CHAPTER 2

INDIAN STOCK MARKET

AND VOLATILITY: AN

OVERVIEW
Chapter 2:

2.1 Introduction

2.1.1 History of Indian Stock Market:

One of the largest and oldest stock market of Asia is the Indian stock market. During the eighteenth century when the East India Company was ruling our country, stock market first evolved in our country. Basically, the concept of share market in India came in due to the trading of some loan securities and cottons in Bombay in the year 1830. The number of brokers during 1840’s and 1850’s was very few but the trading was done in a considerable volume. The urge for trading the shares began in India with the breakdown of American Civil War and the cotton supply from the U.S. to the Europe was stopped. In 1875, a formal organization called Bombay Stock Exchange (BSE) was launched with around two hundred and fifty brokers.

The majority of the stock broking firms in BSE were family run enterprises and the name of those firms were given after the heads of those families. A comprehensive list of such firms is as following:

1. D.S. Prabhudas & Company (now known as DSP Black Rock)
2. Jamnadas Morarjee (now known as JM)
3. Champaklal Devidas (now called Cifco Finance)
4. Brijmohan Laxminarayan

Although, in the year 1956, the Government of India recognized the BSE as the first stock exchange in the country under the Securities Contract Act., BSE
was again reformed after the scandal of Harshad Mehta. The encouragement of creation of National stock exchange came from the foot dragging by the BSE due to this scam. National Stock Exchange started to function on the fourth November, 1994 and this was the first electronic stock exchange of the country. Surprisingly, NSE turnover exceeded the BSE turnover within a year or so. In spite of transforming the BSE as an automated stock exchange, BSE could never touch the success of NSE just after one year of launching of NSE. One of the main reasons for BSE's continuous failure is the blocking of equity derivatives trading whereas NSE embarked on the derivatives trading. But BSE had to adopt this trading after another scandal initiated by the President of BSE Mr. Anand Rathi in the years 2000 and 2001. The 100% market share of derivatives trading and 66% of market share in equity spot trading is scored by the NSE. The equities are traded on a Capital market so it is necessary to have some information regarding a Capital market.

2.1.2 Capital Market:

The capital market is broadly categorized in two markets: a) Primary Market and b) Secondary Market.

2.1.2.a) Primary Market:

Primary market is a market where the Government tries to raise long term funds by using the securities such as debt or equity. The promoters’ capital and the loan acquired from different banks may not be sufficient to run a company smoothly in long term, in such a situation it is necessary to invest in a primary market in terms of issuance of some debt or equities. These securities are traded
either at their face value or at premium or at discount. The following are the definitions of these terminologies:

2.1.2.b) Secondary Market:

The secondary market is such a market which provides liquidity to the investors of the primary market.

Since, NSE holds majority of the market shares, this study is concentrated on the ups and downs of the National Stock Exchange. NSE is the leading stock exchange of India covering 364 cities across the country. NSE was set up with an aim to facilitate the investors with modern, fully automated trading by the leading institutions. The main features of this market are transparency, integrity, safety, efficiency and speed of transactions. NSE uses the state of the art information technology for implementing the microstructures, market practices and trading volumes.

Since National Stock Exchange (NSE) is the best performing exchange of the country, it gives rise to the urge to know the objectives of the same.

The main objectives of the NSE are as following:

- To establish a nation-wide 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 investors using electronic trading systems,

- To enable shorter settlement cycles and book entry settlements systems,

and

- To meet the current international standards of securities markets.

NSE’s standards cannot be matched with any other stock exchanges in India and it has become a benchmark for other participants. NSE is a guideline to the industries to reach their heights to new horizons. Till the inception of the NSE, investors did not have the liberty to invest in a security which is not traded in the nearest exchange but they had to route their investment through a number of agents and resulting to which a huge cost was incurred. But NSE has given the investors a platform where they can execute any transactions on their own and as a result maximum profit can be made. Using the latest technologies, NSE has made it possible for the investors to access any kind of trading of spot or derivatives. NSE trading terminals are present in 363 cities and towns all over the country. Financial institutions, banks, intermediate organizations have promoted the NSE to the height. NSE is the first demutualized exchange in the country. Although NSE was established by the policy makers of the country, but it is now owned by the leading institutional investors in the country. The ownership, management and trading are in the hands of three different sets of people in NSE. NSE’s policies are made such a way that it aggressively pursues policies and practices within a framework of public interest. NSE model accommodates involvement, support and contribution of a trading member in many ways. Senior
executives from institutional investors, eminent lawyers, accountants, economists, financial experts, nominees of SEBI and many more are the members of the board of NSE. Market operations are delegated to various committees organized by the Board which deals with the policy issues. The committees consist of some trading members, professionals, representative from the management and public. The managing director and his/her supporting team are entrusted with the responsibility of the day-to-day management.

2.1.3 Features of NSE and BSE:

Since the emergence of the NSE, it has been the leading stock exchange of India. The investors expect a better transparency in trading, trading cycle, honesty in transactions from a stock exchange and they also expect that their grievances will be sorted out without any harassment. The general features of the leading stock exchanges (BSE and NSE) are as following:

2.1.3.a) Market Timings:

NSE and BSE continue their trading on all working days of a week (except Saturdays and Sundays and holidays declared by the exchange in advance).

2.1.3.b) Automated Trading System:

NSE and BSE use the latest technology for an automated trading system. NSE operates on the National Exchange for Automated Trading (NEAT) system and BSE operates on the BSE’s online Trading (BOLT) system.
2.1.3.c) Order Management in Automated Trading System:

The members are entitled to a complete flexible setup in case of placing an order for trading on equities. Every order is first numbered and then processed for respective matches. Unique order id is given to each and every order and if the respective match is not found then the orders are stored in a different storage place. The priorities associated to the process of order keeping are the best price, within price and time. The higher priority is given to an order with the best price and this is termed as the price priority. If two orders of same price are entered then the order which is placed first will get the first priority and this is termed as the time priority.

2.1.3.d) Order Matching System:

The highest priced order i.e. the best buy order is matched with the lowest priced order or the best sell order. This is because the system considers all buy orders from the seller’s point of view and similarly all sell orders from the buyer’s point of view. Hence, a seller will always prefer to sell his/her stock at the highest possible buy price among all the available buy orders. So, the best buy order is the highest priced order and the best sell order is the lowest priced order. The orders entered in the system by the members will be displayed till the full quantity of the orders is matched properly and results into trade or the order is cancelled by the member himself/herself. However, proactive members may put orders which match any of the existing orders. Two types of orders are identified as the active order and the passive order. The active order is an order which is matched with an existing order and the passive order is an order which remains
unmatched. All the orders are matched on the basis of the price of a passive order which ensures that the priority is given to the time of placing an order.

2.1.3.e) Order Conditions:

Some conditions are always hidden behind a decision for choosing a certain order to be placed by a member of a stock exchange and these conditions may be as following:

    2.1.3.e.a) Time Related Condition

    2.1.3.e.b) Price Related Condition

    2.1.3.e.c) Quantity Related Condition

2.1.3.e.a) Time Related Conditions:

There are several types of time related conditions for placing an order and those are:

    2.1.3.e.a.i) Day Order:

    Day order is an order which is invalid as soon as the day, when the order has been placed, is passed. If the order is not matched with any other order on the entire day when the order has been placed, the order is cancelled automatically at the end of that day.

    2.1.3.e.a.ii) Good Till Cancelled (GTC) Order:

    Unless a member cancels an order of such type, it will remain in the system. Hence this kind of order will not depend on the time rather it will depend on the cancellation done by the trading member. There is a certain limit, given by the regulatory committee of a stock exchange, on the number of GTC orders which can be kept in the system and this limit is liable to change from time to time.
2.1.3.e.a.iii) A Good Till Days/Date (GTD) Order:
For this kind of orders, the member has the liberty to hold the order for a time period specified by him/her. The number of the days, on which the orders are being held, will be counted as the total number of days for the GTD order. The counted days include the working days and the holidays as well. The period of holding the order also includes the day on which the order is placed. The maximum time period for which a GTD can be held in the system is again decided on the basis of the notification given by the Exchange from time to time.

2.1.3.e.a.iv) An Immediate or Cancel (IOC) Order:
A member is allowed to buy or sell an IOC order as soon as it is launched in the market otherwise the order will be deleted from the system immediately. Even partial match of the order is allowed, if one portion of the order is matched with any other order, only that portion will be kept and the rest of the portion will be cancelled.

2.1.3.e.b) Price Related Conditions:
There are different types of conditions which depend on the price of the instrument.

2.1.3.e.b.i) Limit Price/Order:
If the price of an order can be specified at the time of being registered into the system, the condition is called a limit price condition.

2.1.3.e.b.ii) Market Price/Order:
If an order can be bought or sold at the best price which could be observed at the time of launching the order, the condition is said to be Market Price condition.
2.1.3.e.b.iii) Stop Loss (SL) Price/Order:

This condition will give a liberty to the member that he/she can place the order which gets activated only when the price of that order strikes a threshold price. Triggering of the price of a sell order in the Stop Loss Book occurs when the last traded price strikes or fall below the specific price of the order. Similarly, a buy order gets triggered depending on the last traded price in the market strikes or is more than the specific price of the order.

2.1.3.e.c) Quantity Related Conditions:

There are certain quantity conditions as well.

2.1.3.e.c.i) Disclosed Quantity (DQ):

A DQ condition of any order gives the right to the member to disclose whatever portion of the order he/she wants to reveal to the market. The minimum disclosed quantity may be specified by the exchange from time to time. The total amount of the order will be disclosed or revealed batch wise meaning if two thousand orders are made with a disclosed quantity five thousand, then first the five hundred orders will be traded and until these five hundred orders are traded, no other orders will be displayed. But as soon as the five hundred orders are traded completely, next batch of five hundred orders will be revealed and this will go on until the full quantity is exhausted.

2.1.3.e.c.ii) Minimum Fill (MF):

Minimum Fill means that the minimum number of orders to be traded at a time is specified by the member or in other words, the maximum no. of trades for the
total quantity to be exhausted is specified by the member. A minimum fill of five hundred orders for a total quantity of five thousand orders means that each trade has to be of at least five hundred orders or in other words, maximum number of trades allowed for the five thousand orders to be traded is ten.

2.1.3.e.c.iii) All or None orders (AON):

This condition imposes a constraint on the volume of trade. If the full order is not matched with any other order, no trade will occur.

2.1.4 Market Segments:

The market can be segregated in the following way:

2.1.4.a) Rolling Settlement:

In such kind of settlement, the trades are settled based on the net obligations for that day. NSE’s rolling settlement rule says that every trade will be settled on the second working day (excluding the holidays) from the day of trade. Monday’s trades are settled on Wednesday, Tuesday’s trades are settled on Thursday and similarly the Friday’s trade is settled on the Monday.

2.1.4.b) Limited Physical Market:

To cater with the facility, to the small investors with physical shares, of getting out of market very easily, exchange has forced for mandatory dematerialized settlement for maximum up to 500 shares. This type of market is called Limited Physical Market.

2.1.4.b.i) Features:

1) Maximum order quantities should be 500 shares.
2) The base price and price bands applicable in the Limited Physical Market are same as those applicable for the corresponding Normal Market on that day.

3) Trading hours are the same as that of the normal market and order entry during the pre-open and post-close sessions is not allowed.

4) Settlement for all trades would be done on a trade-for-trade basis and delivery obligations arise out of each trade.

5) Orders get matched when both the price and the quantity match in the buy and sell order. Orders with the same price and quantity match on time priority i.e. orders which have come into the system before will get matched first.

6) All Good-till-cancelled (GTC)/Good-till-date (GTD) orders placed and remaining as outstanding orders in this segment at the close of market hours shall remain available for next trading day. All orders in this segment, including GTC/GTD orders, will be purged on the last day of the settlement.

7) Trading Members are required to ensure that shares are duly registered in the name of the investor(s) before entering orders on their behalf on a trade date.

2.1.5 Brokerage Cost and Other Transaction Costs:

There is no minimum amount of brokerage specified by the exchange but the maximum amount of the brokerage is up to 2.5% of the total contract value. The brokerage usually depends on the broker whom the members are dealing with. The cost of the stamp duty for transferring the authority of ownership of any security is incurred by the buyer in practice but the scenario should be exactly opposite to it. Although, the cost of stamp duty varies from state to state but in majority of the cases the rate is 0.5% of the total value.
2.1.6 Listing of Securities:

Listing of Securities means the registration of a security of either public limited company or central or state government organizations or any financial institutions or any private limited company, to a well known stock exchange. The following are the objectives of listing one security:

1) To provide liquidity to securities;

2) To mobilize savings for economic development;

3) To protect interest of investors by ensuring full disclosures.

Securities Contracts (Regulation) Act, 1956, Companies Act, 1956, Regulations of the Exchange, Securities Contracts (Regulation) Rules, 1957 and Guidelines issued by the SEBI are the main regulating authority to decide upon the listing of any company in the Exchange.

2.2 A Brief Overview of Indian Economy:

The first decade of this millennium was a mixture of hazards and take offs for the Indian Economy. Although, globalization and liberalization of the economy has given a new life to the Indian economy, it has also set new challenges for the same. In 1947, after the independence, India inherited the poorest economy of the world in case of the manufacturing sectors but at the same time it had one of the best financial markets with four leading stock exchanges in the country. India was also blessed with rules for listing of companies, trading and settlements, a well developed equity culture but on the contrary, it had no clear lending and recovery norms for the banking systems. On the inception of the Indian financial markets, corporate laws and laws protecting the rights of the investors were
considered for forming the Indian companies Act, 1956. A severe balance of payment crisis was faced by India in the years 1990-91. This was due to the liberalization, deregulation and privatization of some of the state sector enterprises. The rate of growth of India’s economy for the three decades after the independence was about 3.5% but it was again accelerated to about 5.6% at the end of the 1980’s. The second highest GDP, among that of the world’s largest economies, was attained by the Indian economy during 1990-2005 and the rate was 5.9% and it was behind the China’s GDP which was 10.1%. The 52% of the GDP of India was generated in the services sector whereas agricultural and manufacturing sectors produced 22% and 26% of the GDP respectively.

2.2.1 Financial Markets since Liberalization:

The Domestic Economy: Every facet of Indian economy got altered due to the adoption of globalization and liberalization in the economic scenario. Globalization and deregulation have also given rise to the competition with the world market. The private sectors marched towards the unrealistic targets given to the employees to combat with this competition. However, the inflation rate has shown a steady status even after the globalization took place. On the other hand, a sharp decline in the interest rates has been experienced after the introduction of liberalization.

The External Sector and the Outside World: Importance of the foreign trade in the national income is a proof for the integration of India's financial markets with the world economy. The share of foreign trade in India’s GDP became fifty percent after a decade from the inception of liberalization. The
foreign trade and the Foreign Direct Investment (FDI) have been substantial. These flows of fund have given rise to a remarkable growth compared to the previous years. The era of economic reforms started with a steep devaluation of the Indian currency. However, in the decade of 1990’s the rupee was stabilized in comparison with the U.S. dollar. In recent scenario, the rupee has been devaluated to an extent to which it was never been.

The Asian crisis has been the most widespread financial crisis ever which devastated the financial markets of South East Asia in 1997 and the retrospective effect of the same continued till the new decade was started. More recently, the U.S. housing bubble destroyed the financial systems of majority of the countries in this world. It has been observed, over the years, that Indian financial markets have become more immune to these kinds of financial crises. However, India has faced tremendous challenges during any financial crises due to the international forces. The financial integration of Indian market with the rest of the world is the reason behind the reaction of the Indian financial markets to the recent global meltdown, 2008. Financial markets in India have witnessed a number of transformations since the liberalizations. Indian banking sectors have grown remarkably in due course of time. Compared to the other countries, India's banking sector has done quite well in terms of managing the Non Performing Loans (NPL) problems. Banking sector in this country has been very strict in selecting the borrowers and this is why the number of NPL could be reduced. Although the nationalized banks remain the largest business making banks but the private banks are also no way lacking in wrestling with them. The economic
health of a nation as well as the health of the banking sector is dependent on the proportion of Non Performing Assets (NPA) in the loan portfolios of the banks.

At least two financial crises have tumbled the Indian stock market badly. The initial reforms affected the Indian stock market so deeply that the reliability of the equity markets was questioned. In 1998 and again 2001, the status of the Indian stock market attracted the investigation by the parliamentary committee and the leading media communities.

2.2.2 Stock Market Volatility:

Volatility of stock market is one of the most important indicators of the characteristics of the Indian stock market. Pricing of a security is dependent on the volatility of each of the assets associated to the same. The regulators, financial institutions and the researchers are widely affected by the term volatility. Volatility of financial market returns is approximated by the variance of the time series of prices. The flow of information to the relevant market induces the expectations of the investors and the volatility of the market. Changes in interest rates, inflation, and macroeconomic growth are some of the news which regulates the movement of the volatility of the respective markets. The dividend declaration by a company or the release of the annual report of a company may also give rise to the change in the volatility of the price of the respective company. Intra market volatility and the inter market volatility should be properly understood before studying the volatility of a market. Rate of information flow into the relevant market is directly related to the variance of price changes and so volatility is very important to be understood from the root. Based on the huge
literatures, it has been seen that Autoregressive Conditional Heteroskedasticity (ARCH) and Generalized Autoregressive Conditional Heteroskedasticity (GARCH) are the most appropriate family of models for modeling volatility with minimum possible error. From common sense, it can be said that volatility in one market is automatically transmitted to another. This phenomenon holds true both for national and international markets e.g. any disturbances in the U.S. stock market causes ups and downs across the stock markets of different countries. One of the features of volatility is the clustering of large moves and small moves. Volatility clustering may be one of the reasons of transmission of shocks from the present to the future. Volatility clustering also implies that a period of high volatility is followed by a period of normal volatility and a period of low volatility is followed by a rise in the volatility. Every asset has an underlying volatility and the effect of any shocks on the volatility is self corrected and comes back to its mean level after certain point of time and this phenomenon is called mean reversion. Sometimes, the effect of the shocks is long persistent and it takes a lot of time for the asset to get its mean level of volatility back. Hence, a series of the price of an asset can be characterized by the degree of the persistence of volatility. Cont (2007) has observed the volatility clustering and persistence by using an agent based models of financial markets. Granger, (1980) has reported that volatility persistence can be due to the modeling of cross section time series with different persistence levels for different market participants.

Over the years, Indian stock market has become one of the most attractive markets to study. Market efficiency cannot be denied only if the
fluctuation in the market is very high rather it is one of the most important parameter for a market to be efficient and it reflects the transparency of the market. On the other hand, excessive amount of volatility may cause destruction and which may lead to crashes or crises in financial markets. Hence, it is very important to model the volatility of a financial market since this is the most important characteristic which is supposed to be looked into. The fluctuation of stock prices or the major stock indices is measured by the standard deviation or the volatility. This study mainly focuses on the volatility of Indian equity market during the recent global recession, impact of some economic indicators on the volatility of Indian equity market, cross border volatility spillover from other countries to the Indian equity market, impact of some political indicators and introduction of derivatives on the Indian stock market and modeling volatility of the commodity derivatives market of India.

On the onset of the decade, which has been considered in this study, the Indian equity market was highly volatile as an effect of the 1997 Asian financial crisis. Asian financial crisis started in July, 1997. Thailand was the place where this crisis was started to spread over worldwide and led to an economic downturn. Majority of the Southeast Asia and Japan were awfully affected as this crisis spread over. Nevertheless, India was not an exception to the effect of this financial contagion and saw a meltdown in all its economic activities. However, by 1999 many researchers had experienced that almost all the Asian countries could recover from the severe effect of this crisis.
2.3 Overview of Different Financial Crises:

Allen and Gale (2007) identified some major financial crises in four different eras i.e. Gold Standard era (1880-1913), The Interwar era (1919-1939), The Bretton Woods Period (1945-1971) and the recent period (1973-2012). There are several financial crises which occurred during these four periods.

2.3.1 Past Financial Crises:

2.3.1.a) Pre Great Depression:

In the Gold Standard era, banking crises, currency crises and twin crises occurred but the severity of these crises were limited. In a way, it can be said that this era was the most harmless era for financial markets.

Interwar years were the most susceptible to recession compared to all other periods since the Great Depression occurred in this period.

2.3.1.b) The Great Depression:

The Great Depression in the early 1930s was the worst financial crises in the U.S. During this crisis the output of industrial sector declined by thirty percent, prices decreased by twenty four percent and unemployment increased from four percent to twenty percent. Bordo and James (2009) stated that a number of bank failures resulted in the Great Depression in 1933. Allen and Gale (2007) reported that after the Great Recession, majority of the banks were brought to under the state control to prevent them from risk. And this is why, the banking crises were almost eliminated from the root.
In the Bretton Woods period, except the twin crisis in Brazil in 1962 there were no significant crises occurred in this period.

2.3.1.c) The Scandanavian Crises:

Allen and Gale (2007) stated that Norway, Finland and Sweden went through twin crises. In 1985 and 1986 lending increased by forty percent in Norway, prices of assets increased and this led to the twin crises. This phenomenon was mainly due to the collapse in oil prices and the most severe banking crisis. They also found that housing prices rose by a total of sixty eight percent in 1987 and 1988. Soviet Union went through a severe crisis in the year 1990 and 1991 due to decline in trade. Asset prices declined, GDP declined by seven percent and the banks were taken under the state governments. A steady credit expansion in late 1980s resulted in property boom in Sweden which was followed by a recession.

2.3.1.d) Japanese Financial Crisis:

Japanese real estate and stock markets were severely affected by a recession in 1980s. During the decade of 1980s, financial liberalization took place and this resulted in an expansion in credit. Davis (2003) said that introduction of a new Governor of the Bank of Japan in 1989 led to the tightening of the monetary policy to counteract since he was less interested in supporting the U.S. dollar than fighting against inflation.

2.3.1.e) Mexican Crisis (1994):

Olivie (2009) reported that a number of Latin American countries initiated economic reforms in late 1990s. In case of Mexico, the terms for access to certain treaties or organizations (e.g. North American Free Trade Agreement,
OECD and the General Agreement on Tariffs and Trade (GATT)) and domestic reform process conveyed an economic reform agenda that incorporated domestic economic deregulation, an opening up in terms of trade and finance and the privatization of public sector, companies in several sectors. In Mexican pesos, excessive foreign debt and a rise in internal credit directed at high-risk activities meant that there was a currency imbalance between assets and liabilities.

2.3.1.f) The Russian Crisis and Long Term Capital Management:

Long Term Capital Management fund was quite successful and gave a high returns for its investors until 1997 but in 1997 the returns declined and in 1998 Russia devaluated its currency and defaulted on 281 billion Roubles which resulted in global crisis with highly volatile stock market. Davis (2003) said that the Federal Reserve Bank of New York coordinated a rescue fund to avoid a massive crash in global market.

2.3.1.g) Asian Crisis (1997):

In the first half of 1990s, Asian countries such as Singapore, Hong Kong, Taiwan, Thailand, Indonesia and Malaysia showed an increasing trend in economic performance. In 1997, the Thai Central bank stopped defending the Thai Baht and hence the return fell down by fourteen percent in the onshore market and nineteen percent in offshore market (Allen and Gale (2007)). Malaysian market also came under pressure. This led to the Asian Financial crisis in 1997. They also said that Singapore, Taiwan and Hong Kong’s exchange rates were severely affected. The effect of this crisis was persistent even after the turmoil
was over by the end of 1997. Output of many financial and industrial sectors decreased heavily and a lot of financial institutions were bankrupt.

2.3.1.h) The Argentina Crisis (2001-2002):

In 1991, Argentina government initiated a currency board where it was decided that Argentina peso will be pegged at a one-to-one exchange rate with the dollar which led to the limited printing of peso and this resulted in low inflation rate and due to this the country went through a very good economic growth during early 1990s. But in spite of this, a number of weaknesses developed during these years. Argentian’s GDP decreased by 2.8% and this led to a financial crisis. Davis (2003) emphasized that in 2001 it became evident that Argentina’s financial condition has been deteriorated and it entered into a deep recession.

Helbling (2009) suggests that in both the Great Depression and the current crisis, the U.S. economy was the centre of the financial contraction. This characteristic differentiates these episodes from the any of the financial crises that have occurred in the past few decades. A global impact has thus been all but certain from the onset because of the weight of the US economy and its financial system.