose money if you sell the bond before maturity, since its price will probably be lower than par value. As interest rates fluctuate, the bonds you hold can become less attractive, as investors and traders seek other bonds that pay higher interest rates.

Further, when interest rates are low, many investors put their money into stocks to get a higher return. Lack of interest in bonds can depress bond prices.

Inflation

The other economic risk bondholders face is rising inflation.

The risk of holding a bond to maturity is that rising inflation could erode the buying power of the interest payments as well as the value of the principal. The longer you hold a fixed-income investment, the more likely it is that inflation will erode its value.

Management risks

The bond issuer may find itself in financial trouble. This risk, occurring most often with corporate bonds, can seriously diminish your return, or make it disappear completely.

Downgrading

One danger bondholders face — and one you can't anticipate — is that a rating service may downgrade its rating of a company or municipal government during the life of a bond, creating a fallen angel. That happens if the issuer's financial condition deteriorates, or if the rating service feels a business decision might have poor results. If downgrading occurs, investors instantly demand a higher yield for the existing bonds. That means the price of the bond falls in the secondary market. It also means that if the issuer wants to float new bonds, the bonds will have to be offered at a higher interest rate to attract buyers.

Default

The greatest risk you face is default, which occurs when the issuer doesn't live up to its promise to pay. Issuers who default on their loans can default on interest — which means you receive your principal but the interest is not paid. An issuer can also default on repayment, which means you receive some of your interest but lose your principal. Thoroughly researching bonds can help you protect yourself from some risk, but sometimes even the best-looking investments can, in time, turn out to be troublesome.

Notes

LESSON 37

INVESTMENT IN REAL ESTATE / HOUSING

Over the past couple of years primarily due to tax sops on home loans a lot of end-users have bought real estate for own use. Moreover some people already have investments in properties through the ownership of their home or through inheritance.

This article tries consider real estate from the viewpoint of investment in income-earning property, either residential or commercial. Real estate as an investment is different from financial instruments such as Shares, Fixed Deposits, Corporate Bonds, Mutual Funds, Gold and Silver etc.

Real estate purchase in India is currently limited to direct purchase of property either alone or with others. Investment in real estate through Real Estate Investment Trusts, as happens in some developed markets, is non-existent in India. Thus the amount of investment required normally is higher than other investment avenues. Investment in property has substantial advantages. The advantages include pride of ownership, personal control, possible self-use and occupancy, security of capital, high operating yield, leverage for loans, and tax shelter. Moreover being one of the basic need of Humans - real estate will never go out of fashion.

Return from real estate investments is obtained from rental/ lease/deposit interest income and possible capital appreciation, can be enhanced by the benefits of leveraging (taking a loan against the real estate asset). Obviously a property investment with no income, such as vacant land, is entirely dependent on capital appreciation for performance.

Investment in Real estate does not require day-to-day tracking unlike investment in stocks and perhaps bonds (in an unstable interest rate scenario). The inherent characteristics of real estate present the investor with numerous opportunities to generate extraordinary profits. If an investor can learn to carefully analyze or exert some degree of control over the physical, legal, social and financial aspects of a parcel of real estate, a strategy can be developed that will increase returns relative to risk.

For example, an astute investor will endeavor to identify the best locations in town in which to purchase property, and invest in and develop a product that can be adapted to changing lifestyles. Some of examples of these are investment made in locations vis-à-vis Metro Rail project in Delhi 5 years back & investment made in IT Corridor in Bangalore in a similar time frame. A boom in the retail properties in high residential density locations in major cities is also an example of the same. Often overlooked, however, are the inherent disadvantages and risks of real estate investments. One should be aware of the pitfalls that may be encountered. The most common of these are:

Illiquidity

Direct investment requires large commitment of funds and that makes diversification of an investor's portfolio difficult. Real

estate is also difficult to convert to cash quickly. However, real estate may be used as collateral for a loan.

Maintenance burden

Property maintenance involves significant amount of time effort and costs.

Government controls

Real estate has significant government involvement. This is unlike most other investment avenues. This includes controls over ownership, land use and other planning controls and landlord and tenancy legislation. Government charges: Government uses real estate as a taxation base through stamp duties, land taxes and general levies at the municipal or state levels. Moreover Government decision on infrastructure development or other wise have substantial impact on Real Estate prices.

Real estate cycles

The long-term trend in real estate values has been to approximate the general inflationary levels in the economy. However, within this long-term trend, there are periods of rapid growth and other periods of growth well behind the inflation trajectory. Real estate can be regarded as a dangerous investment in the medium and short run, but is often considered safe in the long run. In fact an investment horizon of less than 2-3 years in most cases would not end up being profitable-primarily due to high transaction costs.

Legal complexity

The legal contracts between property owners, financiers and tenants are generally quite complex. Moreover ownership history etc. can lead to complexity in transactions.

High Transaction Cost

Transactions cost in a real estate investment are higher than most other investment avenues. This is primarily due to government taxes & duties on real estate transactions. A house needs to appreciate about 10 - 15 percent to cover the initial purchase costs as well as the selling costs. If you sell before that appreciation has occurred, you will end up having to absorb those expenses.

Lack of information

The real estate market is one of the most information inefficient markets. The information necessary to make informed decisions are difficult to obtain, often imprecise, and sometimes misleading or contradictory. This contrasts with the relative information efficiency of securities markets. Having said that right information at the right time can lead to extraordinary profits. If you are lucky enough to have found a property (due to information inefficiency) that is substantially below market rates, it can lead to a high rental income or capital appreciation or both.

The diversified nature of property is, however, extremely useful for asset allocation purpose. For example, prices of properties

in various locations within a city may be maybe moving in separate directions. Commercial property and industrial property may be doing something else. Within commercial also Retail & Office Space might be going in separate directions. Having said that it requires substantial funds to achieve diversification in real estate.

Budget 2002-03: Housing Finance

The initiatives taken in the housing finance area in the last four years have shown positive results. Total disbursement from housing finance institutions in 2000-01 was Rs 26,300 crore, a growth of about 28 per cent in the year. This amount financed the construction of about 28 lakh houses, much higher than the annual target of 20 lakh houses. In the current year the growth rate is expected to be around 35 per cent. To further strengthen housing finance the following measures are being taken:

- Consequent to the amendment to the National Housing Bank Act, NHB has commenced securitisation of housing loans and is operationalising foreclosure of mortgages.
- The NHB will launch a Mortgage Credit Guarantee Scheme, which would be provided to all housing loans thereby fully protecting lenders against default. This will make housing credit more affordable thereby also increasing access to housing credit in rural areas.
- The target under the Golden Jubilee Rural Housing Finance Scheme is proposed to be increased to 2.25 lakh for 2002-03, up from 1.7 lakh in the current year. About 1-lakh units have already been financed up to December 2001.
- The allocation of the Indira Awas Yojana is being increased by 13 per cent to Rs 1725 crore for 2002-03.

How Banks / Instt. Calculate the Interest Rate on a Housing Loan

Name of Bank calculation	Method of calculation
Andhra Bank Housing Finance	Monthly reducing
Bank of Baroda finance Ltd	Yearly reducing
Canfin homes Ltd	Yearly reducing
Citibank	Monthly
Dewan Housing finance Corp	Yearly
GIC Housing Finance Ltd	Monthly
Gruh Housing Finance Ltd	Yearly
GLFL Housing Ltd	Yearly
Global Housing Finance Corp	Monthly
HDFC	Yearly
HUDCO	Yearly
Home Trust Housing Finance	Yearly
Indbank Housing Ltd	Half Yearly
LIC Housing Finance	Yearly
Livewell Home Finance Ltd	Yearly
PNB Housing Finance Ltd	Yearly
SBI housing finance	Daily

Vysya Bank Housing Finance	Yearly
Vibank Housing Finance	Yearly
Vijaya Home Loans Ltd	Monthly
Weizmann Homes	Yearly

Solving the EMI Puzzle

Do you know that when you take a loan for buying a house from a bank or a financial institution, you pay it back in the form of equated monthly installments (EMIs). And if you do know, I'm sure you have wondered what an EMI is all about. Not only that, you would want to know how you can get the best EMI deal. For all this, and more, let us see what the EMI game is all about.

What An EMI Consists Of?

When you take a loan, you not only have to pay back the amount of money you have borrowed, but also the cost of borrowing, which is the interest rate on the loan. The cost of the loan will vary depending upon the number of years you are borrowing for. Usually, a longer term loan will be more expensive overall, than a shorter loan, because simply put, the lending institution has taken a risk, over a longer period of time.

An EMI's amount is dependent on the principal amount borrowed and the interest that is levied. The number of EMIs on the other hand, will be dependent on the tenure of the loan. The longer the loan period, the more number of EMIs you need to pay.

The EMI usually remains constant throughout the period of the loan. However, what part of this is used to pay off interest and what part to pay off the principal varies. In the beginning of the loan repayment period, the interest rate component of an EMI is higher and the principal amount is lower. Later on, as the years go by, the principal amount becomes higher and the interest rate becomes lower.

How Is An EMI Calculated?

An EMI can be calculated on a daily reducing, monthly reducing, quarterly reducing, half yearly or yearly reducing basis. The EMI will be lowest, if it is calculated on a daily reducing basis.

Daily Reducing Basis: Even better than a monthly reducing calculation is a daily reducing method, which some banks apply. Let us take an example to understand this: Suppose your total loan amount is Rs 1 lakh, your rate of interest is 12% per annum and the number of years for which loan taken is 15 years.

Presume that this loan is sanctioned on August 1, 2000. You decide to pay, Rs 10,000 back to the bank, somewhere towards the middle of the month, say August 15. The bank calculating on a daily reducing balance basis, will see the total principal outstanding as Rs 90,000 from August 15 itself. So, for the month of September, they will calculate interest on Rs 100,000 for the period of August 1 to August 14. From August 15 to August 31, they will calculate interest on Rs 90,000, which is the new, lower, principal outstanding. With a lower outstanding the total interest paid out reduces and so does the EMI.

One bank, which is currently using the daily reducing method, is State Bank of India's housing finance scheme.

Monthly Reducing Balance: Now, let us take a real life example of an EMI calculated on a monthly basis. Keeping the loan amount at Rs 1 lakh, the period as 15 years and the rate of interest as 12%, the bank will change the principal outstanding every month. After you pay your EMI for the month, the new reduced amount will be calculated only for the next month.

Taking the above example, this bank will continue to levy interest @ 12% on Rs 100,000 for the entire month of August (from August 1 to August 31). Even though you have paid an amount of Rs 10,000 on August 15, the new balance of Rs 90,000 will be considered only for the month of September. This means that you continue to pay interest on an additional Rs 10,000 for 15-16 days for the month of August.

Similarly, in a quarterly, half yearly or annual reducing balance the interest is levied according to principal outstanding at the end of these periods. Progressively, the EMI works out to be more, with the highest being in an annual reducing basis. Some of the better-known financial institutions, like HDFC, use the annual reducing method, so remember always to check how the interest is being calculated, before you decide on a housing finance institution.

Taxing times for home loan transfers

Sudeep Khoje, a resident of Andheri with a salary of Rs5 lakh per annum, decided to repay his housing loan at 15.5%, by taking a loan at 12.5% from another institution. Apart from the vexing issue of getting the documents from the old institution, what he was not at all clear about, was whether the new loan taken to repay an old loan would be eligible for income tax benefits.

So, he approached a few players in the housing finance industry as well as some tax lawyers to get clarity on the issue. While some said that the second loan would qualify, others said it would not. Without the tax benefit, he was as good as dead. Then, a lawyer friend called him up. His heart jumped with joy when he heard the news. Yes! If he had taken a new loan to repay an old one, the new loan was eligible for tax deductions. So Khoje went ahead and happily repaid the higher interest loan and transferred his loan to a lower interest rate.

What Khoje went through was not only his predicament. A number of borrowers wanting to refinance an old loan are confused over what exactly the tax laws are. Let us see what the income-tax guys have to say on this...

A Central Board of Direct Taxes (CBDT) circular, dated 20.8.1969, states clearly: "If the second borrowing has been used to repay the original loan and this fact is proved to the satisfaction of the income-tax officer, the interest paid on the second loan would also be allowed as a deduction under section 24(1)(vi). Section 24(1)(vi) refers to the tax deductible on housing loans. It says that where the property has been acquired, constructed, renewed or reconstructed with borrowed capital, the amount of any interest payable on such capital shall be allowed an admissible deduction in the computation of income from the said property.

Says N. Varma, chairman, Bombay Chartered Accountants Society: "The CBDT circular overrides all tribunal judgements which may have been given against the income tax assessee. So

in case, an assessee wishes to take the tax benefit on the interest paid, he/she should cite the CBDT circular.

State Bank of India's legal department officials also stated that the second loan would be eligible for a tax rebate on principal as well as interest. "However, the tax rebate on the interest payment would be eligible up to a maximum of Rs30000 for loans taken before April 1, 1999," deputy general manager S.K. Sinha at SBI's legal department clarifies. This means that irrespective of when you have taken the second loan, the tax deduction limits will continue to be the same, as on the original loan. This would be applicable for interest as well as principal payments.

Let us see what the tax benefits on the interest payable on your housing loan are. The finance minister has raised the deductible amount on interest payable to Rs1 lakh for loans taken after April 1, 2000, from Rs75000 earlier. This means that while calculating your total taxable income you can deduct interest paid for a housing loan up to Rs75,000 per annum. Section 24 of the Income Tax Act, however, states that this is for a self-occupied house.

For principal repayment, the IT Act under Section 88, has now allowed 20% of up to Rs20,000 per annum of principal repayments, as a tax rebate which can be used while calculating total tax liability. This means that while you can use your LIC payments, or investments in units for tax rebate, you can also show your principal payments to get rebates on your tax payments. Earlier the amount was 20% of Rs10,000.

The confusion regarding the tax issue on refinance arises firstly because a large number of players in the housing finance industry, as well as tax experts, are unaware of the 1969 CBDT circular. According to HDFC, the premier housing finance institution, the tax laws regarding refinancing an old loan were not clear and that an individual who had taken a second loan, to repay the first one, was not eligible for a tax rebate. "The income tax authorities believe that a loan should be eligible for tax deduction, only if it leads to the creation of a new asset. However, in the case of refinance no new assets are created," he says.

The confusion also arises as the interpretation of the circular, is largely left to the income tax authority. Says S. Shekhar, tax expert at ICICI: "There are no clear cut regulations governing loan transfers. The circular states that the second loan should be taken to repay an earlier loan and the fact should be proved to the satisfaction of the income-tax officer. However, there is no list of documents given in the circular, which will help the assessee prove conclusively that the second loan has been taken for paying off the first one. How is the assessee to prove that?"

Gautam Nayak, chartered accountant, feels that the language of the circular is not clear and has left grey areas. However, while I was able to dig out instances where the tax deduction was permitted in the case of the assessee taking a second loan, rulings denying the same were difficult to procure. Some interesting facts culled from earlier rulings regarding refinancing of old loans which came to light: Tax benefits on interest on money borrowed for house property is allowable only for the original loan and for a second loan taken to repay the first loan and not for subsequent loans. This means that if you have

already availed of one loan to refinance the original loan and want to now avail a third loan to refinance the second loan, tax rebate on interest payments will not be permissible. This is because the Section 24 (1) only talks of the second loan and not of subsequent loans. Even if you take the second loan at a rate of interest higher than the original loan, you will be eligible for a tax rebate on the second loan. (Though why somebody would want to do that!) The ruling states that “in the absence of material to show that the transaction was a colourable one” deduction of interest at higher rate on the secured loan cannot be disallowed. So, while there may have been a debate in your mind over whether refinancing an old loan can be eligible for tax rebates, in case you cite the 1969 CBDT circular, you do stand on safe ground. The catch comes however, in proving the case to the satisfaction of the income tax officer whose ward you come under. So, be prepared there maybe a few documents you may need to keep with you if you are planning to refinance an old loan.

Home Loan Transfers: A Long and Tiring Journey

Now that the housing loan rates are down you may have started thinking of transferring your housing loan, taken four years ago, to another institution offering a lower rate of interest. Fat chance, says the institution on whose books your loan sits right now. Some of the customers say that the original providers of the loan have delayed or refused to release the property documents.

The cause of this imbroglio can be understood when one witnesses the competition between HDFC — the leader thus far — and ICICI, the new kid on the block. The latter is slowly but steadily strengthening its presence in retail housing. In the first year of ICICI's housing finance operations, FY99, it disbursed loans worth Rs3780 mn. HDFC does volumes 11-12 times more than this figure. Its disbursements were Rs34240 mn in FY99 and Rs44930 mn in FY2000. Now ICICI has pegged its rates, for loans having tenure up to 20 years, at 12.75%. For similar loan tenure, HDFC charges a rate of 13.00%. When you compare the loan rates, the difference may seem marginal. However, the outgo could be enormous for a consumer who takes a loan of Rs0.8-1 mn.

Customers who wished to avail of a lower rate of interest tried transferring an earlier HDFC loan to ICICI but ended up going round in circles. The reason being that HDFC did not release the relevant housing documents. And you obviously cannot have the loan transferred until the papers are in the possession of the new institution.

Consider the case of Mr Sudeep Khoje, who works in a reputed media house. He wished to transfer his HDFC loan to ICICI, which does not levy a pre-payment penalty, unlike HDFC, which still charges 2% if the loan is pre-paid. He soon realised that it would be very tough to recover his housing documents from HDFC.

HDFC asked him to shift his loan to its floating rate structure instead of moving out. Under this rate, 12.75% is charged for all loans, which is similar to that of ICICI's. However, the downside with the floating rate is, if the interest rates go up, the customer will end up paying much more than if had taken a

loan in the fixed rate structure. And with government borrowing showing no signs of ceasing, it is likely that interest rates may well move up. “So, if I want the predictability of a fixed monthly outgo, the variable rate structure may not be the best bet for me,” he adds.

ICICI itself is quite ambiguous about the loan transfer issue. Referring to the loan transfer scheme, Shikha Sharma, head-personal financial services, ICICI, says, “We never really formally tried launching this.” Talking about the delays in procuring documents she says, “Some amount of time is taken in releasing the documents as nobody would want to lose business.” She says that they are not major players in the refinance game and that currently they are only refinancing for selective clients.

So why are the incumbents behaving like jilted lovers? There are two reasons. One, for an established player like HDFC — market share about 60 per cent — a price [rate] cut hurts more. Two, it creates an asset-liability mismatch. “The institution may have raised bonds at a high interest rate so, a pre-payment may lead to a loss of profitability for the institution as well as an asset-liability mismatch,” says S.B. Sayankar, chief manager-social banking, Bank of Baroda.

When asked whether HDFC indulges in delaying tactics, sources in the institution retorted that since they are the ones who take the pains to establish the creditworthiness of the customer, why should any other institution get its benefit? Why, they question, should they make it easy for the customer to walk away?

This argument has as much logic in it as Lewis Carroll's Jabberwocky. The customer doesn't get the loan transfer facility free of cost. At HDFC, he has to pay a huge 2% pre-payment penalty (on the outstanding amount of the loan) for choosing another institution. Also, if a corporate is allowed to retire its high cost debt with a lower one in an easier interest regime, should the individual be denied this freedom? R Challu, DGM, personal banking at State Bank of India, says, “Though it is natural that nobody would like to lose business and they may use delaying tactics, this does not happen at SBI.” SBI's total housing disbursements stand at Rs9650 mn (1999-2000). Of this, loans transferred from other institutions account for approximately Rs1000-2000 mn.

There are other reasons for the tough talk from the incumbents. “In the earlier years, this problem did not exist much, because the interest rates were more or less the same in all institutions,” says B.C. Basumatary, deputy general manager, National Housing Bank. Now, there is a difference between the rates of the various housing finance companies. He also adds: “With securitisation getting legal status, HFCs are keen to beef up their good loan portfolio and would definitely not like to lose good customers.” Institutions like HDFC, LIC Housing, SBI Housing, along with NHB, are looking at a pilot securitisation issue a month or so down the line.

So, while housing companies' battle for market share, can the ordinary consumer hope for some succour? If he uses his wits, then he surely can. Gautam Adhikari (name changed), a senior executive with a travel agency, hit upon a good solution of re-setting the interest rate with his own institution. He had taken a

20-year loan of Rs0.7 mn with LIC Housing Finance at a 15.5% rate of interest per annum almost a year and a half back. The interest rates for a 20-year loan have now fallen to 12.75-13%. He wished to avail of the lower interest rate in the market and approached ICICI. However, since they did not have a loan transfer facility, he went back to LIC Housing and asked them to readjust his loan to a new, lower rate scheme.

The rates at LIC Housing are now 13.75% for the same period. Though LIC Housing asked him for a pre-payment penalty of 1.0% in addition to a 1.5% processing fee, he was able to convince them that since he was not walking away from the institution, it should not levy the pre-payment penalty on him. The institution agreed, but insisted on the processing fee of 1.5% to make up for the loss caused by the shift to a lower rate. So, his equated monthly installment (EMI) remained the same, but because of the lower rate of interest, he will now be able to pay off the loan in 15 years. Effectively, he was able to cut the interest rate outgo by 1.75% though he incurred a one-time cost of 1.5% of his loan outstanding. It made sense for him to do this, as the loan was a relatively new one and the outstanding on which he would take a recurring interest rate burden, was quite large. So, despite a one-time payment charge, his recurring cost would come down.

Some points to remember on loan transfer:

- Interest rates may look upwards again, so if you wish to avail a loan transfer do so now, by locking an old loan into a new, lower rate loan.
- Be aware that the old institution will not allow you to walk away easily.
- A loan transfer makes sense when the loan amount outstanding is still large.
- Institutions are always on the lookout for a good loan. Try and convince your own finance company to provide the benefit of a lower interest rate regime. They will respond.
- Check out what is the pre-payment penalty for an old loan. Some institutions have waived it off.
- Check out the tax benefits relating to a loan transfer. The tax benefits may or may not accrue to you if you go in for a loan transfer, as there is currently no income tax ruling on this. (We will deal with this at length later).
- Try and get the new organization to directly buy the loan from the old one, by paying a certain premium. Do not try and chase documents yourself.

Should you Go in for an Adjustable Rate Home Loan?

On March 8, HDFC received 2,000 phone calls. No, they were not giving housing loans for free. They had simply introduced a new scheme. The officers went a little crazy, telling prospective homebuyers about its new adjustable rate home loan (ARHL) scheme. How many of these phone calls would materialize into clients for HDFC is another question. The ARHL is a scheme where the interest on the loan varies with HDFC's retail prime lending rate. The adjustable rate at 12.75% is currently 50 basis points lower than the fixed rate at 13.25%. But please remember that the rate is a variable one and HDFC will review it every six months.

Let us see which of you could benefit out of this adjustable rate. Firstly, the loan seems to make sense for those who are in a position to prepay the loan. This is because the adjustable rate loan does not levy any prepayment charges. In a usual fixed rate loan the prepayment penalty is 2% of the amount being prepaid.

Secondly, in case you are willing to take a risk on interest rates it makes sense. In fact, if you are prepaying your loan, you are borrowing money for a shorter period of time, in which case taking a view on interest rates is easier. So, if you are expecting some income through stock options, annual bonus or any other additional income through sale of an old property, opting for the adjustable rate makes sense.

It is also a fact that a large number of us are risk averse. In that case it would be advisable to wait and see how the adjustable rate is moving and then take a view. HDFC offers the option of moving away from the fixed rate to the adjustable rate option. But there is a catch here. There will be a 1% conversion fees levied on the amount that you wish to convert.

Thirdly, in case you wish to take the loan for a period above 15 years, it is worthwhile to check this option. The adjustable loan is available for a period of 20 years. No such option exists in the fixed rate scheme.

In case you are not in a position to prepay the loan, think twice before going in for an adjustable loan. Just the way the interest rates could move down, they could move up. In case the rate moves up, or down, your EMI does not get affected but the period of the loan gets affected. If the rate moves up the loan period gets extended and in case it moves down, the period gets shortened. So, if the interest rate moves up you may end up finding yourself paying off loans for a longer period of time than you expected.

Taking a snapshot of how the fixed rate for home loans have moved at HDFC, you will be pleasantly surprised that for the past 3 years rates have been looking downwards. For a loan above Rs 200,000, while in February 1997 the rate was 17%, in March 1997 it moved down to 16.5% and in July it again moved down to 16%. The rate slid further in April 1998 to 15.5% and continued to dip touching 14.5% in February 1999 and then 13.5% in July 1999. Finally on March 8 2000, it was revised to 13.25%.

The point is how will rates move now? If we take a cue from the past, it could very well continue to look southwards. The adjustable rate loan has also moved down marginally. Since June 1999 when it was first introduced it has moved down from 13.5% to 12.75% on March 8.

LESSON 38

INVESTMENT IN CASH EQUIVALENTS

What Cash Investments are

Cash investments, also called cash equivalents, are short-term investments that earn interest, figured as a percentage of your principal.

One key difference between cash investments and other investments is their liquidity, which means they can be converted to cash quickly and easily with little or no loss of value. For example, if you invest \$1,000 in cash equivalent, you can expect to get \$1,000 back, and perhaps some interest as well. If you invest \$1,000 in stock, you might be able to sell your shares for more than \$1,000, but you might also have to sell for less.

As part of your overall portfolio, cash investments can provide a buffer against fluctuations in the value of your more volatile assets, such as stocks. Keeping a limited amount of your portfolio in cash equivalents also lets you take advantage of new investment opportunities as they arise. And you can use cash investments as part of your emergency fund to cover unexpected expenses.



Types

While all cash equivalent investments are similar in providing liquidity and price stability, there are some important differences among the four major types of investments in this category: certificates of deposit (CDs), U.S. Treasury bills (T-bills), bank money market accounts, and money market mutual funds.

Some cash equivalents, such as money market accounts and money market funds, offer greater liquidity — or access to your money — while others, such as CDs, offer less liquidity but may pay higher rates of interest.

And some cash investments are insured while others aren't. The advantage of insurance is that you can be confident that your money is safe. But the drawback is that insured accounts typically pay a lower rate of interest than uninsured accounts.

Some experts also consider short-term bond funds as cash equivalent investments since they are highly liquid and their value is fairly stable. But unlike any other cash equivalents, you can realize capital gains or capital losses when you sell these funds.

Certificates of deposit

Certificates of deposit (CDs), also known as time deposits, pay interest for a fixed term and usually at a fixed rate. The shortest CD term is usually three months and the longest is five years. In general, the longer the term is, the higher the rate the CD pays. That's to compensate you for tying up your money for a longer period. You can always withdraw money from a CD before its maturity date, but you may forfeit some or all of the interest you expected to earn.

Many CDs require a minimum deposit, sometimes \$1,000 or more, but you generally must deposit at least \$100,000 to get a higher rate for the same term.

Buying CDs

Most local and national banks issue CDs, although you can often get a higher interest rate from an online, or virtual, bank. Like all bank deposits, you may also be able to buy CDs from credit unions, where they're sometimes called share certificates. Most credit union share certificates are insured and may pay more interest than bank CDs.

Some brokerage firms sell CDs as well, usually slices of a large CD the firm has purchased from a bank. You may get a higher interest rate, based on the rate the underlying jumbo CD pays. And you don't have to hold your portion of the CD to maturity as the firm can always sell it to another client at market price, although you may receive less — or more — than you paid for it. The tradeoff is that you may have to pay a sales charge, or commission, which you don't pay when you buy a CD from the bank.

Callable CDs

Some CDs with long terms are callable, which means the bank can call, or redeem, the CD if interest rates drop. On predetermined dates throughout the term of the CD, the bank can decide to cancel your CD and give your money back, along with the interest you've earned as of the call date.

Banks and brokerage firms must tell you when you open the CD that it's callable, and they may pay a slightly higher interest rate for the right to call it. Your risk is that you will have to reinvest your money at a lower interest rate if your CD is called.

Money market investments

Money market accounts and money market funds, offered by banks and mutual funds respectively, resemble checking accounts in that they offer the highest degree of liquidity. For example, you can write checks against your account, withdraw cash, or have the money transferred between accounts the same business day.

But money market accounts and funds pay higher interest rates than interest-bearing checking accounts or regular savings accounts because they typically require higher minimum deposits.

Money market accounts are available at most local, national, and online banks. Most accounts have check-writing privileges, though there's often a limit on the number of checks you may write per month without incurring a fee. Each check may have to be written for a minimum amount set by the bank. And you may be charged a fee or lose some interest if your account balance falls below the bank's minimum.

Money market funds are available from most mutual fund companies, either as taxable or tax-free accounts. All money market funds make very short-term investments to maintain their value at \$1 a share. Taxable funds buy various types of corporate and government debt, while tax-free funds buy municipal debt.

Most money market funds let investors write an unlimited number of checks against their accounts each month, though each check must be for a minimum amount — often \$500. While you don't pay a sales charge to buy a money market fund, there may be a fee if your account value drops below a certain minimum.

Insured Investments

Many cash investments offer the added security of government insurance. High-yielding bank money market accounts and time deposits, such as certificates of deposit, are both insured to a limit of \$100,000 per depositor. Most money market mutual funds, on the other hand, are not insured — although a few fund companies provide private insurance. However, based on past experience, the risk of losing money in a money market account has been negligible. Treasury bills aren't insured either, but they are backed by the federal government, which can raise taxes to repay what it owes.

In general, insured investments pay slightly less interest than uninsured investments. As you diversify, or spread, your cash investments among savings, money market accounts and funds, CDs, Treasury bills, and other cash equivalents, you'll want to weigh the absolute security of insurance against the potential drawback of lower yields.

Fees and charges

The fees and other penalties you may face are another factor in deciding how to diversify your cash portfolio.

Because certificates of deposit (CDs) are time deposits, there is usually a penalty for early withdrawal. In most cases, it means losing some or all of the interest that would have been paid on the account.

Penalties

There may be some ways to minimize the potential problem while still taking advantage of CDs. One solution is to ladder your CD investments, which means that instead of buying one large CD, you buy several smaller ones with different maturity dates. If you have CDs coming due every six months or every year, it may be easier to avoid withdrawing before maturity.

If you know you'll need your CD assets on a certain date, you may be able to arrange an individualized CD with an unusual term, say seven or nine months. That way, you don't lose any potential interest and you have the money when you need it.

You may also owe fees if your money market account or money market fund falls below the required minimum. If you have no

choice but to use the money, it may be smarter to close the account entirely than to pay monthly fees that are likely to wipe out any interest earnings.

With Treasury bills, you avoid sales charges by handling transactions through a Treasury Direct account. And if it seems likely you may need your money, you can stick to 4- or 13-week bills. Having to renew regularly takes a little more time, but it should prevent having to sell before maturity.

Interest vs. yield

The interest income you earn on cash investments may be calculated in two ways:

It may earn simple interest, which means the interest is figured on your principal alone. It may earn compound interest, which means that the interest you earn on the investment also earns interest

How the interest is calculated will affect the yield, or the rate of return on your investment. The more frequently the interest is compounded, the higher the yield.

Doing the math

For example, if you had \$5,000 in an account that paid 5% annually in simple interest for five years, you'd earn \$250 a year, for total interest of \$1,250. In this case the interest rate and the yield are the same — 5% per year.

But the same \$5,000 investment paying 5% compound interest for five years would produce a total of \$1381.41 in interest. Because you're earning interest on your interest, the yield — 5.52% per year — is higher than the interest rate.

However, unless you're investing a large amount of money, it's probably not worth chasing after small differences in yield, since the costs of research and transferring your money may outweigh the nominal increase in earnings.

Your cash allocation

How much of your portfolio should you hold in cash equivalents? It depends on your goals and how long you have to meet them. If you have major expenses, such as college tuition, a down payment on a house, or retirement that you'll have to cover in the next two or three years, you'll want to keep a substantial amount of the money you've set aside for those costs in nonvolatile cash investments.

That's because your portfolio may not have time to recover from a potential market downturn, and you don't want to risk cashing out a substantial portion of your portfolio at a loss. Even so, you may still want to keep a limited percentage of your short- and medium-term investments in stocks or stock mutual funds for the potential growth they may provide.

On the other hand, if you tie up all of your long-term investments in cash equivalents you risk falling short of what you'll need to meet your future goals. That's because cash investments don't provide enough growth to outpace taxes and inflation over the long run.

Your next move

It can be smart to put a certain amount of cash aside — say 5% to 10% of your long-term portfolio — to take advantage of new investment opportunities you've researched, or so that you can invest the same amount on a regular schedule, say every

LESSON 39

INVESTMENT IN CREDIT CARDS

Introduction

“I have the VISA power,” says a beaming Sachin Tendulkar with a credit card in his hands. And not without good reason. After all, that small piece of ‘plastic’ has been acknowledged worldwide much like his batting. In yet another message, a young man on a date with his girlfriend finds that carrying cash is actually a great ‘pain’ in the neck.

From being an item of desire, credit cards have now become every man’s idea of ready money. In India, over the past few years, they have rapidly penetrated urban consciousness and are slowly becoming part of our collective existence. But is everything as hunky dory in the world of credit cards as issuers would have us believe. Or is it necessary to take a closer look at the fine print. Let us help you become a little wiser.

What’s On The (Credit) Cards?

It was my first day in business school. After the mandatory welcome speech by the director and some refreshments later, I saw two well-heeled executives eager to catch the attention of the new recruits. They were from HSBC and had come all the way to give something “free” – not an executive placement in Hong Kong but a credit card, of course.

The students who even posed gracefully to be photographed for the purpose of filling an application form lapped up the offer. The bank representatives present did not feel the need to sell the idea to students. After all these new applicants would be tomorrow’s executives and it always pays to catch them young. Not to be left behind, sales executives from Citibank and Standard Chartered also made an appearance after a few days and, not surprisingly, students grabbed the opportunity to apply for a second card.

So is possessing a credit card akin to having the ‘power’, as Sachin Tendulkar would like us to believe, or there is more to it. The answer, perhaps, lies in how you intend to use it and whether you manage it properly. The key to becoming a successful credit card user depends largely upon your ability to use the positive features of the credit card and setting a manageable limit on how much you’ll use the card.

So let’s take a look at the positive and negative features of a credit card.

The Positives

Want to go take your girlfriend out for dinner? Be smart enough to carry a credit card along with you. Or otherwise, like the young man in the Standard Chartered ad, the cash you have could prove to be ‘a pain the neck’. There are other tangible benefits also. With a credit card one can spare frequent visits to the bank for withdrawing cash. The purchases you make can be paid for after a month or so before it starts attracting interest.

Nowadays, a credit card has many freebies attached to it. For starters, you can log on free air miles and hotel nights every time you use a Citibank credit card. One can also get a certain amount

of extra protection on one’s purchases with a credit card. For example, a HSBC card insures you for lost baggage and damages by theft or fire.

The Negatives

If you are prone to go on shopping binges, beware, the plastic money in your possession makes it a little too easy. And one may not know of it till the monthly bill stares right on your face. Secondly, one may end up paying too much if the balance is allowed to carry over for a long period of time. For this it is important to read the fine print before one applies for a card. There are myriad ways a bank could charge you on the services offered. And God forbid if you happen to lose your card and remain unaware of it. Nowadays credit cards have become game for con artists who have mastered the art of living off them.

Before we go any further, why not become familiar with the various terms and jargons used by the credit card industry.

Credit Card – A credit card is a financial instrument, which can be used more than once to borrow money or buy products and services on credit. Banks, retail stores and other businesses generally issue these.

Credit limit – The maximum amount of charges a cardholder may apply to the account.

Annual fee – A bank charge for use of a credit card levied each year, which ranges depending upon the type of card one possesses. Banks usually take an initial fixed amount in the first year and then a lower amount as yearly renewal fees.

Revolving Line Of Credit - An agreement to lend a specific amount to a borrower and to allow that amount to be borrowed again once it has been repaid. Most credit cards offer revolving credit.

Personal Identification Number (PIN) - As a security measure, some cards require a number to be punched into a keypad before a transaction can be completed. The cardholder can usually change the number.

Teaser Rate - Often called the introductory rate, it is the below-market interest rate offered to entice customers to switch credit cards.

Joint Credit - Issued to a couple based on both of their assets, incomes and credit reports. It generally results in a higher credit limit, but makes both parties responsible for repaying the debt.

Types of Cards

MasterCard – MasterCard is a product of MasterCard International and along with VISA are distributed by financial institutions around the world. Cardholders borrow money against a line of credit and pay it back with interest if the balance is carried over from month to month. 23,000 financial institutions in 220 countries and territories issue its products. In 1998, it had almost 700 million cards in circulation, whose users spent \$650 billion in more than 16.2 million locations.

VISA Card – VISA cards are financial institutions around the world distribute a product of VISA USA and along with MasterCard. A VISA cardholder borrows money against a credit line and repays the money with interest if the balance is carried over from month to month in a revolving line of credit. Nearly 600 million cards carry one of the VISA brands and more than 14 million locations accept VISA cards.

Affinity Cards - A card offered by two organizations, one a lending institution, the other a non-financial group. Schools, non-profit groups, pro wrestlers, popular singers and airlines are among those featured on affinity cards. Usually, use of the card entitles holders to special discounts or deals from the non-financial group.

Standard Card – It is the most basic card (sans all frills) offered by issuers.

Classic Card – Brand name for the standard card issued by VISA.

Gold Card/Executive Card – A credit card that offers a higher line of credit than a standard card. Income eligibility is also higher. In addition, issuers provide extra perks or incentives to cardholders.

Platinum Card – A credit card with a higher limit and additional perks than a gold card.

Titanium Card – A card with an even higher limit than a platinum card.

Secured Card – A credit card that a cardholder secures with a savings deposit to ensure payment of the outstanding balance if the cardholder defaults on payments. People new to credit, or people trying to rebuild their poor credit ratings use it.

Smart Card – Smart cards, sometimes called chip cards, contain a computer chip embedded in the plastic. Where a typical credit card's magnetic stripe can hold only a few dozen characters, smart cards are now available with 16K of memory. When read by special terminals, the cards can perform a number of functions or access data stored in the chip. These cards can be used as cash cards or as credit cards with a preset credit limit, or used as ID cards with stored-in passwords.

Charge Card – Falls between a debit and credit card. Works like the latter and you don't have to be an account holder. Just pay up in full when the bill arrives with the mail. No outstanding are allowed, in other words, no revolving credit facility either. American Express and Diners are providers.

Rebate Card – This is a card that allows the customer to accumulate cash, merchandise or services based on card usage.

Co-Branded Card – This is a marriage of convenience between two service providers who want a trade-off with the other's strengths. Specific facilities are made to members through these tie-ups. So, Times Bank and Citibank have a co-branded card that allows concessional rates for add-on cards or telephone banking. Stanchart and Hindustan Lever Limited have a co-branded card to sell Aviance beauty products. SBI-GE Capital has a co-branded card for retail loans.

Cash Card – Cash cards, similar to pre-paid phone cards, contain a set amount of value, which can be read by a special cash card reader. Participating retailers will use the reader to debit

the card in increments until the value is gone. The cards are like cash — they have no built-in security, so if lost or stolen, they can be used by anyone.

Travel Card – These work mostly as debit cards for the limited purpose of travel. Citibank Dollar Card, American Express, Bobcard Global and Hongbank Bank Thomas Cook International Card are among the players in this section.

Debit Card – It is the account holder's mobile ATM. Open an account with a bank that offers a debit card, and payments for purchases are deducted from your bank account. The retailer swipes the card over an electronic terminal at his outlet, you enter the personal identification number on a PIN pad and the money is immediately debited at the bank. Citibank and a few domestic banks like Times Bank offer this.

Who Gets Its And Who Doesn't

I have sometimes wondered why sales executives run after MBA students to get them to apply for credit cards. The 'free' card is given on a platter, without even a cursory background check on the individual's creditworthiness. What if they run up a huge amount on their bills? What if they default on their payments? Some of them are outstation students from the far reaches of the hinterland with no address in Mumbai.

But then every card seeker is not a MBA student. There are several others who vie for the same piece of plastic but see their applications being turned down. So what's the criterion used by banks to oblige a potential client? Here's a rundown on some of them.

Place of residence: You get full marks if your address is Peddar Road, Mumbai. But it would suffice if you own your flat and don't pay rent for it. But what if you are paying rent? Well you could just change your habitat (as if its so easy to move on these days). However, the longer you have stayed in your rented accommodation, the better are your chances.

Telephone: Graham Bell's invention can of great help to you, since it implies that you can be tracked down to your residence.

Profession: I know of a professor from my college days that ran up close to Rs75000 bill on his Stanchart credit card with no intentions of paying it. He consulted an advocate who advised him just to do the same. No wonder card issuers keep professors and lawyers at an arm's distance. Also on the list are journalists and school teachers as it is difficult to make them pay up. Even whiz kids from the IT sector are not exactly favorites as they are prone to migrate to greener pastures overseas.

Place of work: Card issuers will normally check the reputation of the company you work in, the number of years you have put up there and your designation.

Age: Adults only! You have to be above 18 years of age if you want to have a credit card. If you are young and raring to go at your first job, chances are that banks will tread cautiously.

Other than these broad sets of factors, issuers will also like to check the number of dependents of the applicant, whether he/she is servicing a loan and whether the applicant has another credit card. If a person possesses more than one credit card, one's credit history can easily be verified and depending on the record issuers will think of giving you another card or not.

It is important to remember that issuers don't look at any of these factors in isolation and the sum total of all is deducted to judge whether the applicant is worthy of a credit card or not.

Putting the Genie Back in the Bottle: The Costs of Credit Card Payment

After the revelry comes the hangover. For those who habitually treat their plastic card as the ever-obedient Genie to every command, taking in the details of the monthly bill is like seeing Cutsie transform into a Frankenstein's monster instead.

To command and not be cowed, here is a primer to survive being ambushed.

Renewal: Check the time of the renewal of the card. Are you used to ignoring the credit card issuer's flood of literature or the details of billing. Often, the card issuer or bank will slip in renewal fees and even an unsolicited upgrade of class of card (say, classic to premium that means higher annual fees) with a mild notice: If you don't say 'No', its taken as a 'Yes'.

Interest-Free Period On Every Bill: Not if you have roll over credit. You did take a card not just for convenience. The facility of being able to pay back in bits is very appealing, especially since the interest rates is, say, 2.5 to 3% a month. Did you ever sit down and do some sums to see why the outstanding amount is mounting like crazy? First, the 2.5% averages 30% a year. Next, the outstanding you acquire in the first month has to be cleared in subsequent bills before your fresh purchases can be paid for. Here is how it works. Assuming you have a bill of Rs100 in the first month and you settle Rs25. Your second bill has a fresh purchase amount of Rs100 and the previous outstanding of Rs75 plus interest. If you give Rs50 as part payment, the money goes toward clearing the previous outstanding and the current billing is taken as further outstanding. In other words, the second bill has no interest-free period.

Purchases On Credit: In some shops or retail outlets, card payments means an extra payment added to the bill by an establishment that does not want to encourage plastic money.

Fuel On Credit: Now that you would say is a real boon. Is it? Every time you fill the tank, the service charge that accompanies each transaction could be 2.5 percent. Small change that adds up to a fat sum in the total.

Billing Period: Every cardholder gets the bill in regular monthly cycles. The billing period can be a double-edged sword. If you make a purchase close to the billing date you get shorter payback time and if you buy just after you get a monthly statement, the credit period can be extended to as much as 45 days. This is how. Suppose the first billing date is April 25, after which there is a pay-by-due-date of a fortnight later, around the May 9. A purchase on May 26 will be payable approximately around June 9 but a purchase on April 23 will be payable by May 9, that is a much shorter credit time.

Cash Advance: The clock starts ticking straightaway on this facility. Usually, there are two sets of interest that are applied the moment the cash leaves the teller machine. First, there is a flat

transaction fee. Second there is a rate of interest that is applied on a daily basis. Thus in the bill you end up with a dual interest. The cash advance payment is not included, usually, in the general bill. So either be circumspect or if you have to flirt with temptation than rein in the hook as fast as you can. Clubbing this outgo to a rollover credit habit can be especially fatal.

And, the genie could end up owning you.

Mirror, Mirror on the Wall, Tell me which is the Best of them all

With the credit card truly becoming an international citizen, issuers have begun highlighting the value added features offered along with the basic product. While some of them are offering attractive interest rates, others are luring customers by their reward schemes. With a plethora of choices on offer it is not easy to come to a decide on any particular card. However, a comparison on the basis of a few basic parameters is will help us make an informed choice.

First, there's the credit limit. All banks have different limits set for customers depending upon the type of card in their possession. Even within a particular type of card, limits may vary depending upon the credit worthiness of the individual. This depends, among other things, on the gross income of the individual and the period for which he/she is using the card. However, some banks like Citibank and American Express have cards, which have no set credit limit. Amex, for e.g., has a charge card which has no upper limit and allows one to spend as much as one likes (provided the holder repays the amount at one go). Second criteria could be the lost card liability. If one is traveling and has lost his/her credit card then reporting the loss will not be much of a problem. HSBC, Citibank, Stanchart and Amex can be reached from any corner of the world for information on one's card as well as for reporting the loss. However, except for Amex, all others will mail a replacement card to the holder's mailing address. Amex will replace the card within 48 hours free of cost. Liability for a lost card is nil for Citibank, HSBC, Amex (once the bank is informed about the loss) and the Stanchart photo card. However, the non-photo card carries a liability of Rs1000.

Nowadays, almost all cards come with various goodies attached. These include airline ticket booking and insurance benefits on lost luggage and accidental deaths. HSBC, for eg, offers discounts of 3.5% on domestic airfares and 6.5% on international ones if tickets are charged to their cards. The latest in line of value added features are the rewards programs. Here a cardholder earns a certain number of points by spending a particular sum of money. Stanchart, for e.g., uses a conversion of Rs125 (spent in India) or Rs80 (spent abroad) for one point. HSBC, on the other hand, only allows points collected to be squared against a discount on the annual fees. A minimum of 350 points is needed to get a discount on the annual fee. Citibank awards one point on spending Rs100.

The table below gives an indication of the various value added services on offer from various banks.

Value Added Features	Citibank	Stanchart	HSBC	Amex
Hotel discounts	-	-	-	Yes
Travel fare discounts	Yes	Yes	Yes	Yes
Free global calling card	Yes (G)	-	Yes	Yes
Lost baggage insurance	Yes	Yes	Yes	-
Accident insurance	Yes	Yes	Yes	-
Insurance on goods purchased	Yes	Yes	Yes	-
Waiver of payment in case of accidental death	-	-	Yes*	-
Household insurance	Yes (G)	-	-	-

An innovative scheme offered by American Express, called Balance Transfer Service, helps the cardholder to pay off outstanding on other credit cards. Amex will pay the card issuer and transfer the amount due to the Amex card. And for the first six months the Amex cardholder gets the benefit of a lower interest rate of 1.99% per month as compared to 2.95% for most other banks. For frequent users, Amex has a scheme for waiving the annual fees if the cardholder spends more than Rs 45000 in the preceding 12 months.

Another new thing on the horizon are the so-called co-branded cards. Several of them have been have been launched recently. Companies like Indian Oil Corporation have tied up with Citi bank to launch Indian Oil Citibank card. With this card one does not require to pay a transaction fee for purchasing petrol at any Indian Oil outlet. The card holder gets a 5% discount on all AMCO and Exide make batteries from authorized dealers and Rs 1000 off at select outlets for MRF autocoat car painting charges.

There is also the Times card and Bharat Petroleum BOB card. These cards give you discounts at several outlets. For example the Mahindra Stanchart card gives you priority check-in and checkout facilities at Guestline hotels (run by Mahindras).

The Global Credit Card

The Credit Card has come a long way. It is not at all the timid little piece of plastic it used to be. I was an early victim to the marketing efforts of the first credit card issuers in this country and it was with great pride that I went off on a holiday with a gleaming piece of plastic in my wallet. After the first meal at the hotel I casually tossed the card on top of the bill. The waiter, with what I thought was a suspicious look, took it to the captain. The latter reverentially carried it off to the Manager for inspection. This gentleman, who had obviously seen more of the world than the others had, sagely declared that it was indeed a credit card. He had heard rumors that there were places that accepted these things instead of cash, but his restaurant was not that kind of place. Proud as I was of my shiny new credit card, I would have to put it back in my wallet and fork out the real stuff for the feni and the chicken cafrial. I rushed to the local branch of the issuing bank but that didn't help either. But it

did bring some much-needed excitement into the lives of the people working there, which saw such a thing for the first time. The card was passed around from hand to hand and examined with much reverence and pride, but nobody knew anyone who would accept it. Throughout the trip the same story was repeated with minor variations. Finally, when I got back home the card had, in a manner of speaking, retained its virginity but, on the plus side, I had not bought anything I couldn't afford.

Things got better soon; with the marketing people working overtime, banks soon had more cardholders than they could cope with. Credit cards were really credit cards as you parted with your money well after you bought what you needed (or what you did not need). Without computing power and software, the bank took its own time sending me the bills. Not only did I get nearly a month to pay, the bills themselves found their way to my mailbox after a month or two. No one had heard of an annual fee; interest was an unknown evil and the fact that a couple of restaurant bills did not get charged was all the proof I needed that the free lunch did indeed exist.

Then things changed; as more banks got into the game, competition forced cards to become more "powerful" (their word, not mine). Discounts at member establishments, special offers, reward points and what have you. Unfortunately issuers started believing that they were in this business for profit. Not only did billing become prompt but annual fees, interest on late payments and other unpleasant concepts caught their fancy.

The latest innovation is the "global card" – a card that can be used anywhere in the world, not just in India and Nepal. People who travel abroad frequently will obviously find this a great convenience. As India is part of the globe, the global card can be used here as well and it can use in India for making foreign currency payments through the net, to import books etc.

This is indeed a great development and in tune with the changing times. However, we must not forget one factor: payments by residents of India to non-residents are covered by the Foreign Exchange Regulation Act, (affectionately called FERA). This act is the basis of the exchange control system in India, which is administered by the Reserve Bank of India with the help of banks that it has authorised to deal in foreign exchange. When it comes to expenditure in foreign exchange, not only can you use foreign exchange only for permitted purposes but the amount you spend should not exceed specified ceilings. If you spend foreign exchange for a purpose that is not allowed or in excess of the specified ceiling, you are guilty of violating exchange control regulations.

Usually you buy foreign exchange from an Authorised Dealer, who issues the travelers' cheques or draft or remits the money abroad only if the transaction is permitted under the rules. He makes sure you submit the necessary documents and also takes care of formalities like endorsement on the passport etc. As it is the Authorised Dealer's responsibility to see that you comply with regulatory requirements, you can rest easy.

When you use the card it is different as the Authorised Dealer comes into the picture, if he does at all, well after you have done the transaction. In a way you "buy" the foreign exchange when you sign the charge slip. It is entirely your responsibility to make sure that you have complied with exchange control. The banks,

which issue the cards, have made it abundantly clear that you have to look out for yourself. It is up to you to find out the facts of regulatory life. You should know what the approved purposes are and what the ceilings are for each type of transaction. And if I were you, I would be very, very careful!

Fortunately the Exchange Control Manual tells you the rules in great detail and fortunately the Manual is on the net and, if you have any doubts regarding exchange control, all you have to do is visit the RBI's web site and see for yourself.

Normally when you buy foreign exchange, the bank will tell you at what rate your rupees are converted into the foreign currency and you can often choose whether or not you want to accept that rate. However, when you use the card, your bill will be in Rupees. This means that the conversion rate has already been applied and you have no choice but to accept it. If your transactions are for small amounts this should not bother you too much. But then, try telling that to those "smart" types who compare prices with half the moneychangers in town before buying their BTQ dollars!

FERA requires you to use foreign exchange for the purposes for which it was released. A friend insists that if you are on a business trip and you have been released foreign exchange, it has to be used for travel, hotel expenses etc. So buying that crystal ware his wife has been asking for is, in fact, a FERA violation! When you use travelers' cheques or currency notes no one really knows what you have spent the foreign exchange on. When you use a credit card, you get a detailed bill; so there's no way he can buy that stuff with his card. I am not sure if she bought that line but I can see his point!

Debit Cards in India

Introduction

Not sure how much you keep spending through your credit card? Well this product then, is the answer to all your problems. It combines the benefit of cash and cheque with out you having to carry either of the two.

A debit card is basically a better way of carrying cash or a chequebook. It is an electronic card that one can use as a convenient payment mechanism. The card is generally issued by your bank and is connected through the ATM. Debit cards allow you to spend only what is in your account and purchases should be kept track of just as if you're writing a cheque.

Types Of Debit Cards

There are two types of debit cards and two types of debit card transactions:

- **Direct Debit Cards** allow only "on-line" transactions, also called point-of-sale. An on-line transaction works like a straight ATM transaction. It is an immediate electronic transfer of money from your bank account to the merchant's account. This requires you to enter your Personal Identification Number (PIN) at the store's terminal. The system checks your account to see if there is enough money to cover the purchase.
- **A Deferred Debit Card** looks similar to a credit card, bearing a Visa or MasterCard logo, and can be used wherever your card's brand name is displayed. It is NOT a credit card. Rather, this card allows "off-line" transactions, as well as on-

line. Off-line purchases resemble a credit card transaction. The merchant's terminal reads your card and creates a debit against your account. However, instead of debiting your account immediately, the transaction is stored for processing later — usually within two to three days. Instead of using a PIN, the customer signs a receipt as they would with a credit card. Most off-line transactions are verified immediately to see whether there is enough money in the account.

Regardless of the type of debit card you have, when you use it, the money is subtracted from your bank account.

Benefits Of Debit Cards

- Obtaining a debit card is often very easy. If you qualify to open a bank account, you can usually get a debit card (provided your bank is offering the service)
- When using a debit card, one does not have to show identification papers or give out personal information at the time of the transaction.
- It frees you from carrying cash or a cheque book.
- In case of international travelers, it can save you from having to stock up on traveler's cheques or cash when you travel.
- Debit cards may be more readily accepted than checks, especially in other states or countries as one need not verify the authenticity of the payment and the merchant is assured of immediate payment.
- If you return merchandise or cancel services paid for with a debit card, the transaction will be, generally, treated as if it were made with cash or a check. Customers usually get cash back for on-line purchases; for off-line transactions, the amount is credited to your account.
- The bother of making payments at the receipt of the credit card statement is eliminated.
- In case of credit cards, delayed payments are penalized at 30% p.a. rates. This penalty situation never arises in debit cards.
- Most importantly, debit cards can be used to make smaller value payments, avoiding the need to withdraw cash from the bank for such petty expenses. If a credit card was used for making cash withdrawals a charge is levied and concomitantly interest is charged on the amount such withdrawn from the day of withdrawal.

The debit card base in India in March 2000 was already at 3,00,000. Moreover the usage figures are even more impressive. Seven out of 10 card holders use their card on a regular basis with the average monthly spend on a debit card was Rs 1,400, which puts total annual spends at over Rs5bn. Bare in mind that only two banks namely HDFC Bank and Citibank, in India currently offer their customers debit cards.

Both MasterCard and Visa International have already witnessed a huge rise in their debit card bases in the Asia-Pacific region. After 25 years in the region, MasterCard has built up a credit card base of 80mn, whereas its debit card base, in just four years, has touched 37mn. Visa too, in less than 18 months, built up a base of 48mn debit cards.

Drawbacks Of Debit Cards:

- Unlike a credit card, debit card transactions give you no grace period. They are an immediate, pay-now deal.
- They can make balancing your account tricky if you are not fastidious about keeping receipts and recording transactions in a timely fashion. It is easy to forget, for example, when you pay at the gas pump with a debit card and drive off without your receipt.
- Using a debit card may mean you have less protection than you would with a credit card for goods that are never delivered, are defective or were misrepresented. But, as with credit cards, you can dispute unauthorized charges or other mistakes within 60 days.
- Fees — the debit card could be a costly affair to have, especially when using an ATM that is not affiliated with your bank.

Tips for Responsible Use of Debit Cards

- Do not leave your debit card lying around the house or on your desk at work.
- If your card is lost or stolen, or you suspect it is being used fraudulently, report it immediately to your bank.
- If your card is lost or stolen, close your account and ask your bank for a new account number and PIN.
- Hold on to receipts from your debit transactions. Don't throw them in public trashcans or even in your own trash without first shredding them. Crooks are known to “dumpster-dive” for documents that have account numbers and other personal information.
- Memorize your PIN and do not write it on your card.
- Don't choose a PIN a smart thief could figure out, such as letters corresponding to your birth date or your phone number.
- Never give your PIN to anyone, keep it private.
- Always know how much money you have in your account and review bank statements carefully. Don't forget that your debit card may allow you to access money that you have set aside to cover a check that has not yet cleared your bank.
- Keep your receipts in one place for easy retrieval and better oversight of your account.
- Never give your debit card number over the phone unless you initiated the call and are certain that the recipient is legitimate.

Notes

LESSON 40

GUIDELINES FOR INVESTMENT DECISIONS

There are some basic guidelines that need to be followed for effective investing. Following are the investment basics that initiates a great investment:

1. Setting up your Financial Goals
2. Your Investment Profile
3. Rule of 72
4. The Essential Budget
5. Debt Management
6. Risk & Return
7. Portfolio Diversification
8. Asset Allocation
9. Investing & Taxes.

Setting up your Financial Goals

Money has little to do with some of our most important personal goals. These include spending more time with family, doing volunteer work, or developing a hobby. Yet, other personal goals clearly can be defined as financial goals. These include:

- **Paying off your debts.** By establishing a repayment plan, you can repay your debts in a systematic fashion. A repayment plan may take years. It requires discipline to control your spending. For example, to pay off \$5,000 in credit card debt at 14% interest requires monthly payments of \$240 for the next two years. That's assuming you make no additional charges. As long as you owe, you sacrifice other financial goals for the sake of paying creditors.
- **Saving for a down payment on a home.** You may be thinking about buying your first home in a few years. The normal size of a down payment is 20% of the home purchase price. At today's home prices, this means saving somewhere in the range of \$25,000 to \$50,000. To save \$25,000, you would have to set aside just over \$4,000 a year for each of the next five years, if you can earn an 8% rate of return.
- **Saving for a child's college education.** For the school year that began in August 2002, the average yearly tuition bill at public four-year colleges or universities rose 9.6% to \$4,081, the College Board said in its latest survey. For private institutions, tuition prices rose 5.8% to \$18,273 a year. By setting aside \$260 every three months for the next 15 years, invested at 8%, you will have saved \$30,000. This should make a considerable dent in the future cost of your child's

college education. This assumes you use a college savings plan or other tax-advantaged account.

- **Saving for retirement.** For most of us, saving for retirement is our most important financial goal. We may live 20 or 30 years after we stop working. Financial planners strongly advise against depending entirely on the income you receive from Social Security. To maintain a comfortable living, you may decide you want to save \$500,000 in another 30 years.
- Fortunately, you can invest with a tax-deferred account such as an IRA or 401(k) plan. In addition to postponing any taxes until the future, these accounts offer compounded growth. For example, if you invest \$5,000 a year for 30 years at 8% in an IRA, the account will grow to almost \$567,000. If you were to save with a taxable account and were in the 25% tax bracket, however, the amount would only reach about \$395,000. This is the power of compounding you receive by using a tax-advantaged account.

Finally, keep in mind that it's quite common to have more than one financial goal. It's important to identify all of them, and set up a savings plan for each goal.

Your Investment Profile

To get an idea of your investment profile, start by calculating your investment horizon. This is the number of years that you can invest. Your investment horizon depends on your financial goal. Your goal may be to save for college, retirement, or a down payment on a home. Each goal has its own investment horizon.

For example, saving for retirement at age 60 when you're 25 gives you an investment horizon of 35 years. The longer the investment horizon, the longer you can save and benefit from compounding.

Next, estimate your risk tolerance. Your risk tolerance is your willingness to accept some volatility in the rate of return of your investments in exchange for a chance to earn a higher return. If you expect a higher rate of return, you should be willing to accept a higher degree of risk. This is called the risk-return trade-off.

To get an idea of your risk tolerance, take a few minutes to complete the following risk tolerance quiz:

Question	1 Point	2 Points	3 Points	4 Points
I plan on using the money I am investing:	Within 6 months.	Within the next 3 years.	Between 3 and 6 years.	No sooner than 7 years from now.
My investments make up this share of assets (excluding home):	More than 75%.	50% or more but less than 75%.	25% or more but less than 50%.	Less than 25%.
I expect my future income to:	Decrease.	Remain the same or grow slowly.	Grow faster than the rate of inflation.	Grow quickly.
I have emergency savings:	No.	--	Yes, but less than I'd like to have.	Yes.
I would risk this share in exchange for the same probability of doubling my money:	Zero.	50%.	25%.	10%.
I have invested in stocks and stock mutual funds:	--	Yes, but I was uneasy about it.	No, but I look forward to it.	Yes, and I was comfortable with it.
My most important investment goal is to:	Preserve my original investment.	Receive some growth and provide income.	Grow faster than inflation but still provide some income.	Grow as fast as possible. Income is not important today.

Add the number of points for all seven questions. Add one point if you choose the first answer, two if you choose the

second answer, and so on. If you score between 25 and 28 points, consider yourself an aggressive investor.

If you score between 20 and 24 points, your risk tolerance is above average. If you score between 15 and 19 points, consider yourself a moderate investor. This means you are willing to accept some risk in exchange for a potential higher rate of return.

If you score fewer than 15 points, consider yourself a conservative investor. If you have fewer than 10 points, you may consider yourself a very conservative investor.

This is one example of a short quiz used by financial institutions to help you estimate your risk tolerance. For specific investment advice, you should consult a financial adviser.

Rule of 72

Rule of 72 is an investing rule of thumb that explains how long it takes to double your savings, approximately, for a given savings rate. To use the rule:

1. Start with the number 72.
2. Divide by the rate of return you expect to earn.
3. This is your investment horizon, or number of years you need to double your savings.

For example, if the interest rate you earn is 7.2%, you would double your money in about 10 years:

1. Start with the number 72.
2. Divide by 7.2 to get a result of 10.
3. You would need approximately 10 years, or 120 months, to double your savings.

Rule of 72 does not include adjustments for income taxes or inflation. Rule of 72 also assumes that you compound your interest yearly. If you compounded more frequently, you will reach your goal sooner.

The Essential Budget

Many of us fail to see the relationship between budgeting and saving. Budgeting is a process that starts by setting spending targets that help you to stay within your means. A personal budget is useful in controlling personal expenses.

Reasons for having a personal budget usually change over time. In our 20s, we focus on repaying debts or saving for a down payment on a home. We may want to budget in order to set aside several thousand dollars for a trip around the world. In our 30s and 40s, budgeting is important to help pay for our children's living and college expenses. By the time we enter our 50s, saving for retirement becomes a major financial goal.

Budgeting is the cornerstone of saving. No personal budget often means an inability or unwillingness to identify a potential source of regular savings. A personal budget imposes some discipline on adhering to a savings plan.

Some important steps in setting up a personal budget include:

- **Select a period to measure.** A monthly budget often works best. Most of us pay our rent, mortgage, and utility bills monthly. It is also the period that many of us get paid. If you are paid every two weeks, you can add the amounts to determine a monthly figure.

- **Calculate net cash flow for the period.** Your personal net cash flow subtracts your cash expenses (cash outflows) from your cash income (cash inflows). If you charge with your credit card, add those charges to your cash expenses. Using your credit card is only a means of postponing cash outflows. While you're at it, be sure to add the little items, like those \$4 lattes and video store trips. These items easily add up to \$100 or more in a month.
- **Keep records.** Accurate records will help you to keep a history of several budgeting periods. You can string together 12 months of budgets to create an annual budget. You can use your budget records to compare actual and budgeted spending. The differences in actual and budgeted spending are called variances. Be as precise in your record keeping as you can afford to be.
- **Monitor and review.** Your records help you to compare how well you budget. The key is to identify positive budget variances—where your budgeted cash outflows are less than your actual cash outflows. These variances are a source of funds to save and invest. For example, if you budget \$1,500 in monthly cash outflows but routinely only have cash outflows of \$1,400, you have identified a source of savings worth \$100 a month.
- **Save for an emergency fund.** As you gradually find you can save each month, you may want to first set aside enough for an emergency fund. An emergency fund consists of three to six months of savings. An emergency fund is also called a rainy-day fund and should be used only to pay for unanticipated financial setbacks. These setbacks may include losing a job, becoming ill, or suffering the death of a family member.
- **Invest regularly.** A personal budget may have led you to identify a way to save \$100 a month. Investing this extra \$100 every month lets you take advantage of dollar-cost averaging. Dollar-cost averaging is a basic principle of investing. Studies consistently show that, over time, dollar-cost averaging buys shares at a cheaper price than if you attempted to time your purchases. In addition, your regular contributions fuel the compounded growth of your investments.

The six tables, below, show how even amounts of as little as \$25 or \$50 can grow if invested every month. Investment horizons range from one to 30 years. Interest rates range from 5% to 8%. For example, \$50 invested at 5% every month for the next five years will grow to \$3,400.

The tables also illustrate the benefit of compounding. For example, \$25 invested for five years at 8% grows to \$1,837. However, \$25 invested for 10 years at 8% grows to \$4,574. This is an extra \$900 of compounded interest that you earn during those five years.

1 Year	5.0%	6.0%	7.0%	8.0%
\$25	\$307	\$308	\$310	\$311
\$50	\$614	\$617	\$620	\$622
\$100	\$1,228	\$1,234	\$1,239	\$1,245

3 Years	5.0%	6.0%	7.0%	8.0%
\$25	\$969	\$983	\$998	\$1,013
\$50	\$1,938	\$1,967	\$1,997	\$2,027
\$100	\$3,875	\$3,934	\$3,993	\$4,054

5 Years	5.0%	6.0%	7.0%	8.0%
\$25	\$1,700	\$1,744	\$1,790	\$1,837
\$50	\$3,400	\$3,489	\$3,580	\$3,674
\$100	\$6,801	\$6,977	\$7,159	\$7,348

10 Years	5.0%	6.0%	7.0%	8.0%
\$25	\$3,882	\$4,097	\$4,327	\$4,574
\$50	\$7,764	\$8,194	\$8,654	\$9,147
\$100	\$15,528	\$16,388	\$17,308	\$18,295

20 Years	5.0%	6.0%	7.0%	8.0%
\$25	\$10,276	\$11,551	\$13,023	\$14,726
\$50	\$20,552	\$23,102	\$26,046	\$29,451
\$100	\$41,103	\$46,204	\$52,093	\$58,902

30 Years	5.0%	6.0%	7.0%	8.0%
\$25	\$20,806	\$25,113	\$30,499	\$37,259
\$50	\$41,613	\$50,226	\$60,999	\$74,518
\$100	\$83,226	\$100,452	\$121,997	\$149,036

Since your emergency fund serves a vital purpose, you want to have access to the funds. At the same time, you want to earn interest on these funds. As a result, you should plan to invest it in only the most liquid and safest of investments. These investments include CDs, savings deposits, and money market accounts. All of these instruments are insured by the FDIC for up to \$100,000 per depositor per institution. Money market mutual funds are not guaranteed by the FDIC. However, money market funds seldom drop in value because of the high quality of their investments.

An effective investing technique for your emergency fund is laddering. First, you divide your investments into roughly equal amounts. Next, you deposit these amounts in short-term CDs of different maturities. The length of maturity terms should be spaced at intervals that don't jeopardize your access to at least some of your emergency fund at any given time.

For example, you may wish to divide \$4,000 of a \$5,000 fund into four equal parts, keeping \$1,000 in an account you can access immediately. Next, you may consider investing \$1,000 each in a 3-, 6-, 9-, and 12-month CD. As each CD matures, you extend, or roll over, the CD for one year. This allows you to establish stream of CD investments that mature every three

months. If you ever need more than \$1,000 of your fund, the longest you would have to wait (unless you paid a fee for early redemption) would be three months.

Debt Management

Many of us seek to invest at the same time that we pay off our debts. A failure to manage debt often hinders us in pursuing such major financial goals as saving for retirement or a down payment on a home. The following interest-rate management principles can help you to understand what's at stake:

- **Consumer debt offers no tax breaks.** You cannot take a tax deduction for interest you pay on auto loans, credit cards, or other forms of consumer debt. Interest you pay on most mortgage and home equity debt, as well as on student loans, may be tax-deductible. Tax-deductible interest lowers your effective interest rate of borrowing. To calculate, multiply the stated interest rate by a factor of 1 minus your income tax bracket. For example, if you are in the 25% tax bracket and pay 10% on a home equity loan, your effective rate is 7.5%.
- **Pay off higher-interest debt first.** If you're using a debt repayment plan, pay off debt with the highest interest rate before all others. (Be sure to maintain scheduled debt payments on other borrowings, however.) Make a table of your debts, ranked in descending order by the effective interest rate. Here's a format you can use:

Type of debt	Balance	Monthly Payment	Interest Rate	Effective Rate
Credit card A	\$2,000	\$350	15.00%	15.00%
Auto loan	\$9,000	\$400	10.00%	10.00%
Student loan	\$5,000	\$300	8.50%	6.12%

- **Consider the opportunity cost of paying off debt.** For example, say you have \$5,000 and you're deciding whether to invest or repay debt. From the table, above, you see that you can pay your entire credit card balance, as well as pay down \$3,000 of your auto loan.

If the opportunity cost of debt reduction is investing in a 6% CD, paying off debt is the better deal. You manage to wipe out \$5,000 in debt that has an average combined interest rate of 12%. You should only consider investing if you can earn a rate of return of at least 12%.

Investing at a higher rate of return than your cost of borrowing is called leveraging. Leveraging can be risky. The rate of return you earn can drop unexpectedly, making your cost of borrowing higher than your return. Additionally, your borrowing costs may rise when your rate of return is unchanged.

- **Focus on after-tax returns when making the repay debt-or-invest decision.** Unless you invest with a tax-deferred account, you will owe income taxes on your investments. You may even owe capital gains taxes. If you invest with a taxable account, be sure to calculate your after-tax return.

For example, if your pretax return is 8%, and you're in the 25% tax bracket, your effective rate of return is 6%. To decide

between investing and repaying debt, compare the 6% return and the effective rate on your debts.

Risk & Return

Risk is the uncertainty that you may not earn your expected return on your investments. For example, you may expect to earn 20% on your stock mutual fund every year, but your actual rate of return may be much lower.

For example, the S&P 500 index averaged yearly gains of about 28% for the five years that ended in 1999. In 2000, however, the index declined more than 9% and in 2001 declined another 12%. Bonds, meanwhile, performed better than stocks for the first time since 1990.

The peril of investing in the stock market in 2000 and 2001 underscores the risk-return trade-off. The risk-return trade-off requires that you accept more risk in exchange for the chance to earn a higher rate of return. If unwilling, you should expect to earn a lower return. Conservative investors, for example, are less willing to lose 10% of their investments in exchange for the chance to earn a higher rate of return. Aggressive investors, on the other hand, are willing to accept this risk in exchange for the chance to earn higher returns.

Some investors argue that the late-1990s was a unique period where a unique set of factors drove stock market indexes to record highs. The Internet allowed millions of individuals to buy and sell stocks and mutual funds for the first time. Venture capital firms plowed billions of dollars into companies that went on to sell shares in initial public offerings. In addition, American businesses spent billions of dollars on information technology. This combination of factors may have led investors to lose sight of the risk-return tradeoff.

The following table shows how the risk-return relationship has held over the long term. Annual rates of return are shown for stocks, bonds, and cash for the 50 years ended in 1996:

Annual rates of return, 1946 to 1996	Stocks	Bonds	Cash
Unadjusted for inflation	12.1%	5.8%	4.8%
Adjusted for inflation	7.8%	1.5%	0.5%
Best annualized return (5-year holding period)	23.9%	17.0%	11.1%
Worst annualized return (5-year holding period)	-2.4%	1.0%	0.8%

The table shows that, of the three major asset classes, stocks offered the greatest rates of return over the long term, but stocks were also the most volatile. Divided into holding periods of five years, stocks lost 2.4% in their worst period. Bonds and cash never lost money in any of the periods.

To some degree, you can reduce risk by hedging or diversifying your investments. However, the risk-return trade-off steers investors with little or no risk tolerance toward making smaller allocations to stocks than investors with a high degree of risk tolerance.

Major types of risk include:

- **Investment risk.** Investment risk is the chance that your investment value will fall. Standard deviation is commonly used to measure investment risk. It shows a stock or bond's volatility, or the tendency of its price to move up and down from its average. As standard deviation increases, so does investment risk.
- A common measure of portfolio risk is the beta coefficient. Beta is a value that ranges from +1.0 to -1.0. A portfolio with a beta of +1.0 earns a rate of return that is identical to that of the benchmark index used to compare the portfolio's return. A portfolio with a beta of -1.0 earns a rate of return that is exactly opposite to that of the benchmark index. By investing in securities that have a low or negative beta, you can diversify your investment risk.
- **Market risk.** Market risk is the chance that the entire market where your investment trades will fall in value. Market risk cannot be diversified.
- **Interest rate risk.** Interest rate risk is the chance that interest rates will change while you hold an investment. Higher rates result in lower returns on stocks and bonds, but higher returns on interest-paying investments.
- **Inflation risk.** Bonds are especially vulnerable to inflation risk. This is because a bond's coupon payment is usually a fixed amount. When inflation rises, the present value of the coupon falls. Stocks have less risk since dividends can be adjusted for inflation.
- **Industry risk.** Industry risk is the chance that a set of factors particular to an industry group drags down the industry's overall investment performance. For example, cold weather might adversely affect the retail industry or a cutback in capital spending might adversely affect the information technology industry.
- **Credit risk.** Credit risk is the chance that the company selling bonds is unable to make debt payments. As a result, the company may default on its debt or have to file for bankruptcy.
- **Liquidity risk.** Liquidity risk is the chance that your stock or bond investment cannot be sold easily because of a lack of buyers. Such a security is called a thinly traded security. As a result of a lack of liquidity, you may have to sell the investment at a price below its fair value.
- **Currency risk.** When you buy a company's stocks or bonds, you are buying a piece of that company's business operations. If the company sells products in other countries, you also face the same currency risk the firm faces. The company may or may not hedge its currency risk.
- Currency risk exists in some mutual funds that invest in stocks and bonds of companies outside the U.S. For example, if you buy shares of a mutual fund that invests in Japanese companies, and the Japanese yen falls in value, the dollar value of your fund shares also drops. If the fund has not hedged its currency exposure, it will face a loss in the value of its yen-denominated investments when it repatriates income to the U.S.

- **Prepayment risk.** Prepayment risk affects investors of bonds that are backed by thousands of mortgage loans or millions of dollars of credit-card receivables. Prepayment risk is the chance that borrowers repay debts ahead of schedule. As a result, investors are repaid sooner than expected and have to invest these prepayments when interest rates may not be as high. Borrowers refinance when interest rates decline, increasing prepayment risk.

Portfolio Diversification

An important way to reduce the risk of investing is to diversify your investments. Diversification is akin to "not putting all your eggs in one basket." For example, if your portfolio only consisted of stocks of technology companies, it would likely face a substantial loss in value if a major event adversely affected the technology industry.

There are different ways to diversify a portfolio whose holdings are concentrated in one industry. You might invest in the stocks of companies belonging to other industry groups. You might allocate your portfolio among different categories of stocks, such as growth, value, or income stocks. You might include bonds and cash investments in your asset-allocation decisions. Potential bond categories include government, agency, municipal, and corporate bonds. You might also diversify by investing in foreign stocks and bonds.

Diversification requires you to invest in securities whose investment returns do not move together. In other words, their investment returns have a low correlation. The correlation coefficient is used to measure the degree to which returns of two securities are related. For example, two stocks whose returns move in lockstep have a coefficient of +1.0. Two stocks whose returns move in exactly the opposite direction have a correlation of -1.0. To effectively diversify, you should aim to find investments that have a low or negative correlation. As you increase the number of securities in your portfolio, you reach a point where you've likely diversified as much as reasonably possible. Financial planners vary in their views on how many securities you need to have a fully diversified portfolio. Some say it is 10 to 20 securities. Others say it is closer to 30 securities.

In either case, you'll still pay a lot in brokerage commissions to put together such a portfolio. For example, if the average trade costs \$30, assembling a 10-stock portfolio would cost \$300 in commissions. Surely, a cheaper way must exist to achieve diversification benefits.

Mutual funds offer diversification at a lower cost. You can buy no-load mutual funds from an online broker. Often, you can buy shares of a fund directly from the mutual fund, avoiding a commission altogether. Mutual funds often require an initial investment of between \$1,000 and \$2,500. However, they generally allow subsequent investments of as little as \$25. The Web site of the Investment Company Institute has a list of mutual funds and their toll-free numbers.

Mutual funds hold hundreds of securities in their portfolios. This provides a diversification advantage that's hard to beat. You do face yearly expenses with mutual funds. Management and marketing fees make up most of the fund's operating expenses, which total about 1.5% of your investment each year.

In spite of yearly fees, owning shares of five or 10 mutual funds with different investment objectives may provide great diversification benefits at a lower cost than building a portfolio of individual stocks and bonds.

Asset Allocation

Asset Allocation is the process of spreading your investments across the three major asset classes of stocks, bonds, and cash.

Asset allocation is a very important part of your investment decision-making. Professional financial planners frequently point out that asset allocation decisions are responsible for most of your investment returns.

Asset allocation begins with setting up an initial allocation. First, you should determine your investment profile. Specifically, this requires you to assess your investment horizon, risk tolerance, and financial goals:

- **Investment horizon.** Also called time horizon, your investment horizon is the number of years you have to save for a financial goal. Since you're likely to have more than one goal, this means you will have more than one investment horizon. For example, saving for your five-year-old daughter's college has an investment horizon of 12 years. Saving for your retirement in 30 years has an investment horizon of 30 years. When you retire, you will want to have saved a lump sum that is large enough to generate earnings every year until you die.
- **Risk tolerance.** Your risk tolerance is a measure of your willingness to accept a higher degree of risk in exchange for the chance to earn a higher rate of return. This is called the risk-return trade-off. Some of us, naturally, are conservative investors, while others are aggressive investors.

Generally, the younger you are, the higher your risk tolerance and the more aggressive you can be. As a result, you can afford to allocate a higher percentage of your investments to securities with more risk. These include aggressive growth stocks and the mutual funds that invest in them. A more aggressive allocation is viable because you have more time to recover from a poor year of investment returns.

- **Financial goals.** Your financial goals are also an important consideration in deciding on an initial allocation. For example, if you want to save \$40,000 for your daughter's college in another 12 years, you will have to invest more aggressively than if your goal is only \$20,000.

If you invested \$2,000 at the beginning of each of the next 12 years in a college savings plan, invested at an annual rate of return of 8%, you would reach your goal of \$40,000. If you thought you needed \$60,000, however, you would have to either invest \$2,950 a year, or increase your expected rate of return to 13.5%.

Generally, younger and aggressive investors allocate 70% to 100% of their portfolios to stocks, with the remainder in bonds and cash. Conservative investors allocate 40% to 60% in stocks, 30% to 50% in bonds, and the remainder in cash. Moderate investors allocate somewhere between the allocations of aggressive and conservative investors.

To make an initial allocation, you need to build a portfolio of individual securities, mutual funds, or both. In general, mutual funds provide more diversification benefit for the buck.

How you choose to *precisely* allocate among the major asset classes depends, in part, on other factors. For example, if interest rates are expected to rise, you might allocate a greater percentage to money market mutual funds, CDs, or other bank deposits. If rates are headed lower, you may choose to allocate more to stocks or bonds.

Financial planners suggest that you rebalance, or reallocate, your portfolio from time to time. They differ in their views on how often you should reallocate. It may be once a year, or it may be every three to six months. At a minimum, reallocation lets you update any changes in your investment profile, or to take advantage of a change in interest rates. Rebalancing often involves nothing more than a "fine-tuning" of your current allocations. For example, a conservative investor may decide to shift 5% of her portfolio from stocks to cash to take advantage of higher rates that money market funds may be offering.

Investing & Taxes

As an investor, you pay income taxes and capital gains taxes on your investments. How much you owe depends on how the income is earned. You owe income taxes on interest earned on bonds. You also pay income taxes on dividends earned on stocks and mutual funds.

You may earn income from investments as diverse as precious metals, business partnerships, or collectibles. However, this topic focuses on taxation of stocks, bonds, and mutual funds.

Generally, if you sell a security at a higher price than you paid, you earn a capital gain. If you sell at a lower price than you paid, you have a capital loss. The length of time that you hold your investment, or holding period, determines whether you have a long- or short-term capital gain or loss. If you hold a security for more than one year (i.e., 366 days), it is considered a long-term capital gain. Short-term capital gains are those that you earn on sales of securities held one year or less.

Long-term capital gains are taxed at a lower rate than your regular income. For all but the lowest income tax bracket, investors pay a long-term capital gains tax rate of 15%. Investors in the 15% tax bracket pay a long-term rate of 5%. Short-term capital gains are taxed as regular income. Capital gains are calculated by subtracting the basis from the price for which you sell the investment.

What kinds of income do stocks, bonds, and mutual funds generate, and how is this income taxed?

- **Taxation on stocks.** Stocks generate taxable income as dividends and capital gains which are both taxed at the same favorable rate. Generally, growth stocks don't pay dividends. Instead, they create wealth through a rise in their share prices. Income stocks, on the other hand, generate regular dividend income. Most stocks fall in between growth and income categories.
- **Taxation on bonds.** Bonds are sometimes called fixed-income securities. This is because most bonds have a fixed coupon rate. As a result, interest income is usually a constant amount over the bond term. Bonds also generate capital

LESSON 10

DERIVATIVES: TRADING, CLEARING AND SETTLEMENT

Introduction to Derivatives

A derivative is a product whose value is derived from the value of underlying asset, index, or reference rate. The underlying asset can be equity, Forex, commodity or any other asset. For example, wheat farmer may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. Such a transaction would take place through a forward or futures market. This market is the “derivative market”, and the prices of this market would be driven by the spot market price of wheat which is the “underlying”. The terms of “contracts” or “products” are often applied to denote the specific traded instruments.

In recent years, derivatives have become increasingly important in the field of finance. Futures and options are now actively traded on many exchanges. Forward contracts, swaps and many other derivative instruments are regularly traded both in the exchanges and in the over – the –counter markets.

The Development of Exchange Traded Derivatives

Derivatives have probably been around for as long, as people have been trading with one another. Forward contracting dates back at least to the 12th century and may well have been around before then. Merchants entered into contracts with one another for future delivery of specified amount of commodities at specified price. A primary motivation for prearranging a buyer or seller for a stock of commodities in early forward contracts was to lessen the possibility that large price swings would inhibit marketing the commodity after a harvest.

Although early forward contracts in the US addressed merchant’s concerns about ensuring that there were buyers and sellers for commodities, “credit risk” remained a serious problem. To deal with this problem, a group of Chicago businessmen formed the **Chicago Board of Trade (CBOT)** in 1848. The primary intention of the CBOT is to provide a centralized location known in advance for buyers and sellers to negotiate forward contracts. In 1865, the CBOT went one step further and listed the first “exchange traded” derivatives contracts in the US; these contracts were called “futures contracts”. In 1919 Chicago Butter and Egg Board a spin off of **Chicago Mercantile Exchange (CME)**. The CBOT and CME remain the two largest organised futures exchanges indeed, the two largest “financial” exchanges of any kind in the world today.

The first stock index futures contract was traded in Kansas City **Board of Trade**. Currently the most popular futures contract in the world is based on S&P 500 index, traded on Chicago Mercantile Exchange. During the mid eighties the financial futures became the most active derivatives instruments generating volumes many times more than the commodity futures. Index futures, futures on TBills and EuroDollar futures are the top three most popular futures contracts traded today. Other popular international exchanges that trade

derivatives are LIFFE in England, DTB in Germany, SIMEX in Singapore, TIFFE in Japan, MATIF in France etc

Forward Contracts

A forward contract is an agreement to buy or sell an asset on a specified date for a specified price. One of the parties to the contract assumes a long position and agrees to buy the underlying asset on a certain specified future date for a certain specified price. The other party assumes a short position and agrees to sell the asset on the same date for the same price. Other contract details like delivery date, price and quantity are negotiated bilaterally by the parties to the contract. The Forwards contracts are normally traded outside the purview of the exchange. Forward contracts are very useful in hedging and speculation.

The classic hedging application would be that of a wheat farmer forward selling his harvest at a known price in order to eliminate price risk. Conversely, a bread factory may want to buy bread forward in order to assist production planning without the risk of price fluctuations. Thus forwards provide a useful tool for both the farmer and the bread factory to hedge their risks.

If a speculator has information or analysis which forecasts an upturn in a price, then he can go long on the forward market instead of the cash market. The speculator would go long on the forward, wait for the price to raise and then take a reversing transaction to book the profits. The use of forward markets here supplies leverage to the speculator.

Limitations of forward markets

Forward markets worldwide are afflicted by several problems:

1. Lack of centralization of trading.
2. Illiquidity and
3. Counter party risk.

In the first two of these, the basic problem is that of too much flexibility, and generality. The forward market is like a real estate market in that any two consenting adults can form contracts against each other. This often makes them design terms of the deal, which are very convenient in that specific situation but makes the contracts nontradable. Also the “OTC market” here is unlike the centralization of price discovery that is obtained on all exchange.

Counter party risk in forward markets is a simple idea: When one of the two sides of the transaction chooses to declare bankruptcy, the other suffers. Therefore larger the time period of the contract larger the counter party risk. Even when forward markets trade standardized contracts and hence avoid the problem of liquidity, still the counter party risk remains a very large problem.

Introduction to Futures

Futures markets were designed to solve the problems that exist in forward markets. A futures contract is an agreement between

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