Chapter-3

STOCK MARKET INDICES AND THEIR PERFORMANCE

Indian Stock Markets

The stock exchange is marketplace where the shares, government bond, and other fixed- interest securities are listed and traded. The stock exchange is an entity specialized in the business of bringing buyers and sellers of stocks and securities together. The buyers and sellers are the participants in stock market who may be residing anywhere in the world. According to section 2(i) of the Securities Contract (Regulation) Act, "Stock Exchange means anybody of individuals whether incorporated or not, constituted for the purpose of assisting, regulating or controlling the business of buying, selling or dealing in securities".

The origin of stock market is related back to the year 1494, when Amsterdram Stock Exchange was set up. The origin of stock market in India goes back to the later part of the Eighteenth Century. The earliest security dealings were transactions in loan securities of the East India Company. The East India Company was the dominant institution for finance during the period. During the eightieth century, an informal association was created by tremendous social pressure on the brokers, now it is known as Bombay Stock Exchange and it was founded in year 1875. It grew continuously in size of operations and became the spirit Centre of all financial activity and also the first one to be recognized by the Government of India. The Ahmedabad Shares and Stock Association" was formed in the year 1894. The next stock exchange association was established in Calcutta in 1908. The securities market indices are the basic tools to help and analyze the movements of prices of various stocks listed in stock exchanges and are useful indicators of a country's economic health. A security market index means to measure the growth of the value of set of securities. It is basically a ratio where the current index is divided by the index value of some base year. An ideal index number of share which fulfill the mainly two purposes such as; it must represent the change in the values of the share i.e. changes in the overall market performance and must reflect the price movement of typical shares.

In what follows, a brief description of two Indian Stock Exchange, namely Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) and construction of their price indices presented. This is followed by recent performance of the two indices.

Bombay Stock Exchange (BSE)

The Bombay Stock Exchange (BSE), Mumbai was established in 1875, when the Share and Stock Brokers Association was established. BSE is the oldest stock exchange in Asia and the most important stock exchange in Indian capital market. The Bombay Stock Exchange made a significant contribution to the growth of the capital market. The Board of Governors of BSE comprises 9 elected directors (one third of them retire every year by rotation), an executive director, three government nominees, a Reserve Bank of India (RBI) nominee and five public representatives[1]. A president, vice-president and an Honorary Treasurer are annually elected from among the elected directors by the governing board following the election of directors. The executive director works as the chief executive officer and is responsible for day-to-day administration of the stock exchange. In year 1995, the BSE started order-cum-quote driven electronic trading for all the listed securities. The BSE Online Trading (BOLT) system increased market transparency, liquidity, and elimination of mismatches. It also provides flexibility in systems by handling growing volumes of trade and increases market activity. Since then, BSE is executing orders through computerized facility and orders are matched in less than one-tenth of a second. The BSE has started the screen-based trading system in May 1995 and online facility since September 1997. Now, the members of stock exchanges are free to install their trading terminals to cities where there are not available stock exchanges.

Construction of the BSE Sensex

The BSE Sensex index was first time complied in 1986 on basis of market capitalization-weighted methodology of 30 components of stock, well established and financial sound companies across key sectors. Today, it is widely reported in domestic and international market. It is based on globally accepted construction methodology. The BSE Sensex is computed by using the 'Free-float Market Capitalization' methodology, wherein, the level of index at any point of time reflects the

[1]Financial Markets, The ICFAI University Press p-239

free-float market value of 30 component stocks relative to a base period since September 1, 2003. The base year of Sensex is 1978-79 and base value is 100 index points. The market capitalization of a company is determined by multiplying the price of its stock by the number of shares issued by the company. This market capitalization is further multiplied by the free-float factor to determine the free-float market capitalization. Free-float methodology refers to an index construction methodology that takes into consideration only the free-float market capitalization of a company for the purpose of index calculation and assigning weight to stocks in the index. Free-float market capitalization takes into consideration only those shares issued by the company that are readily available for trading in the market. It generally excludes promoters' holding, government holding, strategic holding and other locked-in shares that will not come to the market for trading in the normal course.

Script selection criteria

The general guidelines for selection of constituents in SENSEX are as follows:

- Equities of companies listed on Bombay Stock Exchange Ltd. (excluding companies classified in Z group, listed mutual funds, scripts suspended on the last day of the month prior to review date, scripts objected by the Surveillance department of the Exchange and those that are traded under permitted category) shall be considered eligible.
- Listing History: The scrip should have a listing history of at least three months at BSE. An exception may be granted to one month, if the average free-float market capitalization of a newly listed company ranks in the top 10 of all companies listed at BSE. In the event that a company is listed on account of a merger / demerger / amalgamation, a minimum listing history is not required.
- The scrip should have been traded on each and every trading day in the last three months at BSE. Exceptions can be made for extreme reasons like scrip suspension etc.
- Companies that have reported revenue in the latest four quarters from its core activity are considered eligible.
- From the list of constituents selected through Steps 1-4, the top 75 companies based on free-float market capitalization (avg. 3 months) are selected as well as any additional companies that are in the top 75 based on full market capitalization (avg. 3 months).

- The filtered list of constituents selected through Step 5 (which can be greater than 75 companies) is then ranked on absolute turnover (avg. 3 months).
- Any company in the filtered, sorted list created in Step 6 that has Cumulative Turnover of >98%, are excluded, so long as the remaining list has more than 30 scripts.
- The filtered list calculated in Step 7 is then sorted by free float market capitalization. Any company having a weight within this filtered constituent list of <0.50% shall be excluded.
- All remaining companies will be sorted on sector and sub-sorted in the descending order of rank on free-float market capitalization.
- Industry/Sector Representation: Scrip selection will generally attempt to maintain index sectoral weights that are broadly in-line with the overall market.
- Track Record: In the opinion of the BSE Index Committee, all companies included within the SENSEX should have an acceptable track record.

National Stock Exchange (NSE)

The National Stock Exchange (NSE) emerged as an endeavor by some of the institutional investors within the country to break the monopoly that was enjoyed by BSE brokers. The NSE was incorporated in 1992 due to particular issues of concern in the securities industry such as lack of transparency, lack of trading facilities, undercapitalized trading members, dated procedures and practices, and uncertain settlement cycles. It started their operation in June 1994. NSE is different from many stock exchanges in India where membership of an exchange also meant ownership of the exchange. The ownership and management of the Exchange is completely separated from the right to trading members, to trade on the NSE. The Exchange is managed by the Board of Directors. Decisions concerned to market operation are delegated by the Board to an Executive Committee which includes representatives from Trading Members, public and the management. The day-to-day management of the Exchange is delegated to the Managing Director who is supported by a team of professional staff. The Exchange provides a trading platform for of all types of securities-equity and debt, corporate and government and derivatives. It provides products in three different segments: Wholesale Debt Market (WDM), Capital Market (CM) and in Future & Option (F&O) segment and the products range from equities, fixed income securities, and futures and options on indices, stocks and interest rate. Objective of the NSE includes establishing a nationwide trading facility for equities, debt instruments and hybrids, to ensure equal access to investors all over the country through an appropriate communication network, to provide a fair, efficient and transparent securities market to investor using electronic trading systems, and to meet current international standards of securities markets. The trading system of the NSE is known as NEAT system (National Exchange for Automated Trading). It is fully automated screen-based trading system that enables members from across the country to trade simultaneously with enormous ease and efficiency.

Construction of the S&P CNX Nifty

The S&P CNX Nifty is the headline index on the National Stock Exchange of India Ltd. The Index tracks the behavior of a portfolio of blue chip companies, the largest and most liquid Indian securities. It includes 50 of the approximately 1430 companies listed on the NSE, captures approximately 65% of its float-adjusted market capitalization and is a true reflection of the Indian stock market. It covers 21 sectors of the Indian economy and offers investment managers exposure to the Indian market in one efficient portfolio. The index has been trading since April 1996 and is well suited for benchmarking, index funds and index-based derivatives. The S&P CNX Nifty is owned and managed by India Index Services and Products Ltd. (IISL), which is a joint venture between the NSE and CRISIL. IISL is India's first specialized company focused on an index as a core product. IISL has a licensing and marketing agreement with Standard & Poor's, who is a world leader in index services.

The S&P CNX Nifty is computed by using a float-adjusted market capitalization weighted methodology, wherein the level of the index reflects the total market value of all the stocks in the index relative to a particular base period[2]. The methodology also takes into account constituent changes in the index and corporate actions such stock splits, rights issuance, etc., without affecting the index value. It is computed by dividing the float-adjusted market capitalization of the index component securities as of current date (MC_n) by the float-adjusted market capitalization of the same securities as of initial date (MC_1) multiplied by the index value as of initial date (I):

[2]Standard & Poor's: S&P CNX Nifty Methodology

$$I_n = (I^* MC_n)/MC_1 \quad (1)$$

Where:

MC_n = Float-adjusted index market capitalization as of the current date which is given by

$$MC_n = \sum_{i=1}^{N} Pi * Qi$$

Q_i = Number of float adjusted shares outstanding of the i^{th}issue as of the current dat.

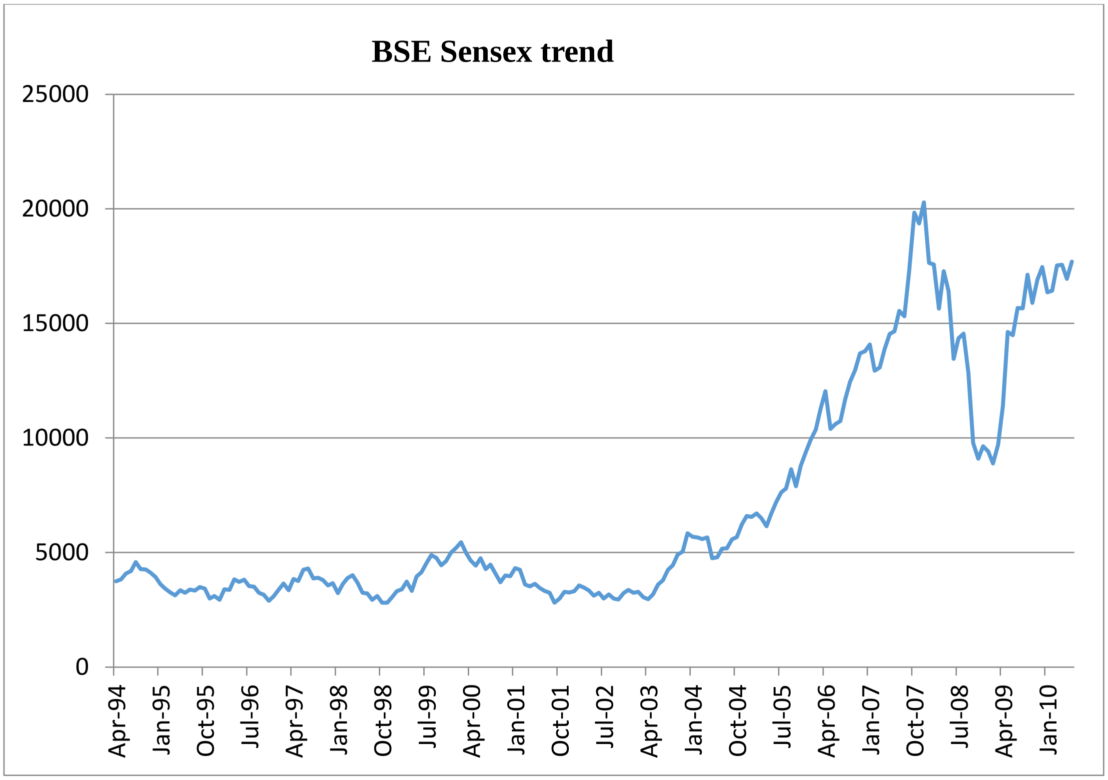
P_i = Security price of the i^{th}issue as of the current date.

N = total number of component securities used in the index calculation.

Performance of Sensex and Nifty

The performance of BSE and NSE stock exchange stock markets in terms of five fundamental ratios, namely in trend, Price/Earnings ratio, Price/Book value ratio, Dividend yield, and market capitalization is illustrated graphically and interpreted.

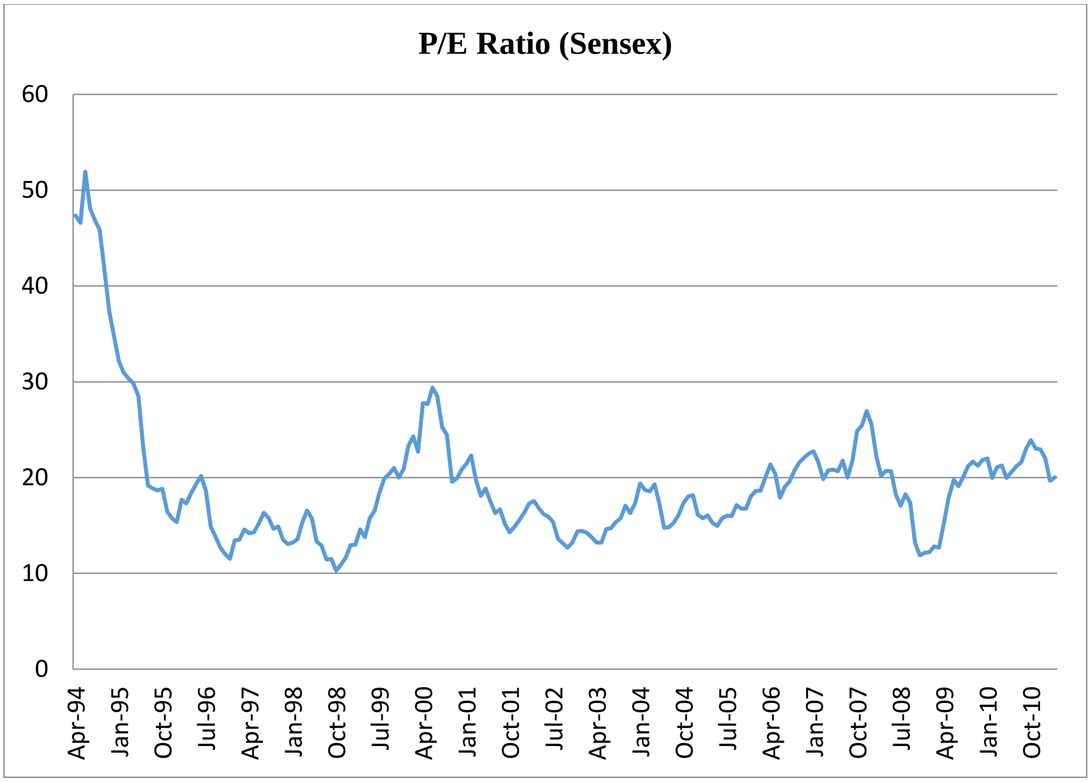
Figure: 3.1 Trend of Stock Prices in BSE Sensex



Source: *Bombay Stock Exchange (Statistics- www.bse-india.com).*

The figure: 3.1 exhibits the trend of BSE Sensex price index, it shows the upward trend of price index with fluctuations. The figure shows the positive trend in August 2003 onward. It shows the overall favorable development in the stock market performance. It was highest in August 2007 to April 2008 as per exhibited in above figure. The figure shows that the index had crossed the line of 20,000 in period August 2007 to April 2008. It shows that stock price index was plunged in December 2008. After this period, the index is recovering again.

Figure: 3.2 Price to Earnings Ratio in BSE Sensex



Source: *Bombay Stock Exchange (Statistics- www.bse-india.com).*

Price to Earnings Ratio

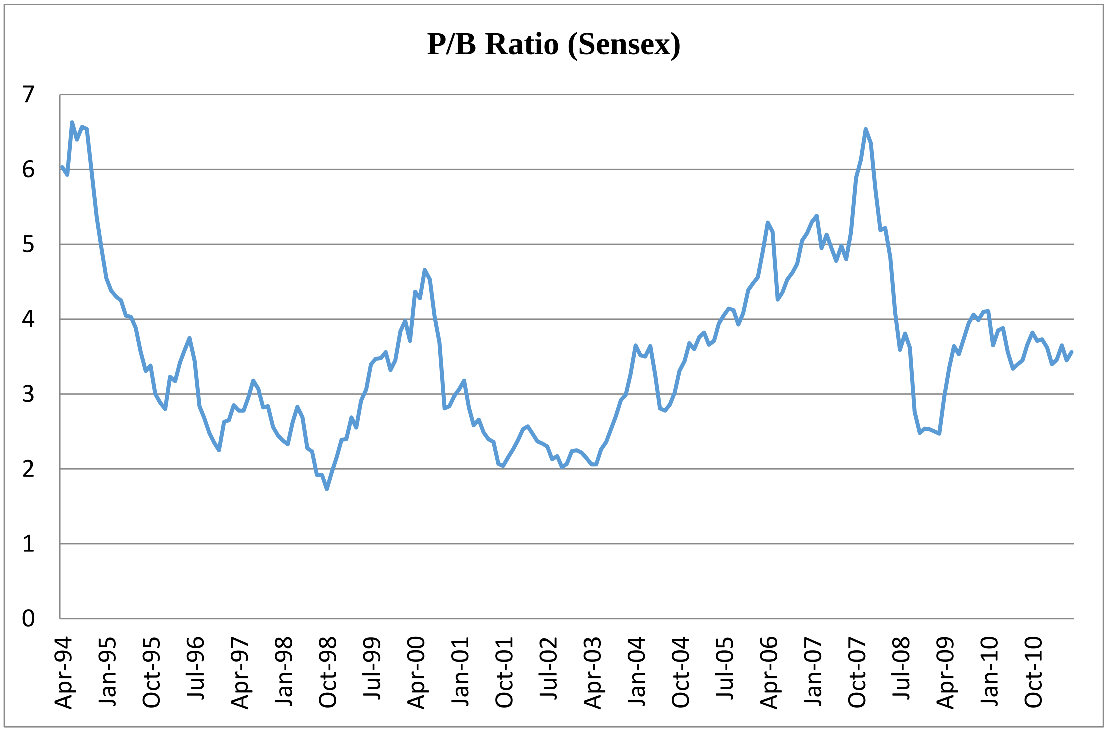
The price/earnings ratio (P/E) measures how much the investors are willing to pay per dollar of reported profits.

$$\text{P/E ratio} = \frac{\text{Market price per price}}{\text{Earnings per share}}$$

The price/earnings ratio is calculated as market price per share divided by earnings per share. A low ratio means the investor are not willing to pay very much for a share of stock (market perception that the company will have minimal future earnings growth). The potential shareholders consider the company to be risky. If an investor wants this stock and believes it will grow, the lower the ratio the better for that investor. A low ratio could also mean that a good market has not been developed for this stock. A high ratio means the investors believe that the company has a high future earnings or high growth potential, other things being equal. But it the ratio is too high investors may look for something more reasonable. This ratio and the others in this section provide an indication to management of what the investors think about the corporation- its current, past, and future performance. Generally, if all the ratios are showing good, steady performance, the stock price will be high. The P/E ratio is used to compare companies within the same business sector or that are similar in nature. By using this ratio, investors can determine which company within an industry may offer the best investment opportunities.

Price to earnings ratio is exhibited in the figure: 3.2. According to figure, price to earnings ratio in BSE Sensex, it was highest in period April 1994 to December 1994. After that period, price to earnings had drastically declined as per shown in figure. After April 1998, it was again increasing. The price to earnings ratio was closed to stable, although it was increasing December 2002 onward. It means the value of investment has risen considerably over the period.

Figure: 3.3 Price to Book value Ratio in BSE Sensex



Source: *Bombay Stock Exchange (Statistics- www.bse-india.com).*

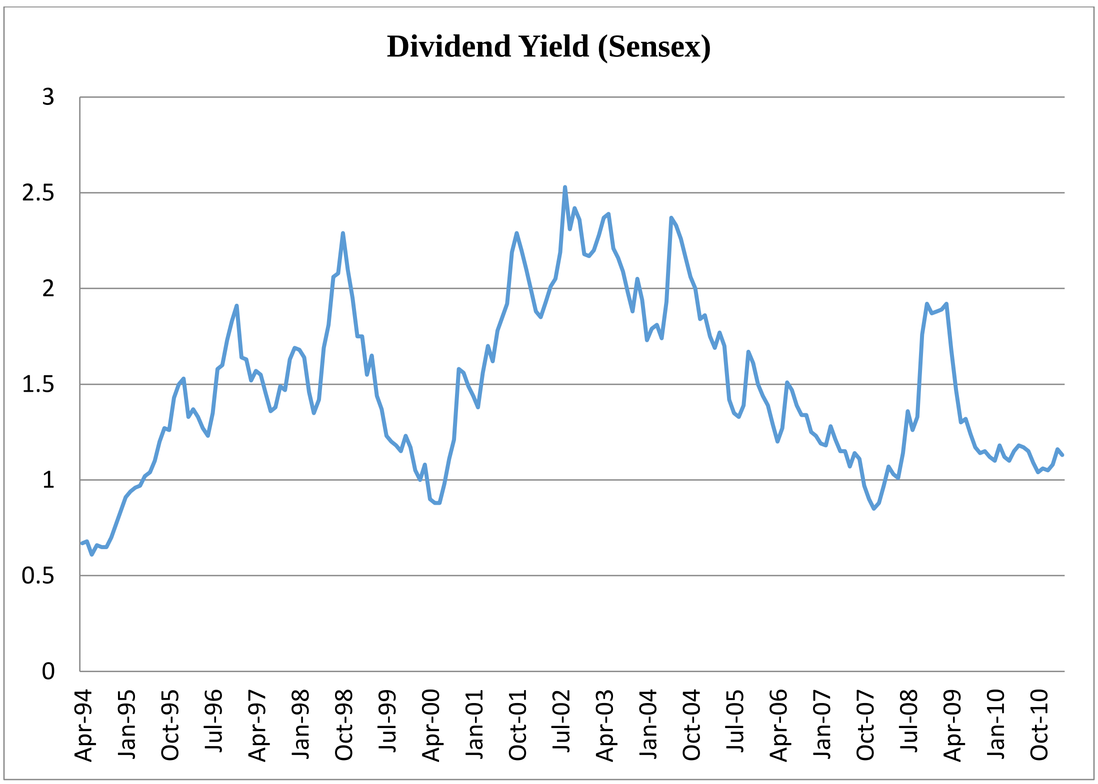
Price/Book Value Ratio

Price to book value ratio is also called as the market to book value ratio, it can calculate as follow:

$$P/B = \frac{\text{Market perice per share}}{\text{Book value per share}}$$

Price to Book value ratio can be calculated by Market price per share divided by book value per share. This ratio tells if the market price is higher than book value and by how many times, or it is lower and by what percent. The figure: 3.3 exhibits the price to book value ratio in BSE Sensex during the period April 1994 to June 2010.

Figure: 3.4 Dividend Yield in BSE Sensex



Source: *Bombay Stock Exchange (Statistics- www.bse-india.com).*

Dividend Yield

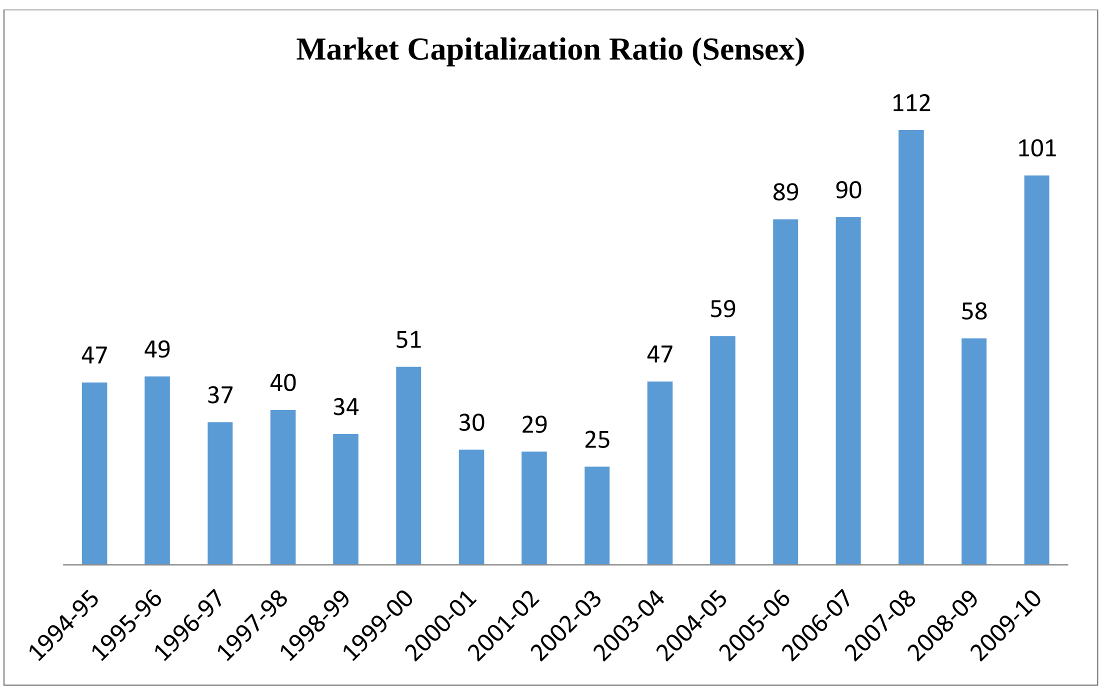
The dividend yield relationship between cash dividend paid to common shareholders and the market price per share of common stock.

$$\text{Dividend Yield} = \frac{\text{Dividend per share}}{\text{Market price per share}}$$

A low ratio means a low rate of current income distributions, or return, on the stock investment. An investor could possibly increase his or her return by selling the stock and purchasing stock in a higher yielding company. A high ratio indicates a favourable return. As long as dividend yield remains high, an investor would have no incentive to change his or her investment. Investors respond negatively when a company reduces its dividends. Generally a reduced dividend payout is followed by a decline in the market price per share of stock. This ratio is best used to compare companies with relatively stable stock prices for two reasons. First, a company with a wildly fluctuating stock price does not provide as meaningful a yield ratio. Second, these types of stocks are intended for long-term returns, not the increase in capital gains.

Dividend yield of BSE Sensex is exhibited in the Figure: 3.4 by monthly data. The figure shows the upward trend of dividend up to October 1998 and it was 2.29 percent in October 1998. After this month, it was declining and it was only 1 percent in February 2000. It is again moving upward trend and it was 2.53 percent in August 2002. It is slightly declining after Aug. 2002. Dividend yield had decreased after 2008 due to financial crisis. The stock market had come down.

Figure: 3.5 Market Capitalizations in BSE Sensex (% GDP)



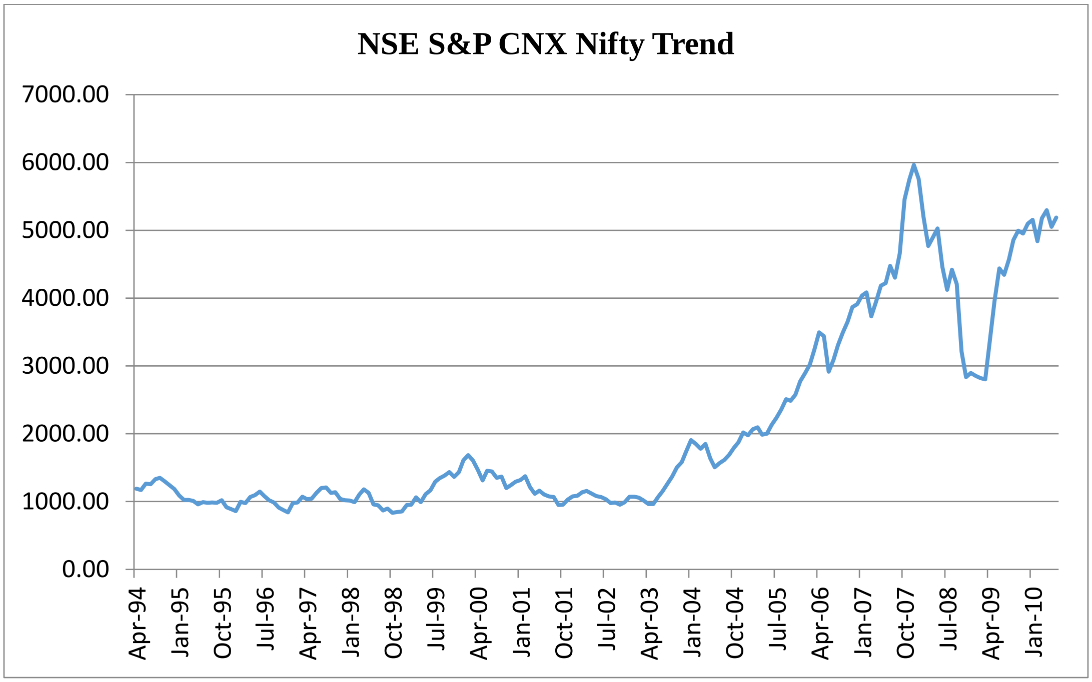
Source: *Bombay Stock Exchange (Statistics- www.bse-india.com).*

Market Capitalization

Market capitalization represents the aggregate value of the company or stock. Market capitalization value is calculated by multiplying the number of outstanding shares by their current price per share. The outstanding shares refers shares those are held by investors including restricted shares owned by the company's officer and insiders as well as help by public. For instance, ABC Ltd. company has 100,000 outstanding shares and price is Rs. 50 per share, then the market capitalization value is 50*100,000 = Rs. 5000,000. It is also called market cap.There are many types of market capitalization like Mega cap, Big/Large cap,Mid cap, Small cap, Micro cap, and Nano cap. Mega cap includes companies those have a market capitalization of $ 200 billion and greater.Big/Large cap includes companies those have a market capitalization of $ 10 billion to $ 200 billion. Mid cap includes companies those have a market capitalization of $ 2 billion to $ 10 billion. Small cap includes new or relative to young companies have a market capitalization of $ 300 million to $ 2 billion. Micro cap denotes market capitalization between $ 50 to $ 300 million falls into this category. And nano cap includes companies those having market capitalization of below $ 50 million.

The figure: 3.5 exhibits the market capitalization in Bombay Stock Exchange. The figure is shown by yearly data on market capitalization. The figure shows 47 percent market capitalization of GDP in year 1994-95. It shows lowest 25 percent market capitalization in year 2002-03. After this period, it tends to increase which is shown in the figure. In the recent year, the BSE has been attracting the attention of policy makers. The figure of market capitalization in BSE shows the positive attitude among the investors.

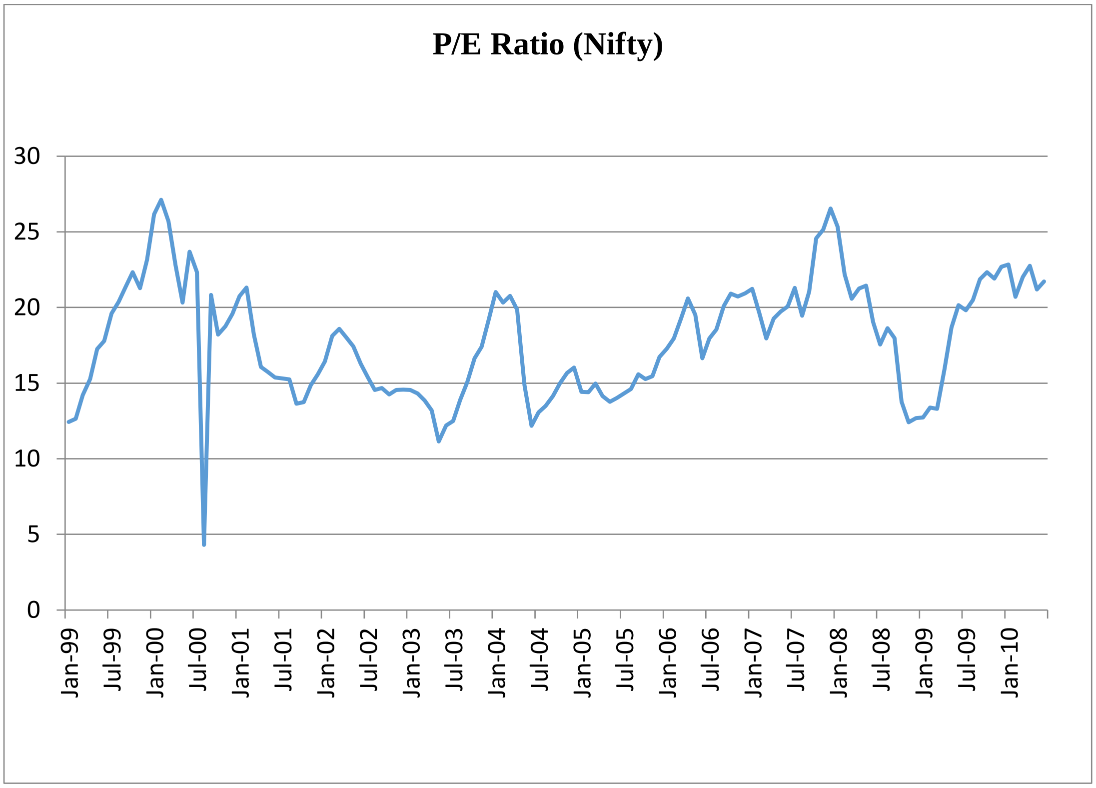
Figure: 3.6 Trend of stock prices in NSE Nifty



Source: *National Stock Exchange (Historical Data- www.nse-india.com).*

The trend of price index NSE Nifty is exhibited in the figure: 3.6. The trend of stock price index shows the stable up to August 2003. The figure is showing the significant high from August 2003. After the year 2003, it was moving upward and maximum in the period of August 2007 to April 2008. Moreover, it was sharply declined after April 2008 due to financial disturbance. Several aspects of the macroeconomic performance reflects the Indian stock market.

Figure: 3.7 Price to Earnings Ratio in NSE Nifty



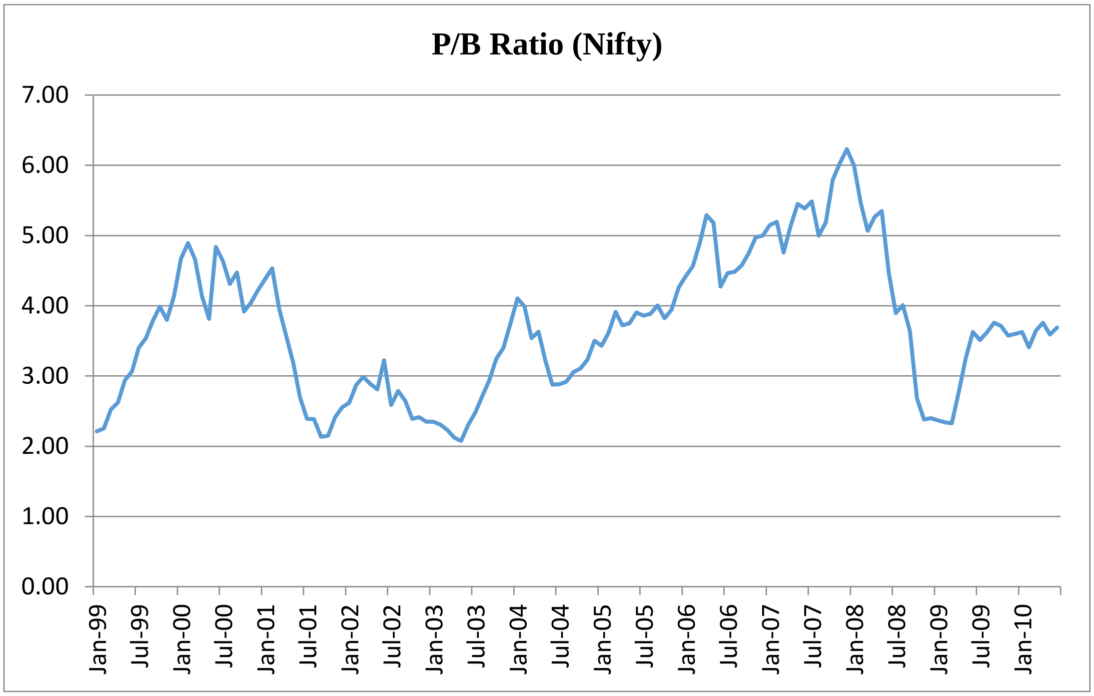
***Source**: National Stock Exchange (Historical Data- www.nse-india.com).*

Note: Data on P/E ratio in NSE Nifty is available from Jan 1999.

Price to Earnings Ratio

The figure: 3.7 exhibits the price to earnings ratio in NSE Nifty during the period Jan 1999 to June 2010. The data of price to earnings shows the fluctuating figures as per shown in above figure. Price to earnings ratio was increased in January 2000, but after this period it was sharply declined in June 2000. Although, it was recovered quickly. It was moving upward and downward in the period January 2002 to January 2008. It was decreasedAfter the January 2008.

Figure: 3.8 Price to Book value Ratio in NSE Nifty



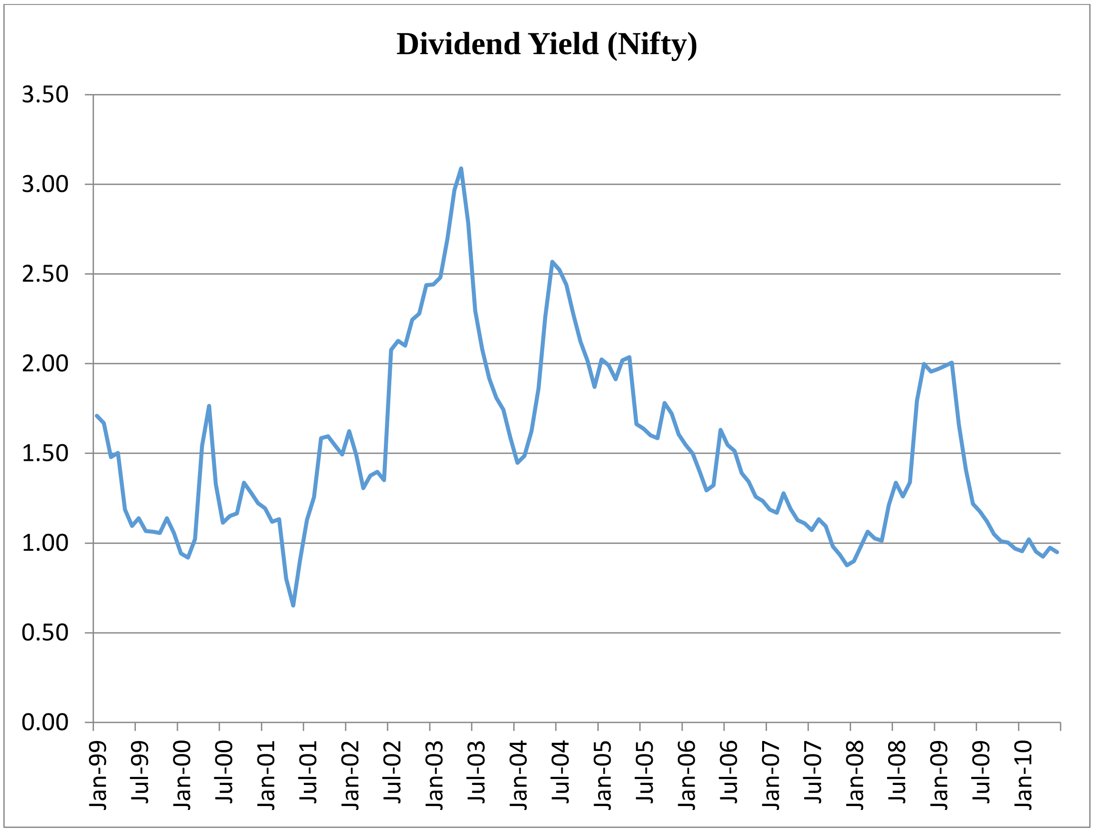
***Source**: National Stock Exchange (Historical Data- www.nse-india.com).*

Note: Data on P/E ratio in NSE Nifty is available from Jan 1999.

Price to Book Value Ratio

The figure: 3.8 exhibits the price to book value in NSE Nifty for the period January 1999 to June 2010. Price to book value responds to stock market index. If the market value of stock is going to high, than price to book value ratio will also increase. Price to book value ratio attracts to investors.

Figure: 3.9 Dividend Yield in NSE Nifty

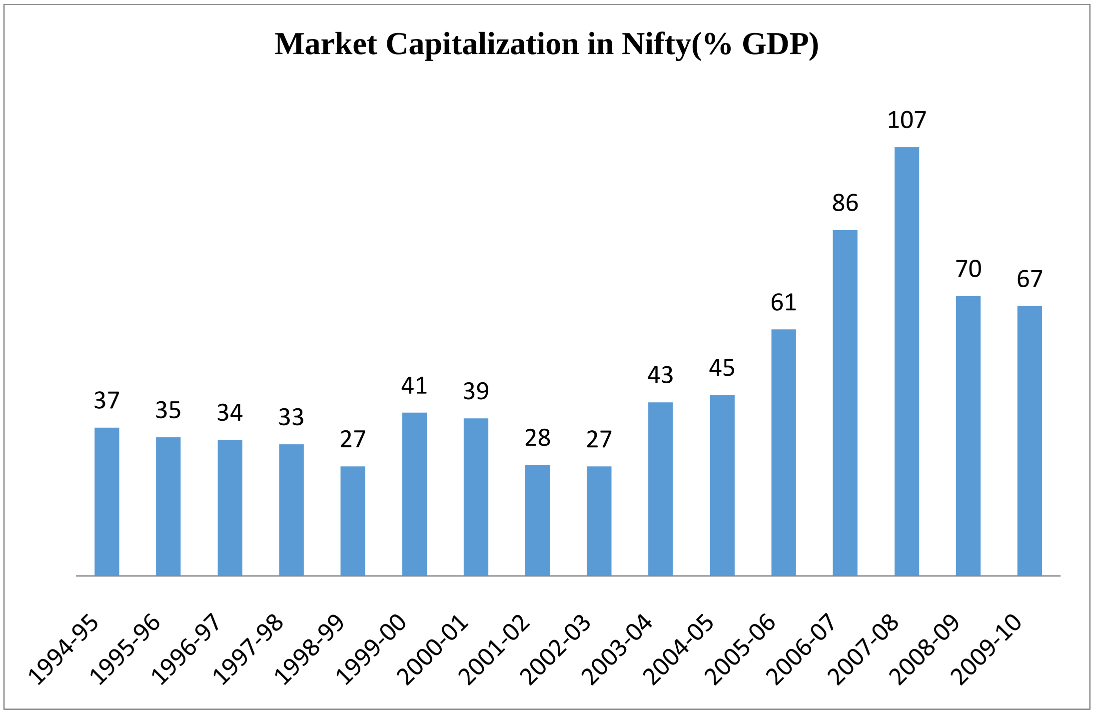


***Source**: National Stock Exchange (Historical Data- www.nse-india.com).*

Dividend Yield

The figure: 3.9 exhibits the dividend yield in NSE Nifty during January 1999 to June 2010 on basis of monthly data. It shows the upward trend from July 2001 to July 2003. After July 2003, dividend yield sharply declined up to January 2004. The dividend yield was stable decreasing from July 2004 up to January 2008. It was again moving up to Jan 2009, although it is declining after January 2009.

Figure: 3.10 Market Capitalizations in NSE Nifty (% GDP)



Source: Handbook of Statistics on Indian Economy (RBI) and Economic Survey 2010-11.

Market Capitalization

The Figure3.10 reveals the market capitalization in National Stock Exchange in form of percentage Gross Domestic Product (GDP) during the period 1994-95 to 2009-10. Market capitalization to GDP is calculated as market capitalization divided by current GDP obtained from Economic-survey 2010-11. The figure shows that market capitalization was decreasing in the period of initial year 1994-95 to 1998-99. We found that market capitalization is increasing from the period 2002-03 to 2007-08 as per shown in figure. It shows the highest capital in year 2007-08.