Chapter I

An overview of Indian Capital Market
The economic development of any country depends upon the existence of a well organized financial system. The well established financial system is one which supplies necessary financial inputs for the production of goods and services with a view to promoting the well being and standard of living of the people of a country. An efficient functioning of the financial system facilitates the free flow of funds to more productive activities and thus promotes investment. The financial system may be viewed as a multistoried structure consisting mainly of financial institutions and financial markets. Financial institutions include all those banking and non-banking finance companies which are involved in the activity of transfer of funds from those who hold surpluses to deficit unit. Financial markets refer to the place where financial assets are created and transferred. It is classified into capital market and money market. Capital markets play a vital role in the capital formation of the Indian economy. It would not be an exaggeration to say that of all the segments of the financial system, the capital markets have the most crucial role to play in the process of capital formation. The efficiency with which the process of capital formation is carried out depends on the efficiency of capital markets and financial institutions (Keane, 1983). All the developed economies of the world achieved a high level of growth in capital formation mainly on account of the efficient functioning of their capital market.

**Indian Capital Market**

Indian capital markets have undergone transformation rather dramatically in the last decade. The number and variety of players have increased. The growth in the foreign institutional investors, mutual funds and the privatization of insurance sector, have facilitated the induction of more institutional players in the markets. Further, it is interesting to state that focus on higher level of accountability, information disclosure, corporate governance and shareholder value has also gone up on par with world standards.

The capital formation and volume of trade in the stock exchange have soared. The details of funds mobilized, industry-wise classification of capital raised, sector-wise and region wise distribution of capital mobilised and volume of trade in the Indian stock exchanges from 1990-91 to 2005-06 are given in Table-1.1
Resource Mobilization from the Primary Market

Table-1.1 shows the details of resource mobilized by the Indian primary market during 1990-91 to 2005-06. These funds were mobilised through two different sources; issues of corporate securities and issue of Government securities. The corporate securities include like domestic issue, non-government public companies, public sector bonds, government companies, banks and financial institutions, private placement and euro issues. The government securities include central government securities and state government securities. It is noted from the table that during 1990-91, the funds mobilised through different sources was at Rs. 25,807 crores, which includes Rs.14,219 crores from corporate securities and Rs.11,588 crores from government securities. Among the corporate securities, major portion of the resources were mobilised from the public sector bonds (Rs. 5,663 crores), followed by non-government companies (Rs. 4,312 crores) and private placement (Rs. 4,244 crores). But in the same period, under government securities, majority of the sources were mobilised through the central government securities (Rs. 8,989 crores), followed by state government securities (Rs. 2,569 crores). It is understood from the above discussion that in the 1990-91, the major sources in primary market were mobilised from the central government securities (Rs. 8,989 crores).
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<td>30853</td>
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<tr>
<td>Total (A+B)</td>
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Source: SEBI Hand Book 2007
It is clearly understood from the above table that in primary market, funds mobilized through various securities gradually increased from 1990-91 to 2005-06. The range of fund mobilization during this period was from Rs. 25,807 crores to Rs. 3,16,413 crores. In corporate securities category, funds mobilised through issue of non government public companies gradually increased almost every year from 1990-91 to 2005-06. The range of fund mobilization was from Rs. 4,312 crores to Rs. 21,154 crores. During this period, the highest fund mobilization was in the year 1994-95, followed by the year 2005-06, 1992-93, 1993-94 and 1995-96. The funds mobilised during this period was Rs. 26,417 crores, Rs. 21,154 crores, Rs. 19,803 crores, Rs. 19,330 crores and 16,075 crores respectively. The lowest fund mobilization from non-government public companies was in the year 2002-03 followed by 1997-98, 2003-04, 1990-91 and 2000-01. The value of funds mobilised through this period was 1,877 crores, Rs. 3,318 crores, Rs. 3,675 crores, Rs. 4,312 crores and Rs. 4,890 crores.

Among all the categories of corporate securities, funds mobilised through private placement was high and it ranged from Rs. 4244 crores to Rs. 96,368 crores. The highest fund mobilization under this category was in the year 2005-06, with a value of Rs. 96,368 crores. Fund mobilised from this category continuously increased from 1993-04 to 2005-06. The lowest fund mobilised through private placement was in the year 1992-93, with a value of Rs. 1635 crores. Fund mobilised through banks and financial institutions ranged from Rs. 356 crores to Rs. 5413 crores. The highest fund mobilised under this category was in the year 2004-05, followed by 2005-06, 1998-09, 2003-04, 1993-04 and value of funds mobilised during this period was Rs. 5,726 crores, Rs. 5413 crores, Rs. 4,352 crores Rs. 4076 crores and Rs. 3,843.

Among government securities, funds mobilised through central government was high and it ranged from Rs. 2569 crores to Rs. 1,60,018. Almost all the year funds mobilised through government securities gradually increased. The highest fund mobilization during this period was in the year 2005-06, followed by the year 2002-03, 2003-04, 2001-02 and 2000-01. The funds mobilised during this period was Rs. 1,60,018 crores, Rs. 1,51,126 crores, Rs. 1,47,636 crores, Rs. 1,33,801 crores and Rs. 1,15,183 crores. The lowest fund mobilised under central government securities was in the year 1991-02, followed by 1990-91, 1992-93, 1996-07 and 1994-95. The funds mobilised during this period was Rs. 8,919 crores, Rs. 8,989 crores, Rs. 13,885 crores, Rs. 36,152 crores and Rs. 38,108 crores respectively. While compared with
central government securities, funds mobilised through state government securities was low almost all the years from 1990-91 to 2005-06. Funds mobilised through state government securities gradually increased almost all the year and the highest fund mobilization was in the year 2003-04 and the lowest fund mobilization was in the year 1990-91, with values of Rs. 50,521 crores and Rs. 2,569 crores. From the over all analysis of this table, one can easily conclude that fund mobilised in the primary market through various securities gradually increased almost every year but the growth was at different levels for different securities.

Capital Market Efficiency

Capital market efficiency is an important research topic. The efficiency, in the context of capital markets, is commonly assumed to refer to the incorporation of expectations and information of all market participants into the prices of financial assets. The concept of efficient capital market has been continuously developed, studied and tested by French mathematician, Bachelier (1900), who recognized that “past, present and even discounted future events are reflected in market price, but often show no apparent relations to price changes”.1

Definitions of an Efficient Capital Market

There are several definitions of market efficiency. Among the researchers, different opinions exist about what efficiency really means.

Fama established that information is the basis of efficiency. He defined efficiency of market as “a market in which prices always fully reflect available information is called efficient” (Fama, 1970 p.383)2

Grossman noticed a paradox in the definition cited above. If prices fully reflect all available information, there is no reason for an investor to search for information in his decision-making process of buying and selling different stocks. If no one searched

for information, how could prices fully reflect the information? After all, it is the actions of all investors taken together that settle the prices.

Grossman, Sanford.J, Robert.J and Shiller\(^3\) analyzed this paradox in 1980. Their theory was based on two kinds of investors; informed and uninformed. If the market is efficient and information is associated with a cost, the informed investors would not get any compensation from the uninformed since the information will be fully reflected in the stock prices. However, they found certain noise in this model which implied that stock prices could not reflect all information. Consequently, there are incentives for investors to search and pay for additional information in their decision-making.

Jensen defined efficient market as “a market is efficient with respect to information set \(\Theta_t\) if it is impossible to make economic profits by trading on the basis of information set \(\Theta_t\)” (Jensen, 1978)\(^4\). In this definition, Jensen defines economic profits as risk adjusted returns net of all costs. Information set \(\Theta_t\) refers to the different amount of information existing at different levels of market efficiency. He also notes that this theory has different appellations: the efficient market hypothesis, the theory of random walk and the rational expectation theory.

Damodaran (2002)\(^5\) develops the definition further and emphasizes the importance of market efficiency when it comes to investment valuation “An efficient market is one where the market price is an unbiased estimate of the true value of the investment” (Damodaran, 2002, Chapter 6).

If the market is efficient, investment valuation will involve justification of the market price since this price is supposed to reflect the true value. If the market is

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inefficient, the market price may deviate from the true value. Investment valuation
will, in this case, be directed towards estimating a reasonable true value.

According to Damodaran, an efficient market does not imply that market prices
have to be equal to true value at all times, only that market prices are unbiased in the
sense that prices can deviate from true value as long as deviations are random. The
assumptions of randomness implies that deviations are uncorrelated with observable
variables and that there is an equal chance that stocks are under- or overvalued at any
point in time. Thus, there should not exist any possibility of consistently finding under
or overvalued stocks using any investment strategy. This means that there should not
be any possibility for investors of beating the market in the long term. An exception to
this is the existence of luck, a factor that is indifferent to whether the market is efficient
or not. (Damodaran, 2002).

Efficient Market Hypothesis Theory (EMH)

The phrase “Efficient Market” is used to describe the market price that fully
reflects all available information. An Efficient Market is defined as a market where
there are large number 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 (Ross etal. 2005).
According to this theory, the stock market will have random walk. Random walk
hypothesis assumes that price volatility is exogeneous and unexplained. Randomness
means that knowledge of the past cannot help to predict the future.

Types of Efficient Market Hypothesis (EMH)

In 1970, Fama developed his ideas of efficient markets and divided the market
into three different levels of efficiency. This extension of the definition was based on
an earlier study made by Roberts in 1959. The capital market efficiency is classified
into three categories, based on the information set (Fama, 1970). They are

a) Weak Form Market Efficiency
b) Semi-Strong Form Market Efficiency
c) Strong Form Market Efficiency

Finance, pp.383-417
a) Weak Form Market Efficiency

In the weak form, stock prices reflect all the information in the past series of stock prices. In this level, prices follow a random walk and it is impossible to gain superior returns by looking for patterns in historical stock prices (Brealey and Myers, 2000). Tests of this form of efficiency have their origin in what has come to be known as the random walk theory (Keane, 1983). In tests of this kind, only historical data of stock prices are considered (Claesson, 1987). Thus, studies are made of past stock prices in search of patterns and are known as technical analysis (Brealey and Myers, 2000). In 1991, Fama developed a new form of categorization to cover more general areas. Tests of the weak form were called test for returns predictability, which includes forecasting returns with variables such as dividend yields and interest rates (Fama, 1991).

The argument that stock price change at random does not mean that stock price changes without any reasons. There is reason for such movement which has been the subject of empirical research for over a decade. There have been four major methods to test the dependence of returns on time (Weak – Form of market efficiency) (Dycman and Morse, 1986) as given below:

i) Serial correlation test
ii) Filter rule test
iii) Cyclical test
iv) Volatility test

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i) Serial Correlation Test

Serial Correlation measures the association between two elements of time series, separated by a constant number of time periods. The order of the serial correlation is the number of time periods that separate the two elements. Therefore, it can be called as order serial correlation if the number of separative periods is one.

The test for this approach was performed in daily returns by Rosenberg and Rudd (1982), who found that the first order serial correlation of daily returns residual from the market model is small but significantly negative.

ii) Filter Rule Tests

Filter Rule was employed for testing the EMH weak-form in different ways. According to the first approach, if the stock price advances in certain percentage higher than its previous low level, it is bought and if the stock price declines from previous high point and the reduction exceed certain percentage, it is sold.

Another approach for using Filter Rule, which was adopted by Levy (1967), is based on the ratio of the current stock price to its average. Levy found no abnormal returns on his portfolio.

iii) Cyclical Test

This test is for the cyclical behaviour in time series, which are usually performed by using several statistical methods such as spectral analysis. Several studies by Granger and Morgensteinin (1963) and Boning, Joseph M. and Edward A.Moses (1974) and more addressed this issue. They investigated the effect of

different day, week and months of the year in stock behaviour, and in particular the
effect of Monday, Friday and January. They found inclusive results.

iv) Volatility Test

The main assumption for the Volatility Test is that “expected returns are
constant and the variation in stock prices is driven entirely by shocks to expected
dividends”. Shiller Robert, J. (1981) used volatility testing to examine whether the
variation in expected returns is rational. They found that the variation in expected
returns is irrational.

b) Semi – Strong Form Market Efficiency

The semi-strong form of efficiency demonstrates that stock prices reflect and
adjust to all published information and that it is unfeasible to receive higher returns by
studying published data such as newspapers and annual accounts. This means that the
stock price is adjusted rapidly and in an unbiased way to all public announcements in
newspapers, journals, corporate forecasting and annual reports. If stock market is
efficient in semi strong form, then investors cannot achieve consistently above normal
returns. On the other hand, if investors can consistently obtain above-normal returns
on trading at the time of the public announcement of specific information, then the
stock market is inefficient with respect to this information.

The tests for semi-strong market efficiency were performed by examining the
market reaction towards financial accounting reports (financial statement information)
and accounting announcements or non-accounting announcements. Non-
accounting information is tested by empirical research like Stock Splits, Block Trading, Dividend
Announcement, Macroeconomic Factors (interest rate, inflation, and money supply),
Tax Effect, Firm Size and Second Hand Information. On the other hand, the
accounting announcements are earnings announcement, other information in
accounting report and changes in accounting principal.

Discussion Paper No.1385, Yale University – Cowles Foundation, National Bureau of Economic
Research (NBER), Yale University – International Center for Finance.
i) **Financial Accounting Report (Financial Statement Information)**

One major source of information for the investors is the financial statement information released by the companies. The properly analysed and interpreted financial statements can provide valuable insights into a firm’s performance. Users of financial statements include equity investors, fund managers, shareholders, creditors, bankers, analysts, credit raters, company managers, and a host of other constituents. They use the financial statement information for valuing securities. Evidence from research shows further that there is a definite link between the type of news or surprise conveyed in earnings and a company’s stock returns. Positive earnings change is accompanied by positive stock returns whereas negative earnings change is accompanied by negative returns.

ii) **Market Reaction to Accounting Information**

Harmon (1984)\(^\text{17}\) investigated the relative importance of earnings versus fund flow, by examining the association between market reaction with earnings variables and fund variables. It was found that earnings are associated with market reaction than with fund flows.

Judy Rayburn (1986)\(^\text{18}\) examined the ability of operation cash flow and accrual data in order to explain the relative change in equity value (returns). It was found that cash flow measures, aggregate accrual and current accrual are consistent with the information set used in value equity security (Abnormal Returns).

Attar, Ali and Hussain (2004)\(^\text{19}\) examined the ability of current accounting data to explain future cash flows for UK firms. It was found that the desegregation of earnings into cash and accruals, lead to higher power in explaining future cash flow.

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iii) Market Reaction to Non-Accounting Information

- **Stock Split**
  Eugene F. Fama, Lawrence Fisher, Michael C. Jensen and Richard Roll (1969)\(^{20}\) performed the first test for semi-strong market efficiency. Using risk-adjusted returns to test for market efficiency with respect to the announcement of stock split, a considerable high abnormal returns prior to the announcement of stock split was reported. On the other hand, after the stock split, there was no extraordinary returns. This situation returns is exactly what the EMH (Efficient Market Hypothesis) predicted.

- **Block Traders**
  As stated earlier, market efficiency means that the security price should reflect all the information. Block Trading occurs when large numbers of stocks are suddenly placed on the market for sale. This causes imbalance in the supply and demand in the market as well as being perceived by the market as negative information. There are several empirical studies conducted by researchers like Scholes (1972)\(^{21}\) and Hess and Frost (1982)\(^{22}\) etc., who investigated the effect of the sudden sale of a large number of stocks in the market. The study found that there was a significant drop in price but after a short period, stock price rebounds to its prior level.

- **Dividend Announcement**
  The studies on testing of EMH with respect to dividends announcement were performed by Petit R. Richardson (1972)\(^{23}\), Abeyratana et al (1993)\(^{24}\) and Al-Deehani

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They found a significant abnormal returns, following cash dividends announcement. Further, these studies also found stock dividends have information content because the stock price rises at the time of stock dividend announcement.

It is important to note that the previous results are inconsistent with the semi-strong market efficiency. The present study is in line with the event study on semi-strong form market efficiency. An attempt has been made to study share price returns following sample events.

c) Strong - Form Market Efficiency

In the strong form, stock prices reflect all available information and in this case, it is impossible to find superior information to beat the market (Brealey and Myers, 2000). Tests of the strong form of efficiency answer the question whether there exists any unpublished information that is not reflected in stock prices (Claesson, 1987). Tests of this form are called tests for private information by Fama (1991), a new form of categorization. This does not change the three conditions that Fama stated in 1970 for the stock market to be qualified in a strong form of efficiency. These conditions consist of (1) the absence of transactions costs, (2) that investors have access to relevant information without costs and (3) that all investors value stock prices in the same way on the basis of this information. Fama (1991) reminds us of the definition of a perfect market which cannot exist as concluded earlier. Thus a strong level of market efficiency is not likely to exist.

The strong form of market efficiency occurs if the stock price reflects all public and private information. This form is the most comprehensive case and testing efficient

Testing of Efficient Market Hypothesis (EMH) in the strong form is conducted in different ways as explained below.

(i) Testing the returns that is earned by the insider
(ii) Using indirect test by examining the returns and trading volume prior to public announcement.

(i) Trading by Insiders

The insiders are defined by the Security Exchange Commission (SEC) as any manager, director or owner who owns at least 10 percentage of a firm's shares. There are many restrictions on insider trading, which prevent them from selling any stock before minimum holding period for at least six months and any profit made as a result of the violation of these restrictions must be reported to the company.

Testing EMH in the strong form is performed by examining the market reaction to insiders trading as reported by Security Exchange Commission (SEC). Penman Stephen, H. (1982) examined the insider trading around earnings forecasting announcement. He found that insiders buy shares before the announcement and sell their shares after the announcement, by which they can achieve high abnormal returns. Therefore, insiders do indeed have private information that is not impounded in the stock price.

(2) Examining the Returns and Trading Volume Prior to Public Announcements:

If there is a high abnormal returns or volume reaction prior to the public announcement, this will be the evidence that there is a leak of information through

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another alternative source which is often called private information. Morse Dale (1980)\textsuperscript{31} found a greater trading than normal a day before public announcement. Keown and Pinkerton (1981)\textsuperscript{32} observed high abnormal returns and trading volume prior to merger announcement.

**New Classification for Market Efficiency**

Fama (1991)\textsuperscript{33} developed new classification for market efficiency as given below

1) Test for returns predictability instead of weak-form test
2) Event studies instead of semi – strong form test
3) Test for private information instead of strong – form test

For returns predictability, Fama focuses on forecasting returns with other variables like dividend yields and interest rate, test of assets pricing models and anomalies, and test for seasonal returns and volatility in security prices. On the other hand, event study is the clearest evidence of market efficiency because it gives a picture of the speed of price adjustment to new information. The test for market efficiency is conducted in event study with respect to the information about investment decisions, dividend changes, change in capital structure and corporate control transactions. Testing market efficiency, with respect to private information, can be performed by testing corporate insiders activities, change in value line’s rankings, analysts survey and pension and mutual fund activities.

An efficient market is one that rapidly absorbs new information and adjusts the prices swiftly. When a new information item is added to the market, its revaluation implications for security returns are instantaneously and unabashedly impounded in the current market price. It is important to note that researchers and analysts, who have worked on the efficiency of stock market, have realized that no stock market is absolutely efficient. While there have been an overwhelming number of studies to test

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the weak form of efficient market hypothesis (EMH), studies to test the strong form are not many. Because of problems in getting the relevant data to test the strong form of EMH, studies in this area are limited. Hence the study on testing the stock market efficiency is subject to intense research in the field of finance.

Three Degrees of Efficiency

Keane (1983) re-classified Fama’s different levels of market efficiency into three different degrees, namely, perfect efficiency, near efficiency and inefficiency. These different degrees can occur in all the three levels of market efficiency. These degrees of efficiency are of practical importance when it comes to carrying out different studies of market efficiency since it may be difficult to establish whether a market is efficient or inefficient.

Different Levels and Degrees of Market Efficiency

Perfect efficiency would occur when prices are so close to their value that not even the most expert information-processor could achieve excess returns for his efforts. Near efficiency is obtained when prices are sufficiently close to their value to make it futile for all investors, other than the expert minority, to pursue an active trading strategy. The experts would only earn enough excess returns to cover transactions costs and reward their efforts. Inefficiency occurs if even the non-expert can identify undervalued stocks or, at least, if he is able to profit from the recommendations of the expert who perceives them. (Keane, 1983).

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Conditions for the Existence of Market Efficiency

For an efficient market to exist, there must be investors who act continuously. An efficient market is not automatically created. It is all the actions of investors taken together, which makes the market efficient. There is, however, a contradiction in this statement. On one hand, the theory says that there is no use in trying. On the other hand, the theory requires the profit-maximizing investors to constantly seek out ways of beating the market and thus making it efficient (Damodaran, 2002)\(^{36}\).

The explanation of this methodological problem is that if markets were efficient, there would be no use for investors to search for inefficiencies. This would lead to markets becoming inefficient and thus making it worthwhile for investors to act. An efficient market can be seen as a self-correcting mechanism where inefficiencies appear at regular intervals but disappear almost instantaneously as investors find them and trade on them (Damodaran, 2002).

Six Lessons of Market Efficiency

There are six lessons, or components of market efficiency, as described by Brealy and Myers (2000)\(^{37}\). These lessons increase the understanding of market efficiency by bringing out six important aspects.

(i) Lesson one states that markets have no memory. This is the same idea as past prices not having information about future prices, which indicates the weak form of market efficiency.

(ii) It is understood from the second lesson that investors have trust in the market prices. In an efficient market, one can trust prices since they reflect all available information and there is no possibility of gaining sustainable excess returns.

(iii) According to lesson three, by studying market prices, one can learn about the future e.g. a company's probability of bankruptcy.

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(iv) There are no financial illusions, says the fourth lesson of market efficiency. The companies can, for instance, increase the number of stocks by distributing more stocks or by doing splits. However, this does not increase a company's value because it is a financial illusion.

(v) The fifth lesson is the do-it-yourself alternative. This alternative means that investors do not pay others for doing what they can do on their own. An example of this is that companies may justify mergers with the argument that they establish a diversified firm. However, it is often easier and cheaper for investors to diversify their own portfolio.

(vi) The last lesson of market efficiency is that you see one stock, you have seen them all. The meaning of this is that investors buy stocks on the basis of the offered prospect, not the unique qualities. This also indicates that when the prospective returns is low, nobody wants to buy the stock and when it is high, everyone wants to buy it.

Criticism of the Theory of Efficient Markets
Normally theories work well in theory, but not quite as well when they are applied to reality. The theory of efficient markets is not an exception. There are certain imperfections that question the model upon which this theory is based.

According to De Bondt and Thaler (1985)\(^3\), analysts tend to overvalue historical returns when they forecast future returns. Furthermore, they seem to react more strongly to information of a negative kind than to that of a positive kind. Bulkley and Harris (1997)\(^4\) stress that analysts are not rational in their behaviour since forecasted returns are adjusted for risk while actual returns are not. Finally, investors in the stock market tend to overreact to the information last known (De Bondt and Thaler, 1985). All these aspects taken together suggest that the market has failed to form rational expectations.


For investors in the stock market, there are possibilities of making excess returns with the knowledge of these imperfections. They might invest in stocks with historically low returns, low price earnings ratios (P/E) or price book value ratios. These investors can lean back and wait until the rest of the market discovers the incorrectly valued stocks. The prices will then adjust and investors will have made a profit. These excess returns are possible (Damodaran, 2002).40

However, Shiller (2001)41 argues that there is only a small part of actors in the market, who have the capacity to find these inefficiencies, without the help of luck. Smart investors search systematically for abnormal returns and this group is characterized by intelligence as well as interest in investments and timeliness. These qualities are not found among all investors. According to Shiller (2001), it is mistakenly believed that smart money dominates the market and therefore there exists a notion that the market is more professionalized than it is. This notion contributes to the belief that markets are highly efficient. In fact, the large part of the market consists of investors with irrational behaviour. The group of smart money, limited in wealth, cannot prevent the latter group from influencing prices and therefore market inefficiencies will occur from time to time. This leads us into the discussion of the behavioral finance (Shiller, 2001).

The efficient market hypothesis is simple in principle but remains elusive. This chapter provides some details on types of EMH as well as identifying the empirical research that tested weak, semi-strong and strong forms of market efficiency. Research, based on corporate announcements, more often assumes that market is efficient in semi-strong form, and the reason for this is that financial reports are considered public information once they are released to the market. Testing for market efficiency, however, is difficult. In this section, number of studies are documented that indicate anomalous behaviour which appears at first sight to be inconsistent with market efficiency. Stock market anomalies are only too often chance events that do not


persist into the future. The importance of the efficient market hypothesis is demonstrated by the fact that apparently profitable investment opportunities are still referred to as ‘anomalies’. The efficient market model continues to provide framework that is widely used by financial economists.