Chapter 2

Conceptual discourse regarding equity issue and investment analysis

2.1 Introduction

It is recognized in the extant literature that two commonly used approaches for decision making on investments are fundamental analysis and technical analysis. The objective of fundamental analysis, an approach to determine ‘what ought to be the price’ based on related information published by the corporate entities in their financial statement, is to identify any mispricing of (both under pricing and over pricing) securities. On the contrary, technical analysis, by its definition, is based on the premise that past prices can be used to predict future prices. Technical analysis is not backed by strong conceptual framework, but depends solely on historical trends to predict future prices. Besides these two approaches, there are some qualitative factors which also have a role in decision making.

Theories abound on security price model. Amongst these the theory of Efficient Market Hypothesis (EMH) is more acceptable to the researchers due to its conceptual and practical relevance. It is opined that market efficiency plays an important role in bringing equilibrium in any market. The theory signifies how quickly and accurately relevant information impacts the price of securities. It may also be inferred that market prices generally reflect instantaneously all publicly available information to earn any abnormal profit. According to EMH, the successive absolute short-run price changes are independent. However, the hypothesis of the theory is based on certain assumptions. Among them, the most important is market comprised of rational investors. Moreover, behavioral finance theory is discussed in this chapter as well in understanding the market forces and their intriguing nature in answering some of the anomalies pertinent to the behaviour of the market.

Before we proceed to elaborate the nitty-gritty of the equity investment it should be prudent to remember that equity issue is not the sole source available to a corporate entity to raise capital. We will also delineate the different fund raising options available to a corporate entity in this chapter.
2.2 Sources of fund available to a corporate entity

Almost all businesses need to raise finance in various stages in their lifecycles. In this segment we will touch upon some of the sources from where a corporate entity can raise finance. There are three ways of doing this: by borrowing money (debt finance), by selling a stake (equity) in the business to an outside party—commonly referred to as equity finance, or by combination of this known as convertibles. The following figure gives us a vivid picture of various fund raising options available to the corporate entity both in India and overseas.

Exhibit 2.1

The corporate may raise debt finance either from banks and financial institutes (FIs) or through issuing bonds and debentures from public in India and from outside India, it is raised through External Commercial Borrowing (ECB). On
the other hand, the money raised via equity issue can be through IPO, FPO, and rights issue or through preferential issue. As pointed out earlier, an IPO is the first issue of securities by a company since its inception. It is an important event in the lifecycle of the corporate entity to transform itself from private limited company to a public limited one. Any subsequent offering by the public limited company to raise finance is known as follow on public offering or FPO. A preferential issue is an issue of shares by listed companies to a select group of persons which is neither a right issue nor a public issue under section 81 of the Companies Act, 1956. This is one of the easiest ways available for a company to raise equity capital. The last decade has witnessed many Indian corporate take the route of foreign equity capital through American Depository Receipts (ADR) and Global Depository Receipt (GDR). An ADR is a negotiable instrument that represents securities of a non-US company traded in the US financial market and allows the US investors to invest in non-US companies and give the companies an easier access to the US capital markets. GDR is also a negotiable instrument issued by a depository bank in the international markets typically in Europe. Infosys was the first Indian company to raise equity finance through ADR issue successfully. Though historically, international fund raising used to be the domain of multinational companies, who not only source their raw materials across the world or sell products at many geographical regions, they also scout for capital all over the world. However, with globalization and increased cross-border capital flows, smaller companies are also enjoying the benefits of raising capital through the international markets.

Recently SEBI has issued guidelines for foreign companies who wish to raise capital in India by issuing Indian Depository Receipt (IDR). IDRs are issued and traded in a similar manner as that of ADRs and GDRs. In an IDR the instruments are priced in denomination of Indian Rupee (INR) while the underlying are listed shares and traded in any foreign country.

The other forms of fund raising option, usually followed in India by corporate entities are through issue of various forms of convertibles. Convertibles are negotiable instruments usually in the form of bonds or preference shares which allow the holders to convert their position to equity at a price and date as agreed upon.
These are shown as hybrid instruments since they contain features of both debt and equity.

The hybrid modes of finance available to a corporate entity from overseas market are usually of two forms. The first form is known as Foreign Currency Convertible Bonds (FCCBs) are issued by a company to non-residents giving them the option to convert them into shares of the same company at a predetermined price. On the contrary, Foreign Currency Exchangeable Bond (FCEB) is issued by the investment or holding company of a group to non-residents which are exchangeable for the shares of the specified group of companies at a predetermined price. The key difference, therefore, is while FCCB involves just one company, FCEB involves in at least two companies.

2.3 Fundamental analysis: An overview

Risk and return are inherent in any investment decision; no investor is obliged to take any amount of risk on his or her investment. An investor has wide array of choices as to where to park his investment. One may invest in government bond or fixed deposits in banks or in post offices which are often referred to as risk-free return. But to invest money in capital market demands a different mindset where the return is conditional to the risk assumed. Therefore, unlike risk-free return instrument whose return is expectedly very low to cope with the inflationary pressure, the other forms of investment, especially investment in shares requires proper investigation. Security analysis is the first step undertaken in the process of investment decision. Therefore, it is needed to first estimate the stream of prospective benefits which may arise over the period of investment and also the amount of risk involved with it under certain conditions, and the likelihood of such conditions. In a sense, the task involves forecasting future conditions, the prospective benefits from holding a security given these conditions and arriving at what ought to be the price for the security and adjusting it for the inherent time and risk. Finally, arriving at a security valuation is considered to be the end objective of the security analysis.

Fundamental analysis may be defined as the study of a company’s financial strength based on historical data from the financial statement, sector and industry
position, dividend policy and its history, the potential for future growth and sustainability and the quality of management. This also includes combination of all forms of data excluding the data not directly related to the price of stock and this information is used to define value investing and for comparing the one stock with the other. In a word fundamental analysis may be construed as an approach which helps in detecting the mispriced securities and consequently devise an investment strategy of buying and selling.

As pointed out earlier, the fundamental analysts believe that due to temporary market disequilibrium, the current market price may be at variance with its intrinsic value. But in the long-run the market price would revert to its intrinsic value. It may be noted that the end objective of fundamental analysis is not to make speculative profits which call for frequent entering in and exiting from the market and/or switching from one security of portfolio of stock to another. Rather, it is to avoid the risk of loss from buying the overpriced securities and selling an underpriced stock.

2.3.1 Framework for Fundamental analysis

The analysis encompasses a critical view of all forms of collective data relating to particular company and is based on the premise that a security has an intrinsic value at any given point of time. This value is a function of underlying economic values, specifically expected returns and risk. The order in which the fundamental analyst proceed: first an analysis is done on the overall economic environment and the conditions of security markets, second, an industry analysis in which the particular company belongs and finally performance of the company itself should be considered. At last, a detailed quantitative estimation of the fundamentals of the company through intrinsic value or an alternative of this is through P/E ratio or earnings multiplier approach is done.

There are two approaches on valuation methodologies adopted in fundamental analysis. One is top-down approach and the other is bottom up approach. Following is the pictorial representation of the two approaches which suggest the same set of analysis is required irrespective of the methodology being adopted.
Professionals and researchers do consider both the approaches for investment and divestment decision making. The components may be considered in the following lines.

**Economic Analysis**

It is unequivocally agreed that the security market is an integral part of the whole economy. To gain an insight into the complexities of the stock market, one needs to develop sound economic understanding and be able to interpret the impact of the major economic indicators in order to assess the national economy and its growing complexities. The following factors need to be remembered while analyzing the economy.

a) A study of various macroeconomic indicators and trends as indicated by the rate of growth in gross domestic product (GDP) and gross national product (GNP), employment, earning reports and economic summaries, balance of payment, inflation, personal disposable income, government spending, money supply, etc. are to be considered.

b) A study of economic policies of the government including fiscal, monetary, industrial and Exim policy including plan priorities etc. are also to be looked into.
c) A study of international economics and its major trends and their impact in Indian economy is also to be considered in economic analysis.

d) Finally, the ability to relate all these indicators to form a relationship between economic policy and economic trends and the stability of such relationship is required to be ascertained.

**Industry Analysis**

In order to analyze whether a particular company is performing satisfactorily or not, a benchmark, to compare with, is to be determined. Therefore, analysis of performance of overall industry, within which a particular company belongs, is of immense significance. The following factors need to be looked into while analyzing the industry at large.

a) Implications of growth projected in GNP for various industries need to be known.

b) The planned expenditure and the priorities of the government for that industry and its implications.

c) Vulnerability of an industry under government regulation, and control over prices and production.

d) Input-output of the industry’s sales.

e) Life cycle position of the industry.

f) Degree of dependence of scarce resources and its prospect of future sustainability and whether any entry barriers exist or not.

The purpose of the industry analysis is to identify those belonging to this industry which has a potential for future growth and suitable for investment.

**Company Analysis:** The following areas need to be addressed before making the final decision.

a) The management of the company and its effectiveness

b) The company itself and its position

c) The annual report
d) Cash flows and
e) Ratios

Some other factors also need attention, such as:

i. An analysis of the company’s market share.

ii. An analysis of the cost structure and break-even point.

iii. How the company has performed over the years and its core area of business.

iv. How the company has performed with respect to other similar companies.

v. Finally, to determine the intrinsic value of a share this is estimated by discounting the company’s prospective dividend stream.

2.3.2 Intrinsic value

The concept of intrinsic value is central to the idea of fundamental analysis. The traditional rule in investment specifies a relationship between the intrinsic value of an asset and its current market price. If intrinsic value exceeds current market price, the asset is undervalued and should be purchased or held if already owned and vice versa. A general definition of intrinsic value can be “that value which is justified by the facts”, such as assets, earnings, dividends, the management etc. The proponents of the concept of intrinsic value comment that the investment value of a security is the present value of all future cash payment to be paid on the security. The cash payment to the investors may be in the form of dividend, interest, liquidation process or repayment of the principal amount. Actually, stock price is the discounted value of the future cash flows. It reflects the market expectation about the future earnings of the company. In a given time period, for all companies taken together, those expectations therefore, concern the country’s future output and not the country’s current output. A problem with intrinsic value is that it derives from a present value process involving estimates of uncertain benefits and use of varying discount rates by different investors. Therefore, the same asset may have different intrinsic values and it depend on who is making the valuation and how the valuations are being made. This may be the reason why some investors are willing to buy a particular asset on a particular day while some others want to sell the same security and it may so happen that they have taken this position due to their analysis of
intrinsic values. Therefore, the market price of an asset (share) at any point in time is the consensual intrinsic value of that asset for the market.

2.4 Technical analysis: An overview

Technical analysis is the study of technical characteristics which may be expected at major market turning points and their objective assessment. The technical analysts do not attempt to measure a security’s intrinsic value but believe in making short-term profit by analyzing the volume and price patterns and trends. They use statistical tools such as time series analysis, relative strength index, moving averages, regression and correlation analysis etc. to study the past patterns and predict future price. The basic assumptions underlying technical analysis are as follows:

a) The market discounts everything.

b) The price generally moves in trends.

c) The history tends to repeat itself.

In addition to the above principal assumptions, there are some other considerations that a technical analyst must address. These can be:

1) Market value is determined solely by the interaction of supply and demand.

2) Supply and demand are not always solely guided by rationality, some element of irrationality does exist.

3) Ignoring minor fluctuations in the market, stock prices tend to move in trends which persist for an appreciable length of time.

4) Shifts in supply and demand can be detected through plotting the market value in a chart.

Unlike fundamental analysis where a large volume of data is analyzed and studied, technical analysis is based purely on study of the behavior of past prices. Actually, fundamental analysis is very difficult to operationalise since it requires large volume of authenticated data which may be problematic sometimes and these have led to the popularity of technical analysis. Some of the important reasons often cited for the defense of technical analysis can be stated as follows:
a) Fundamental analysis involves compilation and analysis of huge amount of data, and is therefore, complex and time consuming and most importantly costly.

b) Another important drawback with the fundamental analysis is that even if an analyst identifies an underpriced security, market may take time to bid its price up. Therefore, the gain may be realized very late.

c) The quality of fundamental analysis depends, to some extent, on the analyst who is doing it and since the financial statement provide the basis of inputs, it is often plagued by certain deficiencies like subjectivity, inadequate disclosure etc. So these factors sometimes affect the fundamental analysis.

2.4.1 The Dow Theory

The theory was originally propounded by Charles Dow in 1900 and is one of the oldest methods of identifying trends in the stock market. The basic principles of technical analysis originate from this theory. It should be remembered that the Dow Theory only describes the direction of market trends and does not attempt to forecast future movements or estimate either the duration or the size of such market trends. The theory assumes that the majority of the stocks follow an underlying market trend and most of the time, since it uses the behavior of the stock market, acts as a barometer of the business conditions. Therefore, the postulates of the theory were framed with reference to market indices, specifically constructed to measure market trends such as The Dow Jones Industrial Average (DJIA) one of the popular market indicators in the United States. The Dow Theory is widely applied and acclaimed by technical analysts. The criticism as leveled against the Dow Theory is that it fails to recognize early signals of the reversals in primary trend. But the theory helps to determine the direction of the overall market primary trend, the identification of the phases of the trend and any possible divergence in trend. The six basic tenets of the Dow Theory can be described as follows:

1) The average discounts everything: This signifies that the aggregate judgments of all stock market participants regarding both the current and prospective changes in the demand supply relations of the stock is reflected in the share prices.
2) The basic tools in technical analysis are movement in prices, measured by different forms of charts; The analyst uses line charts, bar charts etc. That is why the technical analyst often referred to as the chartist. The market has three movements, namely, primary, secondary and minor movements. Primary movements usually last from about a year to several years and represent the major market trends. Secondary reactions or intermediate movements usually last for 3 weeks to one month and finally the minor movements in prices occur on daily basis. They have no implications for long-term forecasting, rather, it is used by short-term investors.

3) Price action determines the trend: A trend can be of many types amongst them the most prominent trends are bullish and bearish trend. A bullish trend is said to occur when successive rallies lead to peak that are higher than the preceding ones, or when troughs reached by the intervening secondary reactions are above the preceding troughs. Similarly, a bearish trend is marked by a series of descending peaks and troughs.

4) The other important tenet of the Dow Theory is that the lines indicate movement. A line is formed by price movements within a range of 5 percent of its mean average. This is called an ‘accumulation’ or ‘distribution’.

5) The relationship between share prices along with the volume of shares traded provides an important indicator in technical analysis. In other words the intensity of price changes is reflected in the volume of transactions that accompany the change. An increase in price accompanied by a low volume implies that the change is not strong enough.

6) An important tenet of the technical analysis is that the average must confirm. If the market is truly a barometer of future business conditions, the industry averages and market averages should by and large move together.

2.4.2 Methods of technical analysis

Technical analysis is composed of various methodologies and techniques. Some of them can be mentioned below:
Price pattern: The cyclical trends in prices are of utmost interest to the technical analyst, who tries to predict the future trend from the present price pattern. Some of the prominent price patterns observed are

A. Head and Shoulders
B. Double Tops and Bottoms
C. Triangles
D. Rectangles
E. Flags
F. Saucers and Rounding Tops
G. Gaps

Amongst the patterns mentioned above head and shoulder pattern is by far the most reliable, and widely used, of all reversal price patterns.

Trend Lines: It is another important tool employed by the technical analyst. Some of the important trend lines observed can be categorized as below:

A. Trend Channels
B. Support and Resistance
C. Relative Strength Analysis

Moving Averages: While trends are important for specifying any linear formation for possible patterns, sometimes it may so happen that the prices appear to move rather haphazardly and are very volatile in nature. This problem of trend line can be mitigated to a great extent using moving averages.

There are three types of moving averages

A. Simple moving average
B. Weighted moving average
C. Exponential moving average
Some recent development

In order to make the technical analysis fruitful some experts suggested that standard statistical methods such as simple linear regression should be employed. For charting techniques to make sense, it is necessary that future prices not merely depend upon past prices in a linear manner but that they depend on the past prices in a highly non-linear manner so as to make standard statistical techniques irrelevant. Some of the recently developed mathematical techniques for dealing with highly non-linear process have now been used for charting.

Chaos theory has been proposed to study highly non-linear processes which have the following features:

- The processes which the standard statistical method assumes are linear in nature but not random. However, the real process of the market appears to be totally random and unpredictable.
- The processes are in fact predictable (not consistently) using non-linear prediction technique.
- The accuracy of the prediction is dented rapidly as the prediction horizon is increased.
- The processes are highly sensitive to the initial condition.

These features make chaos theory an attractive alternative tool for technical analysts who with the help of computers able to perform complex calculations required by the theory which in turn assists them to detect subtle patterns in the movement of price which was earlier considered to be an impossibility. Another important computer based technique recently been employed is the neural network technique which was originally designed on the basis of the analogy of the network of the human brains neurons. Today, it is used by some analysts and they help in detecting highly complex patterns.

2.5 Market Efficiency: The Basics

The desirable goal of financial economics is to see that capital is channeled to the place where it will do the good most. That is, a reasonable goal of government
policy is to encourage the establishment of allocationally efficient market, in which the firms with the most promising investment opportunities have access to the needed funds. There are at least four schools of thought in the process of investment decision. They are:

1) **Fundamental analyst**

They believe that the temporary disequilibrium is due to the mis-pricing of securities with respect to its intrinsic value. Analysis is generally done through EIC approach.

2) **Chartist or the technical analyst**

They depend on historical trends to predict future prices and the analysis is done through price, time, volume and breadth.

3) **Proponent of efficient market hypothesis**

They infer that market prices fully reflect all available information relevant to the value of securities at that time. It is impossible to make abnormal profits (other than by chance) by using this available information.

4) **Behavioural theorist**

The earlier theories believe that all the investors are rational and they have identical exposure to risk and return framework. However, proponents of this school of thought believe that irrationality, sentiment and emotion based judgments affect trading, expectations and prices in capital market.

In this regard a distinction is sometimes made between perfect market and efficient market. The pre-requisites of a perfect market are a) presence of large number of investors and issuers. b) absence of transaction cost c) none has monopoly to access the information. d) there is no tax burden. e) shares are not dealt in odd lot and f) financial auction remains open to everyone and in equal terms. These features are highly unrealistic and thus all the stock markets in the world are to be taken as imperfect due to lack of fulfillment of the above terms. But that does not imply capital market as inefficient as there is difference between efficient market and perfect market. Perfect market is necessary but not sufficient. If the market is not efficient, then the common investors will become reluctant to invest, since stock
market is considered as zero sum game. If sophisticated investors continuously make gain then the common investors will depart from the market. If however, market is found efficient, then there is expectedly industrial growth and all round economic development and the width and breadth of the stock exchange will also increase. Thus, there is apparently very thin line of demarcation between perfect market and efficient market. Therefore most of the studies are concerned with the concept of efficient market rather than perfect market.

2.5.1 What leads to market efficiency?

Three economic forces can lead to market efficiency. They are:

1. investor’s rationality,
2. independent deviations from rationality, and
3. the process of arbitrage.

The financial economists found these conditions to be so powerful that only one of them could result in market efficiency. Let us elaborate the terminology one by one. The term investor’s rationality means only those investors who do not systematically overvalue or undervalue financial assets in light of the information that they possess. Now, it should be remembered that if every investors act rationally while investing, earning an excess return would become difficult, if not impossible. The reason is that if everyone is rational all equivalent risk assets would have the same expected returns.

Even if the investors’ rationality is not fulfilled, market could be still efficient. For example, if we assume that many investors are irrational, and suppose a company makes a relevant announcement, then some investors become overtly optimistic and some pessimistic but the net effect of these two mutually exclusive events will cancel each other’s expectation and would diversify away the expectation. As a result, the market will be considered still efficient or nearly efficient. Therefore, a deviation from rationality does not make the market inefficient.

Finally, let us suppose that a market composed of irrational traders and their collective irrationality does not balance out. In this case, observed market prices can
either be too high or too low relative to the risk taking ability of the investors. Moreover, there may be some well capitalized, intelligent, and rational traders, and this breed of traders would see this high or low market price situation as a profit-making opportunity and engage in arbitrage, that is, buying relatively inexpensive stocks and selling relatively expensive stocks. If these rational arbitrage traders dominate the irrational traders, the market will still be construed as efficient.

2.5.2 Different forms of market efficiency

The term efficient market used in several contexts, describes the operating characteristics of a capital market. Usually a distinction is made between an operationally or internally efficient market and a pricing or externally efficient market.

1. Operational efficiency

In an operationally efficient market, investors can obtain transaction services as cheaply as possible. In an internally efficient market the brokers and dealers compete fairly so that the cost of transacting is low and the speed of transacting is high. Broker’s commissions are only one part of the transaction cost. The other part is the dealer’s spread.

2. Pricing efficiency

It refers to a market where prices at all times fully reflect all available information which is relevant to the valuation of securities. Therefore, in an externally efficient market, information is quickly and widely disseminated, thereby allowing each security price to adjust rapidly in an unbiased manner to any new information so that it reflects investment value. In this regard it should be remembered that the term market efficiency refers to external market efficiency or pricing efficiency. Finally, when a market is price efficient, investment strategies generally pursue to outperform a broad-based stock market index and will not consistently produce superior returns after adjusting for risk and transaction cost.
2.6 Efficient Market Hypothesis: - An Introduction

The efficient market model has been defined by many in their own way but before we delve into what exactly the Efficient Market Hypotheses (EMH) refers to, we should know that in an efficient market, the price of security will be a good estimate of its investment value. By investment value we mean the present value of future prospects, as estimated by well-informed and skillful analysts who use information that is currently available. The introduction of the term “efficient market” is usually attributed to Eugene Fama. In his 1965 paper titled, “Random walks in stock Market Prices”, published in Financial Analysts Journal, Fama defined an efficient market as: “a market where there are large numbers of rational profit maximizers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants”. It is to be noted that this description of an efficient market is akin to that of a perfectly competitive market and in such a market, every seller earns normal profit i.e. the amount of profit which is sufficient to stay in the business, but insufficient to attract a competitor. In Fama’s own words, “In an efficient market, on the average, competition will cause the full effects of new information on intrinsic values to be reflected “instantaneously” in actual prices”. The hypothesis states that in an efficient market stock price reflects available information about the market and its constituents and thus any opportunity of earning excess profit ceases to exist. So it is ascertained that no system is expected to outperform the market predictably and consistently for a long period. Hence, modelling any market under the assumption of EMH is only possible on the speculative, stochastic component, not on the changes in the value or other fundamental factors. The EMH suggests that profiting from predicting price movements is very difficult and unlikely. The main engine behind price changes is the arrival of new information. The key reason for the existence of an efficient market is the intense competition among investors to make profit from any new information. The ability to identify over and under priced stock is very valuable as it would allow investors to buy some stocks for less than their ‘true’ value and sell others for more than they worth. Consequently, many researchers spend a significant amount of time and resources to detect mis-priced stocks. As more and more analysts compete against each other in their search to locate the over and under-valued
securities, the likelihood to find and exploit such mis-priced securities becomes remote. In equilibrium, only a relatively small number of investors will be able to make profit by detecting the mis-priced securities, mostly by chance.

There has been a lot of debate about the validity of the EMH and random walk theory. However, with the advent of computational and intelligent finance, the behavioral finance economists have tried to establish an opposite hypothesis which may be collectively called as the ‘Inefficient Market Hypothesis.’ According to them, a) the financial markets are at least not always efficient, b) the market is not always in a random walk, and c) inefficiency exists. Moreover, many researchers claim that the stock market is a chaos system, where chaos signifies a non-linear deterministic system which only appears random because of its irregular fluctuations.

2.6.1 Different forms of EMH

There are three versions of EMH based on the level of information considered. These are 1. Weak form 2. Semi-strong form and 3. Strong form. Now let us elaborate these three forms and try to establish the theoretical relevance of this model.

- The weak form of EMH

It is also known as random walk model. It asserts that the current prices fully reflect all historical information; hence any attempt to predict prices based on historical price or information is totally futile as future price changes are independent of past price changes. Past trend does not indicate any meaningful value. The weak form enjoys a fair degree of chance to hold good in a developing market like India. The reason is that the behavior of market participants is driven by their sentiments rather than historical prices and return. According to this form, technical trading rules are not consistently profitable as technical analysis depends fully on use of historical trends to predict future prices. In short, technical analysis is done from four important point of view viz., price, time, volume and breadth. Thus, the assumption of weak form of market questions the validity of the technical analysis. To prove the independent nature of share prices, analysts generally conduct the following test:

1. Auto-correlation test and

2. Run test.
It is usually found that the serial correlation in daily stock returns is close to zero. Here in this paper we are not empirically testing the validity of the EMH but we are giving an idea about the theoretical significance of EMH. The run test is usually conducted to test the validity of weak form efficiency. In run test positive or a negative price changes is recorded and from this mean and standard deviation is conducted with the observed number of run to test the randomness of prices.

- **Semi-strong form of efficiency**

It suggests that the current price fully incorporates all publicly available information. Therefore, the investors will not be able to make abnormal profits using publicly available information. That is, the current market prices discount all the information which is common knowledge. To examine the validity of this form usually the test conducted are:

1. Residual analysis and
2. Event studies.

For the market to be efficient in semi-strong form, the sum of the residual return (abnormal return) should be close to zero. This return is computed in the form of Cumulative Average Abnormal Returns (CAARs).

**Event studies**

Financial economists are often asked to measure the effects of an economic event on the value of firms. This seems to be a difficult task, but this can be measured with the help of event study. An event study usually measures the impact of a specific event on the value of the firm; the effects of an event will be reflected immediately in security prices. As stated, event study has many applications in accounting and finance research. The initial task of conducting an event study is to define the event of interest and identify the period over which the security prices of the company is involved and to identify the accurate announcement date (event date). The next task is to define the event window and the estimation period. The following step involves selecting a sample of firms that have a surprise announcement, and then calculate the normal return. Appraisal of the event’s impact requires a measure of the abnormal return. The abnormal return is basically the difference between the
actual ex-post return of the security and the normal return of the event window. The estimation window is usually calculated using the period prior to the event window, when feasible. Since the IPOs do not have prices before the issues, there is no estimation period for these companies. In fact this is a generic problem associated with IPO literatures while a number of studies have assumed the coefficients not from the pre-event window but from the post-issue period. Subsequently, the cumulative abnormal returns (CARs) are obtained from the abnormal return (ARs). And finally, we have determined the statistical significance of the ARs and CARs. Using event study methodology we have used the following models.

**Alternative efficient market hypothesis**

A need for adjustment in the security market return was realized in the early 70’s for it was assumed that the individual stocks should experience a change equal to the aggregate stock market. So it becomes imperative to subtract the return on the market to arrive at the abnormal rate of return. \( AR_{it} = R_{it} - R_{mt} \) where, \( AR_{it} \) denotes abnormal return for security ‘i’ for period t, \( R_{it} \) is the raw return of securities ‘i’ for period t and \( R_{mt} \) is the market return for the corresponding period t.

According to CAPM, different stocks move differently in relation to the movements in the market. Hence, the above method may not be appropriate. Some stocks may be more volatile or vice-versa. Therefore the expected rate of return for the stock based on the market rate of return and the stocks relationship with the market should be determined. The abnormal rate of return is shown as follows;

\[ AR_{it} = R_{it} - E(R_{it}) \]

Where, \( E(R_{it}) \) = expected rate of return for stock i during period t based on the market rate of return and the stocks relationship with the market and can be written as \( \alpha_i + \beta_i R_{mt} + \epsilon_{it} \). To calculate the \( E(R_{it}) \), we need to find out the characteristic line in the \( Y= mx+c \) form and for that we need to calculate both the alpha and beta of the security’s return and thereby calculating the expected return.

- **The strong form of EMH**

This form of EMH advocates that, all the information, public or private are known to the investors and hence a particular investor cannot reap abnormal profits
using this information. Since there are people who are privy to different types of information, there is every possibility of the insider having access to sensitive information which can be manipulated. If this form holds good, the prices reflect the information that is available to only selected group – like the management, financiers and stock exchange officials. There are two versions of this form – the near strong and super-strong form.

1. As per the near strong form, conclusions and opinion expressed by analysts based on publicly available information are also reflected in the prices.

2. The super-strong form on the contrary is rather extreme in its assumption as it states that confidential information is available to only selected groups of people known as insiders. It is also of no use in obtaining abnormal returns, as the prices contain adjustment for that information as well.

2.6.2 Observations about perfectly Efficient Market:

The following are some of the interesting observations made about perfectly efficient market.

a) Investors should expect to make a fair return but not abnormal return.

b) Markets will be efficient only when large number of investors believe that they are inefficient.

c) Publicly available information and known investment strategies cannot be expected to generate abnormal returns.

d) Some investors will display impressive performance records merely due to chance.

e) Professional investors should be in equal footing with the ordinary investors in picking securities and finally,

f) Past performance is not an indicator of future performance
Exhibits 2.4
Information and the levels of Market Efficiency

[Source: ‘Investments’ by Sharpe et al. (2009), sixth edition]
The exhibit 2.4 above illustrates these three forms of efficiency, it is important to note that while moving from weak to semi-strong to strong-form efficiency, the set of information expands. If the markets are strong-form efficient, then they are also semi-strong and weak-form efficient. Similarly, if markets are semi-strong form efficient, then they are also weak-form efficient.

2.7 Behavioural Finance: The Concepts

Over the past few decades a different view of financial markets has emerged because of the fact that no model till date has been devised which can comprehensively and correctly infer the market dynamics. It is a fact that investors can make systematic errors in forecasting cash flows or in setting the discount rate, (often these are considered the basis of valuation or revaluation). These errors can push stock prices away from fundamental value for extended periods of time. In fact till 1990s the popularity and acceptance of EMH was unparallel but EMH has failed to live up to expectations. Some of the anomalies of stock price behavior often baffle the researchers since they are potentially difficult to reconcile with the market efficiency theorem. Given below are some of the anomalies we find in literature.

1) The Day of the Week Effect: The tendency for Monday to have a negative average return.

2) The Amazing January Effect: The tendency for small stock to outperform the large stock in January.

3) Turn of the year effect

4) Turn of the month effect

5) Earning announcement puzzle and

6) Price/Earning puzzle

So the above anomalies that exist in the literature puzzled the proponent of EMH. The first four anomalies can be categorized as calendar anomalies and the rest may be categorized as non-calendar anomalies. EMH implies that share prices should not increase on the whims of the crowd but these anomalies portray a different picture altogether. To examine how delusion in the stock market can occur, we must assume that EMH does not always hold good.
This raises the possibility that behavioral finance may replace the EMH. Now let us see what does exactly behavioral finance advocate? Behavioural finance is the study of the influence of psychology on the behavior of investors and financial practitioners and its subsequent effects on markets. It is of interest since it helps explain why and how the markets behave inefficiently. Several recent studies summarize evidences that irrationality affects trading, expectations and prices in capital markets and the psychology of the individuals often play an important determinant in investing decision. Most familiar psychological biases can be viewed as outgrowth of heuristic simplification, self-deception, and emotion based judgments.

One of the debated topics in the IPO literature is the three anomalies [Hwan (2003)]. These are termed as:

1. Initial underpricing
2. Long-term underperformance, and
3. Hot-issue market

These behavioral phenomena can be answered using different concepts available with the theory of finance [Ritter (2003), Sewell (2010)] but it should be remembered that these phenomena are not consistent with the market efficiency.

2.8 Underpricing of IPO: Theories

The phrase IPO underpricing refers to the difference in the closing offer price of a security and the closing share price of the security in the first day of trading. Ibbotson (1975) is one of the pioneers in the field of IPO study, has observed this phenomenon. In case of IPO, they have documented that when companies issue shares for the first time, the price of shares they sell tend to appreciate substantially on the first trading day. The first day closing prices in most of the instances are registered systematically higher than the issue price at which the public offering was introduced in the market. Consequently, IPOs exhibit on an average a positive first day or listing day returns. From an issuer’s perspective, this phenomenon is usually referred to underpricing as it describes the additional amount of money which could have been raised by the issuer if the offer price had been set upward to an appropriate
level. Many IPO researchers observed this phenomenon and they believe that underpriced IPOs leave money on the table for corporate. In this section, we describe the theories of underpricing that are prevalent in IPO literature. It is one of the most debated topics in IPO related study and catches the attention of analysts throughout the globe.

2.8.1 Theories explaining underpricing in the short-run

The underpricing phenomena are typically and purely seen as the short-run phenomena usually lasted for few days after listing or at best for first few months. Let us enquire why this short-run underpricing is so ubiquitous. The following explanations are usually found in the literature on underpricing. They can be summarized as below:

1. Asymmetric information model
   a) Winner’s Curse hypothesis.
   b) Information Revelation theories.
   c) Principal-Agent models.
   d) Under-pricing as a signal of firm’s quality.

2. Institutional explanations
   a) Legal liability.
   b) Price stabilization.

3. Ownership and control
   a) Under-pricing as a means to retain control
   b) Under-pricing as a means to reduce agency costs.

4. Behavioral explanations
   a) Cascades
   b) Investor sentiment

Let us briefly discuss some of the theories that have been propounded by the financial economist on this issue.
2.8.2 Asymmetric information model

Information asymmetry deals with the study of decision in any transaction where one party has more information than the others (inside information). Examples of this problem are adverse selection, moral hazard, and information monopoly. It is presumed that with the advancement of technology, asymmetric information is on the wane as an increasing number of populace has access to the information of almost all type. In the following paragraph we will deal with some of the popular asymmetric information model found in the IPO literature.

1. The Winners Curse hypothesis

In an IPO transaction, primarily three parties are involved: first is the issuing firm, the second is merchant banker underwriting the issue and dealing with marketing of the issue and third, of course, the investors buying the stock. Rock (1986) assumes that one of these parties know more than the others. This model of underpricing is based on the premise that some investors are better informed about the true value of shares on offer than the others. Informed investors bid only for attractively priced IPOs, the uninformed, on the other, bids without much thought. In other words, their investment decisions are not backed by thorough analysis, so they used to bid indiscriminately. So this imposes a ‘winner’s curse’ for the uninformed investors. In most of the cases, these uninformed investors end up getting all the shares they bid for, because the informed investors purposefully stay away from these unattractive offerings, while in attractive offerings, their demand is partly off-set by the informed investors who vie for such offerings. In extreme cases, those uninformed are rationed out completely in relating to such underpriced IPOs and received 100 percent allocations in over-priced IPOs. Thus, the return uninformed investors earn is conditional upon receiving an allocation and is below the simple average return. Rock’s winner’s curse model has testable implications in IPO literature. It is said that the winner’s curse paradox can partly be arrested if the allocation mechanism can be free from any bias as the central theme of winner’s curse is between two groups of investors and their access to issue sensitive information (informed and uninformed). Now the question is who is really informed and
who are not. Several studies have tried to address this particular topic and they usually looked at from the perspective of institutional versus retail investors. It is seen that the information asymmetry does exist within the group of investors. Aggarwal, Prabhala, and Puri (2002) find that institutional investors generally earn more returns than the retail investors largely because they are allocated stock in those IPOs that are most likely to appreciate in price. In order to keep less informed investors interested in the IPO market, issuing firms deliberately underprice their stock and sell it at discount. In case of large issue, it is likely that more information about the issue is available and helps in assessing the true value of the stock thereby reducing the information asymmetry.

2. Information revelation theory

The winner’s curse theory was the direct fallout of the fixed price issue. However, over past decades, the strict pro-rata allocations rule had provided impetus to winner’s curse and given way in many countries to book building method of pricing new issue bestowing underwriters’ wide discretion over allocations. The method of book-building allows underwriters to obtain information from informed investors and warrants a preliminary offer price range to set and then go on a ‘road show’ to inform about the company to the prospective investors. As pointed out by Loughran and Ritter (2004) and others, partial adjustment to information in prior market returns is puzzling since it implies that underwriters reward investors for easily available public information. However, in the absence of inducements, revealing positive information to the underwriter by the informed investors is not incentive compatible since doing this revelation of information will presumably result in a higher offer price, leading to lower underpricing and consequently, lower profit to the informed investors. In fact, there is a strong incentive to misrepresent positive information – to induce the underwriter to set a lower offer price. The challenge therefore, for the underwriter is to devise a mechanism that induces investors to reveal their information truthfully.

It has been observed that investors, who bid aggressively and so reveal favorable information for the issue, are rewarded with disproportionately
large allocation of shares. Allocations are not only related to the characteristic of the bid, they are also driven by the characteristic of the bidder. Frequent bidders receive large allocation relative to the bid size therefore underwriters deliberately underprice the shares for consistently giving favorable information. If the underwriter left no money on the table, truthful reporting would not be again incentive-compatible.

3. Principal-Agent model

Baron (1982) analyses the principal-agent problem in respect to IPO underpricing. His theory highlights the potential for agency problem between the issuing company and the investment bank. This is because the issuer in respect to information is at disadvantageous state to the underwriter regarding the pricing of the issue. Therefore, to market its shares the issuing company must give some freedom to the investment bank and permit some underpricing, because the issuer cannot monitor the underwriter without cost. As it is in the best interest of the investment bank to get the IPO be oversubscribed and when this is the case, the investment bank is allowed to ration shares to select quality investors. Also high demand is usually accompanied by higher prices post-listing, giving the possibility of underpricing. These lucky investors usually include the preferred customers of the investment bank who helps the firms to stand to gain due to underpricing. Therefore, by accepting a lower price from the underwriter, the principal allows the investment bank to turn around and to sell the shares at lower price, thereby making the exorbitant initial return on the opening day of the issue.

4. Signaling hypothesis

Another important asymmetric information model, regarding the underpricing of IPO, is signaling hypothesis, originally propounded by Allen and Faulher (1989). This theory is based on the understanding that the insiders possess more complete information about the new issue of a company. As such, this group of insiders has a more accurate evaluation of the economic value of the IPO. While outsiders do not have access to such information base, a new
method of transferring this knowledge is desired and this information can be conveyed through some reliable signals that outsiders may perceive. It should be noted that this model of asymmetric information reverses the Rock’s assumption regarding the informational asymmetry between the issuing firm and that of investors. It is based on the premise that companies have better information about the present value or risk of future uncertainty than do investors. Hence, underpricing may be used to signal the company’s true worth. Though it is a costly proposition for the company but if successful, signaling may allow the issuer to return to the market at a later period.

2.8.3 Institutional explanations

The basic idea proposes by the proponent of this explanation stems from the fact that companies deliberately sell their stock at a discount to reduce the likelihood of future lawsuit.

1. Legal liability

This explanation applies for US market. The US Securities Act of 1933 mandated that all participants involved in public issue of offer would sign the prospectus liable for any material omission. One way of reducing the frequency and severity of future lawsuit or legal sanction is to underprice the issue (Ibbotson, 1975).

2. Price stabilization:

Rather than forming a symmetric distribution around some positive mean, underpricing issues typically peak sharply at zero and rarely fall below zero. Many argue that IPOs are not deliberately underpriced. Rather IPOs are priced at expected market value but the prices that threaten to fall below the offer price are stabilized in aftermarket trading [Rund (1993)]. The price stabilization may be thought of as a mechanism that creates a bond between the underwriter and issuers.
2.8.4 Ownership and Control explanations

Going public is, in many cases is regarded as a stepping stone towards the eventual separation of ownership and control. Ownership is often considered a prerequisite for management’s incentives to make optimal operating and investment decisions.

1. Underpricing as a means to retain control

An IPO is said to be underpriced if the price at which the security is traded in initial dealings exceed the offer price at which it was proposed to be sold to the investors. Many research article on this topic focuses on how underpricing can be effectively used by the insiders (managers, directors etc.) to retain control. Brennan and Franks (1997) argued that pre-IPO shareholders, who derive private benefits of control, will have incentives to underprice so as to ensure oversubscription and rationing the shares in allocation process subsequently. Rationing allows discrimination between applicants for shares, and limits the block size of the new shareholdings. Small outside stakes reduce unwelcome external scrutiny and monitoring. Therefore, managers seek to avoid allocating large stakes to investors for fear that their non-value maximizing behavior would receive a battering and still worst, they can lose the control of the company altogether by a hostile takeover bid by large group of shareholders.

2. Underpricing as a means to reduce the agency cost

Not much testable implications were found in support of this hypothesis. The agency cost is borne by the owners in the form of lower IPO proceeds and a lower subsequent market value of their shares. According to Brennan and Franks (1997), it is a costly proposition for the owners or managers to underprice in order to reduce the cost of agency.

2.8.5 Behavioral explanations

As stated earlier, the behavioral theorist assumes either the presence of irrational investors who bid up the price of IPO shares beyond true value, or that
issuers are subject to behavioral biases and therefore, fail to put pressure on the investment banks to have underpricing reduced. This literature is still in its infancy.

1. Cascades
   It is based on the premise that every potential investor does some research (either rigorously or by hunch or intuition) before investing and on that basis he takes investment decision. According to Ritter (1984), the potential investors pay attention not only to their own information about IPO issue, but they also observe what other investors are doing. Thus informational cascade may develop. If the investors make the investment decision sequentially, later investors can condition their bids on the bids of the earlier investors, discarding and disregarding their own information. Consequently, disappointing initial sales can dissuade later investors from investing irrespective of their private signals.

2. Investor’s sentiment
   The behavioral theorist proposes that irrationality affect the trading and consequently this reflects in stock prices. The potential for such an effect would be high in case of IPO, since IPO firms are young, immature and relatively informationally opaque and hence hard to evaluate. Ljungqvist, Nanda, and Singh (2003) found that sentimental investors hold optimistic belief about the future prospect for IPO company. The issuers goal would be to capture as much of the ‘surplus’ under the sentimental investor’s downward sloping demand curve as possible. Since these stocks are sold over and above their intrinsic fundamental value due to the over enthused investors, eventually in the long-run, the true value of the stocks are revealed and the stock prices revert to fundamental value.

2.9 Underperformance of IPO
   Another well documented research area for IPOs is the long-run underperformance. Though the underperformance phenomenon is not as ubiquitous as the underpricing phenomena it is still one of the best known patterns or anomaly reported in the IPO literature. By underperformance we mean that the IPO firms tend to give negative abnormal return than their comparable firms of same class and risk in a one to five year period subsequent to going public. There are three major
explanations given in the literature for this curious phenomenon. These can be described as below:

1. **The divergence of opinion hypothesis**

   Miller (1977) argues that divergence of opinion does matter for asset pricing when short sales are binding with IPOs. The market prices are determined by the optimistic investors who highly rate the investment merit of the new issue and include it in their portfolio. On the other hand, pessimistic investors need to wait until short sales restrictions are lifted. This theory by Miller proposes that if there is a great uncertainty about the value of an IPO, the valuation by the optimistic investors will be much higher than those of pessimistic investors. Consequently, as time goes on and short sales restrictions ease, more information becomes available. The divergence of opinion between optimistic and pessimistic investors will become narrow, and consequently, the market price will drop as prices are free to approach their fundamental value. In short, this theory is based on the sole premise that there exist differences of opinion regarding the value of the IPO. The common methodology which most theoreticians agree is that the value should equal the present value of all future cash flows. However, there exists difference of opinion in this regard and questions are usually asked to what should be relevant discount rates and the estimates of dividend for a particular year.

2. **The impresario hypothesis**

   This hypothesis suggests that the market for IPOs is subject to fads and that IPOs are underpriced by investment bankers (the impresario) to create excess demand. According to Ritter, (1984) this hypothesis predicts that “companies with the highest initial returns should have the lowest subsequent returns” in the long run. However, in the first six months the scenario is completely different and there exists high initial return. This is due to the dominance of momentum effect operating in the initial stage of IPO.

3. **The windows of opportunity hypothesis**

   Ritter (1991) exhibits that underperformance occurs, more often, to companies which are issued in years having large number of issues. According to Ritter (1984) if there are periods when investors are especially
optimistic about the growth potential of companies going public, the large cycles in volume may represent a response by firms attempting to ‘time’ their IPOs to take advantage of these swings in investors sentiment.

2.10 The Hot-issue Market phenomenon

It has been observed over the last few decades that there exists a recurring pattern of cycles in both the volumes and the average initial returns of IPOs. By the term “hot issue” markets, it is referred to the periods which have witnessed with unusually high initial returns [Ritter (1984)]. This phenomenon is usually found to be associated with increasing volume of IPOs. In a “hot issue” market, excessive optimism on the part of the investors leads IPO prices to rise above fundamental value on the first trading day, and remain so for a long period. On the contrary, the cold issue market is usually characterized by low initial return which eventually leads to relatively few numbers of new issues and tends to occur toward the end of the high IPO volume periods.

Finally, let us revisit in brief what we have gathered from this discussion. The chapter begins with brief discussion about the various sources of raising finance. It is noticed that the equity financing plays a pivotal role though other mode of financing are available to a corporate entities in India. We have also observed that many Indian corporate houses are now vying for international finance through ADR and GDR route. The chapter’s also deals with the two approaches for predicting equity price that are widely been used viz. fundamental analysis and “chartist” or technical analysis. The technique employed by the fundamental analysts has received support from various quarters. The assumptions of this approach warrant that at any given point in time an individual security prices has an intrinsic value which depends on certain company specific fundamental factors such as earning potential, dividend etc. On the other hand, the basic assumption of all the chartist is that history tends to repeat itself. This means that the past pattern of stock prices in individual securities tends to recur in the future. The technique that the ‘chartist’ employs has not enthused much to the academics or the financial economists. From this, it is amply clear that both the approaches fail to describe some of the matter that has a repercussion in the behavior of stock prices. The concept of EMH espoused by Fama probably answers some of the issues of the stock market behavior. Finally, we
describe issues pertaining to IPO market and some of the concept explaining the market anomaly that are typical of IPO throughout the globe. The anomalies that we have dealt with are: a) initial underpricing, b) long-run underperformance and c) hot issue market. Thus the objectives we set for our study might have been fulfilled with this discussion about the conceptual discourse of securities analysis and various relevant issues relating to IPO market.