Chapter 3: Research Methodology

3.1 Introduction

The Considerable literature reviews existing regarding FII investments and performance of Indian stock market. This Review of existing literature examines recent and historically studies investigate regarding influence of FII investments on stock market. The literature review may also guidance to prepared valuable research methodology for study. Research is most of the driven by the need to find solutions to problems. This is best done in an orderly fashion with the focus on building a strong foundation to a theoretical framework upon which subsequent work can be built, so spotless and focused research methodology is the root of any research process.

This chapter is used to discuss fundamentals research methodology and different statistical tools and techniques of the research study. Researcher has framed hypothesis for study objectives and identify dependent variables and independent variables for research work. Moreover, this chapter assists to justify the research methodologies employed for the present study and shows how sample design, data collection and analysis, hypothesis are apply to fulfill the research objectives draw round. Therefore, methodologies applied in this research study to investigates the main objectives that is cause of volatility in Indian stock indexes; i.e. BSE SENSEX and NIFTY on account of outcome of FII investments in Indian stock market. There is a fitting result initiate with proper methodologies employed in this research study

Researcher has used a following research methodology for his study entitled "Role Of Foreign Institutional Investors (FIIs) In Indian Stock Market" which is as follow:

3.2 Review Of The Existing Literature

There are number of literatures existing in respect of the study FII investment and performance of stock market. This Review of existing literature examines recent and historically research studies on influence of FII investments on stock market. The literature review may also explain the need for the proposed work to appraise the shortcomings and gaps in research study. This analysis may go beyond scrutinizing the availability or conclusion of the past studies and their data, to examining the accuracy of secondary sources, the credibility of these sources and appropriateness of past studies.
Consequently, literature shows the way to researcher moves toward to the research title, objective of the study, and search out the appropriate findings. **Refine the problem as necessary in light of research findings.**

For this study researcher has reviewed various reference books, journals, magazines, news papers and other publications research papers, and many websites used to know the proper understanding concept and techniques of research activities.

Out of them effective literatures are as follow:

**Paramita Mukherjee, Suchismita Bose, Dipankor Coondoo, Indian Statistical Institute, New Delhi - Economic Research Unit (1)**

This research investigated the relationship of foreign institutional investment (FIIs) investment to the Indian equity market with its possible covariates based on a daily data-set for the period January 1999 to May 2002. The set of possible covariates considered comprises two types of variables.

Stock market influences by the daily market return and its volatility of equity markets and macroeconomic ones like exchange rate, short term interest rate and index of industrial production (IIP) — viz., variables that are likely to affect foreign investors’ expectation about return in Indian equity market.

Results suggested that though FII flows to and from India are significantly affected by return in the domestic equity market, the latter was not significantly influenced by variation in these flows. It is also found that apart from the return in the domestic market there are other covariates of such flows. While the dependence of net FII flows on daily return in the domestic equity market—at a day’s lag, to be more specific—was suggestive of foreign investors’ return-chasing behaviour, their decisions seem to get affected also by the recent history of market return and its volatility in international and domestic stock markets as well. He also found that the sets of factors affecting FII sale and purchase were not the same. **It appeared that some factors would affect purchase or sale decision of foreign investors, but not the corresponding.**
SSS Kumar, (2)
This research examined the role of Foreign investors in Indian stock markets and finds that the market movement can be explained using the direction of the funds flow from these investors. The Indian stock markets have really come of age there were so many developments in the last 15 years that make the markets on par with the developed markets. The important feature of developed markets is the growing clout of institutional investors and this paper sets out to find whether our markets have also being dominated by institutional investors. The regression results show that the combined might of the FIIIs and mutual funds are a potent force, and they in fact direction can forecast market direction using the direction of the flow of funds from FIIIs and mutual funds, the Granger causality test has showed that the mutual funds in fact lead the market rise or fall and FIIIs follow suit. This may actually raise questions on the market efficiency but on the contrary, markets become more efficient with the growing presence of institutional investors who predominantly go by fundamentals. Noise trading on the part of institutional investors will be less in Indian.

Murat Usta (3)
Target in this research was to analyze the individuality and the effects of transactions by foreign investors in an emerging market, namely the Istanbul Stock Exchange (ISE). Findings indicate that trading activity of foreign investors tracks the movements in general market index moderately intimately. However, it was unable to show a statistically significant relationship between total trades by foreigners as a percentage of total volume of trading and the returns on the ISE indices in a regression framework. On the other hand, there is a positive and statistically significant relationship between net trading volume of foreign investors as a percent of total volume of trading and returns on the ISE general market index and the sector indices. Furthermore, the relationship between returns and net foreign trading activity as a percentage of total volume of trading is enhanced for securities that are included in the ISE 30 index.

Monthly data covering a time period of 72 months between January 1997 and December 2002 is used in empirical analyses. The relationship between return and foreign trading activity is examined for the overall market and national sectors.
Findings of this study indicate that trades by foreign investors and the returns on individual securities and indices are related. However, since researcher examining contemporaneous volume and security returns, our findings do not indicate a casual relationship between these two variables. Rather it shows that there is a positive and statistically significant relationship between these variables. Analyzing the casual relationship between foreign trading activity and returns would be an interesting issue to look at in a future study.

Prasanna, P. K., 2008 (4)
This research paper examined the contribution of foreign institutional investment particularly among companies included in sensitivity index (SENSEX) of Bombay Stock Exchange, also examined the relationship between foreign institutional investment and firm specific characteristics in terms of ownership structure, financial performance and stock performance. It was observed that foreign investors invested more in companies with a higher volume of shares owned by the general public.

He has found that domestic sources of outside finance are limited in many countries, particularly those with emerging markets. Through capital market liberalization, foreign capital has become increasingly significant source of finance.

There are speculations of wider range on the expectations of foreign institutional investors. It is required to understand when they withdraw their funds and when they pump in more money. Higher SENSEX indices and high price earnings ratio are the country level factors attracting more foreign investment in India.

This provides a pointer for further research that market performance is the strong basis for attracting more foreign investment for the individual companies. The foreign institutional investors with draw their money when the stock market performance starts sliding down.
Karimullah (5)
The Research examined the impact of Foreign Institutional Investors’ (FII) equity investment behaviour in the Indian stock market. It attempt to found out the two-way (bidirectional) causality between foreign institutional investors (FIIs) behaviour and performance of Indian stock market for the period of January, 1997 to June, 2007. This article seek to examined the idea that financial liberalization induces increased efficiency in the financial market as permission of FIIs equity investment is an important example of financial liberalization. Return in the stock market is used as proxy for the efficiency of the stock market in India.

Granger Causality Test has been applied to test the bidirectional causality. Apart from net investment of FIIs, the 'Purchase' and 'Sales' behaviour of FIIs are analyzed separately. The result indicates that stock market performance is a major determinant of both the FIIs purchase and sales behaviour. But researcher did not find any strong evidence that the variations in the stock market indices are determined by FIIs investment behavior.

Ravi Akula (6)
The research was attempted to study the trends in Foreign Institutional Investment into India. It was observed that the FIIs investment has shown significant improvement in the liquidity of stock prices of both BSE and NSE. However, there was a high degree of positive co-efficient of correlation between FIIs investment and market capitalization, FIIs investment and BSE & NSE indices, revealing that the liquidity and volatility was highly influenced by FIIs flows. Further, it was also proved that FIIs investment was a significant factor for high liquidity and volatility in the capital market prices. The present study was a modest attempt to know the status of FIIs in Indian capital market.

Result of this research, the net investments made by the FIIs they are Rs. 1118 Crores in January, 2006. Later, year after year there was negative net investment recorded from January, 2007 to January, 2010. This may be due to the global financial crisis and other changes in the global business environment. It found that:
The FIIs investment in Indian securities market has shown fluctuating trend year after year. This may be due to changes in the global financial system. The global financial crisis has resulted in negative inflow of FIIs.

The number of FIIs has also steeply increased from 158 in 1993-94 to 540 in 2003-04 registering an increase at 242 percent and it was further, steeply gone up to 733 as on July 14th, 2005. This may be on account of liberal policies of the government towards foreign capital.

The reasons for enormous enthusiasm of FIIs in Indian capital market may be on account of they all structured, regulated and matured capital market, low risk, and evidence of basic fundamental in the Indian capital market. The Capital market in India could able to face financial crisis effectively with the help of regulatory authorities. The regulatory authorities such as Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI) have succeeded in protecting the interest of stakeholders. The financial system of India has once again proved its strength.

The foreign institutional investment was increased during the years 2006 and 2007. Later on, due to global financial crisis the investments by FIIs were reduced.

Dr. Rahul Singh (7)
He has studied that Indian stock market has seen an unprecedented growth in the last few years. Since year 2002, Indian market has grown from a much volatile conditions to growth phenomena, from a SENSEX point of 5500 in December 2003 to 13,600 in December 2006. This has been due to not only the domestic market but also the international investors. Since January 2004 which reached to close to 6000, SENSEX has seen many new heights for the period of study year 2007 and touched close to 19800 in December 2007. There have been doubts raised on the fundamental strengths of the economy for such height of the SENSEX.

There are many other variables which contribute to the positive growth of the stock market. FIIs investment is considered to be one of the biggest push after the economic fundamentals. The liberalisation of the FII flows into the Indian Capital Market since
1993 has had a considerable impact on Indian stock market. This paper is exploring the FIIs investment behaviour and its relationship with SENSEX movement.

Result of this research; though it is a popular belief that FII and SENSEX are positively correlated, our analysis also shows that there have been many instances for a negative correlation between the net FII and SENSEX.

Gaurav Agrawal (8)
He has investigated Causality between FIIs’ Investment and Stock Market Returns. This research studied the causal relationship between Nifty and FIIs’ net investment for the period January, 1999 to February, 2009 using daily data. This period has been divided into four phases on the basis of major global events. Nifty and FII are not normally distributed in all four phases. Nifty was found to be non-stationary at level and stationary at first level while FII came out to be stationary at level itself. Correlation between FII and Nifty was the maximum in the bear phase as compared to all other phases. Further they found the causality between Nifty returns and FIIs net investment. Granger Causality highlighted unidirectional relationship of Nifty over FIIs during each phase in the long run. Variance decomposition and impulse response functions determined the short term causal relationship which reveals that there was only positive unidirectional causality from Nifty to FIIs.

Dr. Tanupa Chakraborty (9)
This is research studied concern with Foreign Institutional Investment (FII) flows, i.e., capital flows across national borders, to emerging market economies (EMEs) have risen sharply over the past one and half decade due to globalization and India is no exception in this regard.

Researcher has studied the empirical investigation of the direction of causation between FII flows to India and Indian stock market returns over the time period April 1997- March 2005 has thus revealed that FII flows are caused by rather than causing the national stock market returns.
It may be noted that as information flows in financial markets drive both stock market returns and investment flows, the test of causality between returns and FII flows can be highly model-specific. In such a situation, the model-free approach of Granger causality holds immense potential in detecting the direction of causality between FII flows and Indian stock market returns.

In view of the limitations of using monthly, instead of daily, observations and of a shorter sample period, a more detailed study using daily data for a longer period or, even, dis-aggregated data showing the transactions of individual foreign investors at the stock level to help address questions regarding the extent of their herding or return-chasing behaviour can be identified as potential areas for future research.

Ravi kumar, (10)

This research investigated the nature of the causal relationship between stock returns, net foreign institutional investment (FII) in India. By applying the techniques of unit root tests, co integration and the long run Granger non-causality test, they test the causal relationships using monthly data for the period January 1993 to March 2006. Since the beginning of liberalization FII flows to India have steadily grown in importance.

In this paper researcher analyze these flows and their relationship with other economic variables and arrive at the following major conclusions: While the flows are highly correlated with equity returns in India, they are more likely to be the effect than the cause of these returns;

The main objective of the present paper was to determine impact and relationship between the Indian stock market, net foreign institutional investment.

Results imply that stock prices can capture information on neither the FIIs. Investors can therefore apply profitable trading rules to earn supernormal profits. Under the circumstances, the Indian stock market seems to be bearing the underlying strain not currently visible at the surface. The implementation of profitable trading strategy may at any point of time generate over-enthused investment and this, if coupled with market overreaction, may result in a destabilized system. A point also to be noted here is the current concentration of FII funds in the IT and Banking sector, which in any event of flow reversals may worsen the situation.
Paramita Mukherjee & Suchismita (11)

In this paper, Researchers explore the relationship of foreign institutional investment (FII) flows to the Indian equity market with its possible covariates based on a time series of daily data for the period January, 1999 to May, 2002. Here they tries to identify the relevant covariates of FII flows into and out of the Indian equity market and also to determine the nature of causality between the relevant variables. They incorporate into the analysis variables that appear, a priori, to be the primary determinants of global investors' demand/supply for/of stocks in the Indian market. The set of possible covariates considered comprises two types of variables.

Results show that, though there is a general perception that FII activities exert a strong demonstration effect and thus drive the domestic stock market in India, evidence from causality tests suggests that FII flows to and from the Indian market tend to be caused by return in the domestic equity market and not the other way round.

The regression analysis, in various stages, reveals that returns in the Indian equity market are indeed an important factor that influences FII flows into the country. While, the dependence of net FII flows on daily return in the domestic equity market is suggestive of foreign investors' return-chasing behavior, market return and its volatility in international and domestic stock markets have some significant effect as all. However, while FII sale is significantly affected by the performance of the Indian equity market, FII purchase is not responsive to this market performance.

Looking at the role of the beta's of the Indian market with respect to the S&P 500 and MSCI indices it is concluded that foreign institutional investors do not seem to use the Indian equity market for the purpose of diversification of their investments. It is also seen that return from exchange rate variation and fundamentals of the Indian economy may have some influence on FII decisions, but such influence does not seem to be strong, and finally, daily FII flows are highly autocorrelated and this autocorrelation can not be accounted for by all or some of the covariates considered in our study.

Kishore C. Samal, 1997 (12)
He opined that in recent years, particularly in developing countries like India, there had been increased liberalisation of domestic financial and capital markets, and an opening up of the market to foreign institutional investors. The main emerging feature of India’s equity market was its steady combination with the global market and its subsequent problems due to the hot money movement by Foreign Institutional Investors (FIIs). Therefore, policy measures to 'develop' equity market should aim to persuade small domestic investors to participate in it and oppose the tendency of the FIIs to destabilise the promising equity market.

Henry, 2000 (13)

This reports the two possible consequences of market liberalization in the light of international asset pricing models. First outcome of market liberalization is an increase in a country’s equity prices because market learns that domestic markets will liberalize more in near future. The second impact of market liberalization is on physical investment that will increase because of fall in cost of capital as new entrepreneurs will initiate more investment projects. The second effect of market liberalization will definitely increase the rate of economic growth.

Paul A. Gompers & Andrew Metrick, 2001 (14)

This analyses the demand for stock characteristics and its implications on price and return by institutional investors. The shares of the stock market were doubled by large investors in 1996 compared to 1980. The demand for stock in large companies has increased whereas decreased in small companies due to compositional shift.

Batra, 2003 (15)

Researcher using both daily and monthly data attempted to understand the trading behaviour of FIIs and returns in Indian equity market. He found the strong evidence of FIIs chasing trends and adopting positive feedback and herding trading strategies. However, Batra did not find FIIs having any destabilizing impact on the equity market.

Dahlquist, 2003 (16)

Researcher analysed foreign ownership and firm characteristics for the Swedish market. They found that foreigners have greater presence in large firms, firms paying low dividends and in firms with large cash holdings. They explained that firm size was driven
by liquidity. They measured international presence by foreign listings and export sales. They reiterated that foreigners tend to underwrite the firms with a dominant owner.

**Pushpa, Trivedi, and Abhilash nair, 2003 (17)**

Researcher suggested that the relationship between the FII and the Indian economy remains debatable. Although FIIs had been the net investors in the Indian capital market in the years except 1998, they had not increased the risk-sharing ability of the market.

**Sivakumar S, 2003 (18)**

He examined that the net flows of foreign institutional investment over the years, it also briefly analyses the nature of FII flows based on research, explores some determinants of FII flows and examines if the overall experience had been stabilising or destabilising for the Indian capital market.

**Kulwant Rai & N. R. Banumurthy, 2004 (19)**

They marked that FII inflows depends on stock market returns, inflation rate, and ex-ante risk. In terms of magnitude, the impact of stock market returns, and ex-ante risk turned out to be the major determinants of FII inflows. Stabilising the stock market volatility and minimising the ex-ante risk would help to attract more FII, an inflow of which has positive impact on the real economy.

**Dipankor, Coondoo and Paramita mukherjee, 2004 (20)**

They analysed that the moment of FII operations and other variables like stock market returns and the call money rate were volatile. The over time movement of everyday activities of all the variables contain affair amount of volatility. It’s also found that none of the variables had been changed systematically over the time period and the strength of the volatility of an individual FII variable was positively correlated with the stock market returns and call money rate.

**Michael Frenkel & Lukas menkhoff, 2004 (21)**

They examined that the institutional investors’ inflows were the most dynamic capital flows in the emerging market. But the institutional investors do not automatically provide benefits for the emerging markets.
Sandhya, 2004 (22)

This research study found the relation between expected FIIs investments and expected performance of stock market. She reported that unexpected flow from FIIs had a greater impact on stock market than expected flow.

Douma, Pallathiatta and Kabir, 2006 (23)

Researchers investigated the impact of foreign institutional investment on the performance of emerging market firms and found that there was positive effect of foreign ownership on firm performance. They also found the impact of foreign investment on the business group affiliation of firms.

Rakshit, 2006 (24)

He criticised that, far from being healthy for the economy, FII inflows had actually imposed certain burdens on the Indian economy. Understanding the determinants and effects of FII flows and devising appropriate regulation therefore constitute an important part of economic policy making in India.

Ila Patnaik, 2008 (25)

Researcher viewed that FII investors prefer highly liquefied firm for investment. The median value of FII ownership in the first two quintiles\(^1\) was zero. If the liquidity of the firm increases, the FII shares in the firm also increases.

Prasanna. P. K, 2008 (26)

Researcher found that more foreign investors prefer companies which had high return and earnings per share are also high. FII prefer companies which had higher volume of public shares and choose companies where family shareholding of promoters was not substantial. The impact of FII in unexpected flows was greater than in expected flows on stock market. Thus trading of FII had a great impact on both the stock market and the stock price. This also influences the company’s performance.
Bansal, 2009 (27)

Researcher opined that when there was a decline in return after the entry of FII in India, the volatility had been reduced. The volatility of Indian stock market was not only because of FII inflow. There were also some other factors which influence the volatility of Indian stock market.

Narayan Sethi (28)

The study attempts to examines trends and composition of capital inflows, changing pattern capital flows in view of economic reform, ascertain the impact of domestic financial policy variables on international capital flows and suggest policy implication thereof. By using monthly time series data, he found that Foreign Direct Investment (FDI) is positively affecting the economic growth direct contribution, while Foreign Institutional Investment (FII) is negatively affecting the growth albeit, in a small way and make a preliminary attempt to test whether the international capital flows has positive impact on financial markets and economic growth. The empirical analysis using the time series data between April 1995 to April 2007 shows that FDI plays unambiguous role in contributing to economic growth.

Agarwal and Bernan, 1997 (29)

Capital flows expose the potential vulnerability of the economy to sudden withdrawals of foreign investor from the financial market, which will affect liquidity and contribute to financial market volatility. One opinion that could be explored in the face of capital inflow surge is absorption by the external sector through capital outflows.

Financial markets are thrown open to Foreign Institutional Investors (FII’s) and there is convertibility of the rupee for FII’s both on current and capital account. Over the years, Indian capital market has experienced a significant structural transformation. Financial markets are significantly different from other markets; market failures are likely to be more pervasive in these markets and there exists Government intervention. Government interventions in the financial markets that promoted savings and the efficient allocation of capital are the central factor to the efficiency of financial markets.
News papers of The Economic Times & Business Standards, (30)

Stock market of the country tremendous influences by the FIIs Investment, they are true drivers of the capital market. Investments of FIIs also depend on the currency exchange rate, FIIs investment pattern change resulting from change in currency rate in the country. In the country effect of currency rate also influence on the performance of country stock exchanges. Thus, it shows that FIIs investments, Currency Rates and Market Index have relation with each other. They influence to each other way of direct and in directly.

P. K. Mishra (31)
This paper an effort has been made to examine the performance of the Indian capital market by empirically studying the impact of net equity investment by FIIs on stock returns. The study using monthly data on SENSEX based stock return and net FII flows over a period of 17 years spanning from Jan 1993 to May 2009, provides the evidence of positive correlation between FII net flows into India and stock market return. And, the analysis finds that the movements in the Indian capital market are fairly explained by the FII net inflows.

Corporate Governance CLSA, 2001 (32)
The capital market reforms like improved market transparency, automation, dematerialization and regulations on reporting and disclosure standards were initiated because of the presence of the FIIs. But FII flows can be considered both as the cause and the effect of capital market reforms. The market reforms were initiated because of the presence of FIIs and this in turn has lead to increased flows.

Dalal Street, 2006 (33)
The Government of India gave preferential treatment to FIIs till 1999-2000 by subjecting their long term capital gains to lower tax rate of 10 percent while the domestic investors had to pay higher long-term capital gains tax. The Indo-Mauritius Double Taxation Avoidance Convention 2000 (DTAC), exempts Mauritius-based entities from paying capital gains tax in India - including tax on income arising from the sale of shares. This gives an incentive for foreign investors to invest in Indian markets taking the Mauritius route. Consequently, they now see investments coming from Mauritius while there were none before 2000. Free float available has been bagged by FIIs - despite the fact that they invest in just a few highly liquid stocks. in India will witness more and more of
in institutionalization. This set of investors will play a major role in Indian equity markets.

The Economic Times of India, 2006 (34)
Heavy selling by the FII’s was experienced in this period, with the total equity sales amounting to Rs. 82.47 bn. However, they regained interest thereafter in the Indian market and the net investment in September 2006 amounted to Rs. 62.32 bn.

The Business Standard, 2006 (35)
FII’s add to the extreme volatility in the stock markets also. One such episode was in May 2006, when the bullish market lost more than 1000 points intraday which was triggered by a circular from the CBDT regarding treatment of the FII’s for the purpose of taxation and it was not just the Indian stock index but other indices of the world also lost several points mainly due to the global jitters.

3.2.1 Findings Of Literature Reviews For Study:
After reviewing many research study and articles, researcher comes to know what the important role play in stock market and also seen that which factors influence FIIs investment.

The FIIs investment in Indian securities market has shown fluctuating trend year after year. This may be due to changes in the global financial system. The global financial crisis has resulted in negative inflow of FIIs. Market performance is the strong basis for attracting more foreign investment for the individual companies. The foreign institutional investors with draw their money when the stock market performance starts sliding down.

Other things, the factors affecting FII sale and purchase were not the same. It appeared that some factors would affect purchase or sale decision of foreign investors, but not the corresponding. Return from exchange rate variation and fundamentals of the Indian economy may have some influence on FII decisions, but such influence does not seem to be strong, and finally, daily FII flows are highly correlated. There is a positive and statistically significant relationship between these variables.
The free float available has been bagged by FIIs - despite the fact that they invest in just a few highly liquid stocks. The capital gains tax in India, also encourage FIIs investments.

FII flows can be considered both as the cause and the effect of capital market reforms. The market reforms initiated because of the presence of FIIs and this in turn has lead to increased flows. The relationship between return and foreign trading activity is examined for the overall market and national sectors.

Most of the research works shows that market index affected by the FIIs investment but in the contrary market also drives due to macro factors like as Exchange Rate, GDP & GNP, IIP, Inflation Rate, Money supply, Employment scenario, growth of agricultures etc. and FIIs likely to invest in country stock markets which have performing theyll and developed, Stock Market good performance due to positive or favorable trends of macro factors in the country.

Some researches have taken BSE SENSEX & NIFTY returns and FIIs investment for the study on role of FIIs on Indian capital market. Many researches have taken net investment of FIIs and BSE Index and NSE Index, so results only concern with the overall market index. It hasn’t able to find the accurate results for the study. In those researches, researchers found role of FIIs in capital market without considering the particular sartorial indexes like as BSE Auto, BANKEX, BSE CG, BSE IT, BSE FMCG etc. That is main limitation of these researches. Here research has to involve FIIs investments in every sectors and market index & sectors index for viable result regarding study.

3.3 Justification and identification of research Problems

Problem identification too broadly defined cannot be addressed adequately in single study. Formulation of problem is often more essential than its solution because when the problem is formulated, an appropriate technique can be applied to generate alternative solution. In essence, a proper formulation of the research problem starting with objectives would enable a researcher to go ahead in the proper direction. Finally, it may be noted that problem formulation would have focus on what sort of decision issues are tackled.
This empirical research study narrates the vital role of FIIs investments on Indian stock market. Here researcher has used FIIs investments and performance of Indian stock market; BSE SENSEX and NIFTY50 variables of the study. Researcher defines various existing literatures related with the study and problems of the title, various objective frames by the researcher, which leads to research phenomenon. There were used many literature of review for this research study and formulated appropriate methodology for accomplish objectives of the study By referring the different past research studies, researcher has selected this topic for the purpose of the study the relationship between the FII equity investment pattern and Indian stock indices and study the scope and trading mechanism of Foreign Institutional investors in India. However, most of the prior researcher studies have been based on empirical data and they have covered different time duration and methodologies.

Consequently, Researcher has gathered the familiarity concerning FIIs and stock market, formulation of objectives, recognition of variables, statistical tool and techniques for the suitable findings. Researcher has framed for the purpose of the study entitled "Role of Foreign Institutional Investors (FIIs) in Indian stock market".

3.3 Research Design

The research design is the theoretical construction within which research is carries out. As such the design includes an outline of what the research will do from the writing the hypothesis and its set inference to the final analysis of data.

As an exploratory study is conducted with an objective to gain familiarity with the phenomenon or to achieve new insight into it, this study aims to find the new insights in terms of finding the relationship between FII investments and Indian Stock Indices

3.3.1 Title of the Study:

Researcher has framed for the purpose of the study entitled "Role Of Foreign Institutional Investors (FIIs) In Indian Stock Market" An Approach To Investigate The Relationship Between FII And BSE & NSE.
3.3.2 Objectives of the Study

1. To study the scope and trading mechanism of Foreign Institutional investors in India.
2. To find the relationship between the FIIs equity investment pattern and Indian stock indices.
3. To study the trend of FIIs investments in Indian stock market and BSE SENSEX & NIFTY50.
4. To discover the contribution of FII equity investment in shaping Indian capital market.
5. To know the market trends due to FIIs activities inflow and outflow.

3.3.3 Nature and Scope of the Study

Scope of the study is very broader and covers both the stock indices and its comparison with foreign institutional investments. But, the study has focused on investments in equity, to be done by FIIs. The time period is limited from January 2001 to December 2010 as it gives exact impact in both the bullish and bearish trend.

The study provides a very apparent image of the impact of foreign institutional investors on Indian stock indices. It also describes the market trends due to FIIs inflows and outflows. The study would be helpful for further descriptive studies on the ideas that will be explored. Moreover, it would be beneficial to gain knowledge regarding foreign institutional investments their process of registration and their impact on Indian stock market and different industrial sectors.

A number of studies in the past have been observed that investments by FIIs and the movements of SENSEX are quite closely correlated in India and FIIs exercise significant influence on the movement of SENSEX. There is little doubt that FII inflows have significantly grown in importance over the last few years. In the absence of any other substantial form of capital inflows, the potential ill effects of a reduction in the FII flows into the Indian economy can be severe. From the point of attracting foreign capital, the initial expectations have not been realised. Investment by FIIs directly in the Indian stock
market did not bring significantly large amount compared to the GDR issues. GDR issues, unlike FII investments, have the additional advantage of being project specific and thus can contribute directly to productive investments. FII investments seem to have influenced the Indian stock market to a considerable extent.

Results of this study shows that not only the FIIs are the major players in the domestic stock market in India, but their influence on the domestic markets is also growing. Data on trading activity of FIIs and domestic stock market turnover suggest that FII’s are becoming more important at the margin as an increasingly higher share of stock market turnover is accounted for by FII trading. Moreover, the findings of this study also indicate that Foreign Institutional Investors have emerged as the most dominant investor group in the domestic stock market in India. Particularly, in the companies that constitute the Bombay Stock Market Sensitivity Index (SENSEX), their level of control is very high. Data on shareholding pattern show that the FIIs are currently the most dominant non-promoter shareholder in most of the SENSEX companies and they also control more tradable shares of SENSEX companies than any other investor groups.
3.3.4 Variables of the Study

Researcher has used variables for research work independent variables and independent variables which are following:

1. **Dependent variables:**

Dependent variables employed in this present research study for measure the effect of independent variables. Dependent variables are central Indian stock index: BSE SENSEX and NIFTY50. These stock indexes employed as dependent variables to come across causes of volatility attributable to FIIs investments in Indian stock market.

**BSE SENSEX**

BSE SENSEX or Bombay Stock Exchange Sensitive Index is a value-weighted index composed of 30 stocks started in April, 1984. It consists of the 30 largest and most actively traded stocks, representative of various sectors, on the Bombay Stock Exchange. These companies account for around one-fifth of the market capitalization of the BSE.

**NIFTY 50**

It is popular index of NSE. It was introduced in April 96 with 95 as the base year. It comprised of a well-diversified 50 stock index accounting for 23 sectors of the economy of the total traded value of NIFTY stocks is about 59% of the total market capitalization. The average price of the scrip is taken for the compilation of the index

2. **Independent variables:**

Independent variables used as fundamental character in this present research study. FIIs investments consider as independent variables to find significance role headed for performance of dependent variables Indian stock index: BSE SENSEX and NIFTY50.

**FIIs Investments; FIIs purchase, FIIs sales and FIIs net investments**

FII’s include investors or investment funds that registered out side and investments in Indian stock markets. Foreign institutional investors ‘investments are volatile in nature, and they invest in the emerging markets. They usually keep in mind the potential of a particular market to grow. FIIs activities included FIIs purchase, FIIs sales and FIIs net investments exercised to Indian stock market.
3.3.5 Formulation of Hypothesis

The present study focused on effect of FIIs investments on performance of Indian stock market. Research formulates the following hypothesis for research.

**Hypothesis 1:**

F-test to measure overall significance predictability of the volatility of Indian stock indexes: BSE SENEX and NIFTY by the FIIs activities: FIIs purchases, FIIs sales, FIIs net investment given from this regression model.

Null $H_0 : \beta = 0$

Alt $H_1 : \beta \neq 0$

OR

Null $H_0 :$ there is at least one of the regression coefficients is zero

Alt $H_1 :$ there is at least one of the regression coefficients is different from zero

**Hypothesis 2:**

t-test resolute how well a regression model fits the data. Here researcher decides that it is not worth the effort to develop a linear regression model to predict stock market performance from FIIs investments. t–test for testing the slope of the regression model and significant predictive variables FIIs Investments on Indian stock indexes.

Null $H_0 : \beta = 0$

Alt $H_1 : \beta > 0$

OR

Null $H_0 :$ There is no relationship between FIIs Investments and stock indexes.

Alt $H_1 :$ There is positive relationship between FIIs Investments and stock indexes.
3.3.6 Selection of the Sampling Design

The study has used non-random sampling methods. A non-random sampling method assists to selection for the study and its give facility for proper selection to all of the population to be selected. Researcher has developed sampling design by following elements for reliable and appropriate sampling.

**Population and sample:**
In this study the universe is finite and take into the consideration related news and events that have happened in last ten year. The universe of the study consists of all the Indices which running under Bombay Stock Exchange (BSE) and (NSE), FII’s investments in different avenues; Pension Funds, Mutual Funds, Investment Trust, Insurance or reinsurance companies, Endowment Funds, University Funds, Foundations or Charitable Trusts or Charitable Societies, Asset Management Companies, Nominee Companies, Trustees, Bank.

**Sampling Units**
As this study revolves around the foreign institutional investment and Indian stock market, so for the sampling unit is confined to only the Indian stock market and FII’s investment in Indian stock market only. Out of universe following index employed as sample for the research study.

1. FII’s investments
2. BSE SENSEX
3. NIFTY 50

Following list of tables shows listed companies under BSE SENSEX and NIFTY50
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name</th>
<th>Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ACC Ltd.</td>
<td>Housing Related</td>
</tr>
<tr>
<td>2</td>
<td>Ambuja cement</td>
<td>Housing Related</td>
</tr>
<tr>
<td>3</td>
<td>Bharat Heavy Electricals Ltd.</td>
<td>Capital Goods</td>
</tr>
<tr>
<td>4</td>
<td>Bharti Airtel Ltd.</td>
<td>Telecom</td>
</tr>
<tr>
<td>5</td>
<td>Cipla</td>
<td>Healthcare</td>
</tr>
<tr>
<td>6</td>
<td>DR. Reddy</td>
<td>Healthcare</td>
</tr>
<tr>
<td>7</td>
<td>Grasim Industries Ltd.</td>
<td>Diversified</td>
</tr>
<tr>
<td>8</td>
<td>HDFC</td>
<td>Finance</td>
</tr>
<tr>
<td>9</td>
<td>HDFC Bank Ltd.</td>
<td>Finance</td>
</tr>
<tr>
<td>10</td>
<td>Hindalco Industries Ltd.</td>
<td>Metal, Metal Products &amp; Mining</td>
</tr>
<tr>
<td>11</td>
<td>Hindustan Unilever Ltd.</td>
<td>FMCG</td>
</tr>
<tr>
<td>12</td>
<td>ICICI Bank Ltd.</td>
<td>Finance</td>
</tr>
<tr>
<td>13</td>
<td>Infosys Technologies Ltd.</td>
<td>Information Technology</td>
</tr>
<tr>
<td>14</td>
<td>ITC Ltd.</td>
<td>FMCG</td>
</tr>
<tr>
<td>15</td>
<td>Jaiprakash Associates Ltd.</td>
<td>Housing Related</td>
</tr>
<tr>
<td>16</td>
<td>Larsen &amp; Toubro Limited</td>
<td>Capital Goods</td>
</tr>
<tr>
<td>17</td>
<td>Mahindra &amp; Mahindra Ltd.</td>
<td>Transport Equipments</td>
</tr>
<tr>
<td>18</td>
<td>Maruti Suzuki India Ltd.</td>
<td>Transport Equipments</td>
</tr>
<tr>
<td>19</td>
<td>NTPC Ltd.</td>
<td>Power</td>
</tr>
<tr>
<td>20</td>
<td>ONGC Ltd.</td>
<td>Oil &amp; Gas</td>
</tr>
<tr>
<td>21</td>
<td>Ranbaxy Laboratories Ltd.</td>
<td>Healthcare</td>
</tr>
<tr>
<td>22</td>
<td>Reliance Communications Ltd</td>
<td>Telecom</td>
</tr>
<tr>
<td>23</td>
<td>Reliance Industries Ltd.</td>
<td>Oil &amp; Gas</td>
</tr>
<tr>
<td>24</td>
<td>Reliance Infrastructure Ltd.</td>
<td>Power</td>
</tr>
<tr>
<td>25</td>
<td>Satyam Computer</td>
<td>Information Technology</td>
</tr>
<tr>
<td>26</td>
<td>State Bank of India</td>
<td>Finance</td>
</tr>
<tr>
<td>27</td>
<td>Tata Consultancy Services Ltd</td>
<td>Information Technology</td>
</tr>
<tr>
<td>28</td>
<td>Tata Motors Ltd.</td>
<td>Transport Equipments</td>
</tr>
<tr>
<td>29</td>
<td>Tata Steel Ltd.</td>
<td>Metal, Metal Products &amp; Mining</td>
</tr>
<tr>
<td>30</td>
<td>Wipro Ltd.</td>
<td>Information Technology</td>
</tr>
</tbody>
</table>

Source: www.BSEindia.com
### Table 3.2 Name Of 50 Companies Listed In Nifty Index

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name</th>
<th>Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ABB Ltd.</td>
<td>Electrical equipment</td>
</tr>
<tr>
<td>2</td>
<td>ACC Ltd.</td>
<td>cement products</td>
</tr>
<tr>
<td>3</td>
<td>Ambuja Cements Ltd.</td>
<td>Cement Products</td>
</tr>
<tr>
<td>4</td>
<td>Bajaj Auto Ltd.</td>
<td>Automobiles - Wheelers</td>
</tr>
<tr>
<td>5</td>
<td>Bharat Heavy Electricals Ltd.</td>
<td>Electrical Equipment</td>
</tr>
<tr>
<td>6</td>
<td>Bharat Petroleum Corporation Ltd.</td>
<td>Refineries</td>
</tr>
<tr>
<td>7</td>
<td>Bharti Airtel Ltd. Telecommunication -</td>
<td>Services</td>
</tr>
<tr>
<td>8</td>
<td>Cipla Ltd.</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>9</td>
<td>Dr. Reddy's Laboratories Ltd.</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>10</td>
<td>GAIL (India) Ltd.</td>
<td>Gas</td>
</tr>
<tr>
<td>11</td>
<td>Glaxosmithkline Pharmaceuticals Ltd.</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>12</td>
<td>Grasim Industries Ltd.</td>
<td>Cement Products</td>
</tr>
<tr>
<td>13</td>
<td>HCL Technologies Ltd. Computers -</td>
<td>Software</td>
</tr>
<tr>
<td>14</td>
<td>HDFC Bank Ltd.</td>
<td>Banks</td>
</tr>
<tr>
<td>15</td>
<td>Hero Honda Motors Ltd.</td>
<td>Automobiles</td>
</tr>
<tr>
<td>16</td>
<td>Hindalco Industries Ltd.</td>
<td>Aluminum</td>
</tr>
<tr>
<td>17</td>
<td>Hindustan Petroleum Corporation Ltd.</td>
<td>Refineries</td>
</tr>
<tr>
<td>18</td>
<td>Hindustan Unilever Ltd.</td>
<td>Diversified</td>
</tr>
<tr>
<td>19</td>
<td>Housing Development Finance Corporation Ltd.</td>
<td>Finance Housing</td>
</tr>
<tr>
<td>20</td>
<td>I T C Ltd.</td>
<td>Cigarettes</td>
</tr>
<tr>
<td>21</td>
<td>ICICI Bank Ltd.</td>
<td>Banks</td>
</tr>
<tr>
<td>22</td>
<td>Infosys Technologies Ltd. Computers -</td>
<td>Software</td>
</tr>
<tr>
<td>23</td>
<td>Larsen &amp; Toubro Ltd.</td>
<td>Engineering</td>
</tr>
<tr>
<td>24</td>
<td>Mahanagar Telephone Nigam Ltd. -</td>
<td>Telecommunication</td>
</tr>
<tr>
<td>25</td>
<td>Mahindra &amp; Mahindra Ltd.</td>
<td>Automobiles</td>
</tr>
<tr>
<td>26</td>
<td>Maruti Udyog Ltd.</td>
<td>Automobiles</td>
</tr>
<tr>
<td>27</td>
<td>NTPC Ltd.</td>
<td>Power</td>
</tr>
<tr>
<td>28</td>
<td>National Aluminium Co. Ltd.</td>
<td>Aluminium</td>
</tr>
<tr>
<td>29</td>
<td>Oil &amp; Natural Gas Corporation Ltd.</td>
<td>Oil Exploration</td>
</tr>
<tr>
<td>30</td>
<td>Punjab National Bank</td>
<td>Banks</td>
</tr>
<tr>
<td>31</td>
<td>Ranbaxy Laboratories Ltd.</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>32</td>
<td>Reliance Communications Ltd.</td>
<td>Telecommunication</td>
</tr>
<tr>
<td>33</td>
<td>Reliance Energy Ltd.</td>
<td>Power</td>
</tr>
<tr>
<td>34</td>
<td>Reliance Industries Ltd.</td>
<td>Refineries</td>
</tr>
<tr>
<td>35</td>
<td>Reliance Petroleum Ltd.</td>
<td>Refineries</td>
</tr>
<tr>
<td>36</td>
<td>Satyam Computer Services Ltd.</td>
<td>Computers Software</td>
</tr>
<tr>
<td>37</td>
<td>Siemens Ltd.</td>
<td>Electrical Equipment</td>
</tr>
<tr>
<td>38</td>
<td>State Bank of India</td>
<td>Banks</td>
</tr>
<tr>
<td>39</td>
<td>Steel Authority of India Ltd.</td>
<td>Steel and Steel Products</td>
</tr>
<tr>
<td>40</td>
<td>Sterlite Industries (India) Ltd.</td>
<td>Metals</td>
</tr>
<tr>
<td>41</td>
<td>Sun Pharmaceutical Industries Ltd.</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>42</td>
<td>Suzlon Energy Ltd.</td>
<td>Electrical Equipment</td>
</tr>
<tr>
<td>43</td>
<td>Tata Consultancy Services Ltd.</td>
<td>Computers Software</td>
</tr>
<tr>
<td>44</td>
<td>Tata Motors Ltd.</td>
<td>Automobiles</td>
</tr>
<tr>
<td>45</td>
<td>Tata Power Co. Ltd.</td>
<td>Power</td>
</tr>
<tr>
<td>46</td>
<td>Tata Steel Ltd.</td>
<td>Steel Products</td>
</tr>
<tr>
<td>47</td>
<td>Unitech Ltd.</td>
<td>Construction</td>
</tr>
<tr>
<td>48</td>
<td>Videsh Sanchar Nigam Ltd.</td>
<td>Telecommunication</td>
</tr>
<tr>
<td>49</td>
<td>Wipro Ltd.</td>
<td>Computers</td>
</tr>
<tr>
<td>50</td>
<td>Zee Entertainment Enterprises Ltd.</td>
<td>Media &amp; Entertainment</td>
</tr>
</tbody>
</table>

Source: www.NSEindia.com
3.3.7 Period of the study

Period of the study restricted and bounded for 10 years which start from January 2003 to December 2012 as it gives initiative regarding impact in both the bullish and bearish trend. Researcher has used 10 years tendency of FIIs investments, BSE SENSEX and NIFTY for research study.

3.3.8 Data Collection and Data Sources

The study is based on secondary data, there were different existing literature review referred for this present study and research study used data as FIIs investments activities, BSE SENSEX and NIFTY50 employed for the 10 years. So it takes from www.rbi.in, www.bseindia.com and www.nseindia.com, web-sites, the various types of new paper The Economic times and The Finance Express, and fortnight magazines as Dalal Street, Capital Market, and Research reports of Marwaadi share and finance services ltd.

3.3.9 Data Analysis

The researcher prepare various tables to summaries the data for the purpose of study the relationship between the FII equity investment pattern and Indian stock indices and study the scope and trading mechanism of Foreign Institutional investors in India, The collected data is duly edit, classified and analyse using all types of relevant statistical techniques and employing the most appropriate test. The data will present through classification through a monthly average volatility, co-relations, the data were analyse and the hypothesis were tested employing t-test and F-test by comparing two variables.

Comparative Analysis

This technique compares the performance of FIIs investments in Indian stock market with the Indian stock market. It shows the absolute change in Indian stock indices resulting in change in FIIs investments in Indian stock market for the time period January 2003 to December 2012 as it gives exact impact in both the bullish and bearish trend. There theyre variables as BSE SENSEX, NIFTY50 and FIIs investments activities FIIs purchase, FIIs sales, FIIs net investment compared with each other for 10 years.
Trend Analysis

It follows a time series analysis. It shows the changes in an item or group of items over a period of time and to draw conclusion regarding the changes in data. The significance of a trend analysis of change in the FIIs investments activities and change in Indian stock indices BSE SENSEX and NIFTY50, in the fact that the analysts can know the direction of movement, that is, whether the movement is favorable or unfavorable and they influenced to each other or not. Here researcher has compared trend of dependent variables BSE SENSEX and NIFTY50 with FIIs investments activities for measure cause and effect relationship between them.

3.3.10 Statistical Tools and Techniques

Researches used necessitate statistical tools and techniques for data analysis and interpretations. The present study has employed following statistical parameters to test hypothesis of the study. Data analysis techniques would be a form of simple descriptive statistical and more statistical tools which are relevant and require for research study.

Regression model residual analysis:

Regression analysis finds linear relationship between two variables dependent variables and independent variables. Here, Researcher has used regression model for the measure the cause and effect relationship between FIIs activities and Indian stock indexes. In residual analysis, researcher test a regression line to determine whether the line is a good fit of the data other than by observing the fitted line plot in other word regression line fit through a scatter plot of the data.

The equation of the regression line that passes through the sample data is to establish the equation’s form. In regression analysis, researcher uses the slope-intercept equation of a line. In math course, the slope – intercept form of the equation of a line often takes the form
Regression line: \[ \hat{Y} = \alpha + \beta x \]

For specific dependent variable: \[ Y_i = \alpha + \beta X_i + \epsilon_i \]

Where as,
\[ \hat{Y} = \text{the predicated value of y dependent variables} \]
\[ X_i = \text{The value of independent variable for the } i^{\text{th}} \text{ value} \]
\[ Y_i = \text{The value of dependent variable for the } i^{\text{th}} \text{ value} \]
\[ \alpha = \text{the population y intercept} \]
\[ \beta x = \text{the population slope} \]
\[ \epsilon_i = \text{the error of prediction for the } i^{\text{th}} \text{ value} \]

Residual analysis:

The values of independent variables (X) FIIs investments are inserted into the regression model and a predicated value (\( \hat{Y} \)) is obtained for each x value. This predicted value is compared to the actual y valued to determine how much error the equation of the regression line produced. Each different between the actual y values and the predicated y values is the error of the regression line at a given point. (\( Y - \hat{Y} \)) and is referred to as the residual value which use for comparative analysis among actual value and predicated value.

Normal Probability plot of the residual chart:

The residual model diagnostics consist of the plots. Normal probability plot of the residual analysis is indicating that the residual are nearly normal in shape or not. So regression residual model calculated predicated value obtained for independent variables. It measured the residuals are nearly normally distributed. Residua values compare the actual value of dependent variables BSE SENSEX and NIFTY with predicated value resulting of FIIs investments activities. Residual are used to locate outliers, outliers are data points that lie apart from the rest of the points. The equation of the regression line is influence by every data point used in its calculation in a manner similar to the arithmetic mean. The origin of outliers must be investigated to determine weather they should be retained or whether the regression equation should be recomputed without them.
Coefficient of determination - $R^2$ and adjusted $R^2$:

It measures the proportion of variability of the dependent variable Indian stock indexes BSE SENSEX and NIFTY ($Y$) accounted by the independent variables FIIs investments activities; FIIs purchase, FIIs sales, FIIs net investments. The coefficient of determination ranges from 0 to 1. $R^2$ of zero means that the predictor account for none of the variability of the dependent variable Indian stock indexes and that there is no regression predication of $Y$ by $X$. $R^2$ of 1 mean perfect predictors. The researcher must interpret whether a particular $R^2$ is high or low, depending on the use of the model.

**Formula:**

$$R^2 = \frac{\beta_x \cdot SS_x}{SS_y}$$

Where as,

- $\beta_x$ = the population slope
- $R^2$ = Coefficient of determination
- $SS_x$ = sum of square of x value
- $SS_y$ = sum of square of y value

**t-test for testing population slope:**

A hypothesis is test can be conducted on the sample slope of the regression model to determine weather population slope is significantly different from zero. This test is determined how well a regression model fits the data. Here, research is calculated monthly average of of FIIs Investments and BSE & NSE indices for the ten years. Researcher has used t-test for significant predictive variables FIIs activities on Indian stock index. t-test used coefficient of determination zero as null hypothesis, in other word, null hypothesis that populations slope is zero which shows that there is no relationship between of FIIs investments and BSE SENSEX / NIFTY. Following formula used for t calculation value:

**Formula:**

$$t = \frac{b_1 - \beta_1}{sb}$$

where as,

- $t$ = t calculation value
- $\beta_1$ = the hypothesized slope
- $sb = \frac{se}{\sqrt{SSE}}$
- $se = \sqrt{SSE/(n-1)}$
Degree of Freedom (df):

For t-test, hypothesis tested by comparison between table value and calculation value. For table value df.

\[ V = n - 1 \]

**F-test for testing overall significance of the regression model:**

F-test measures overall significance test in regression model. The hypothesis being tested in regression by the F-test for overall significance that is coefficient differs from zero or not. This F-test determines whether regression coefficients are different from zero which indicates that there is no effect of FIIs investments on performance of Indian stock markets. Regression provides only one predictor and only one regression coefficient test. It tested that weather significant predictability of the volatility of Indian stock Indexes by the FIIs investments activities given from this regression model? Following formula apply for F calculation value:

\[
F_{cal} = \frac{\frac{SS_{reg}}{df_{reg}}}{\frac{SS_{err}}{df_{err}}} = \frac{MS_{reg}}{MS_{err}}
\]

Degree of Freedom (df):

For t-test, hypothesis tested by comparison between table value and calculation value. For table value df.

df for error \( V = n - k - 1 \) where \( k = \) independent variables.
df for regression \( V = n - 1 \)

**Descriptive Statistical tools:**

Descriptive statistical analysis is conducted to define the effect of changing values on measures of central tendency, variation and shape. The descriptive statistical tools calculated for measurement of FIIs investments activities and Indian stock indexes BSE SENSEX and NIFTY. Descriptive statistical tools like as mean, median, standard deviation, standard error, coefficient of variance, kurtosis, skewness, range of FIIs investments activities and Indian stock indexes BSE SENSEX and NIFTY.
Karl Pearson ‘s Correlation

Research used a Karl Pearson’s correlation for the study of relationship between the FIIs equity investment pattern and Indian stock indices and different industrial sectors. It investigates the degree of relationship between FII investments and BSE & NSE indexes BSE SENSEX and NIFTY whether a positive or negative relationship between them. Researcher has used the monthly average of share price for the period January 2003 to December 2012. It calculated by as follow:

**Formula:**

\[ R = \frac{\sum_{i=1}^{n} (X_i - \bar{X})(Y_i - \bar{Y})}{n\sigma_x \sigma_y} \]

Where,  
- \( R \) = Correlation  
- \( \sigma_x \) = Standard Deviation of X.  
- \( \sigma_y \) = Standard Deviation of Y.  
- \( n \) = No. of observation.

**Standard Deviation**

Volatility can be computed by calculate the Standard Deviation (SD). The calculated standard deviation expressed as percentage is the historical volatility of the share. SD is a measure of the spread of data, the degree to which observations differ from the mean. If the price of a stock moves up and down rapidly over short time periods, it has high volatility. If the price never changes, it has low volatility. SD calculates by following statistical formula. It is denoted by \( \sigma \),

**Formula:**

\[ \sigma_X = CV = \frac{\sigma}{\bar{X}} \]

Where, \( \sigma_X \) = Standard Deviation  
- \( \bar{X} \) = Mean of Observations  
- \( n \) = No. of observation
Coefficient of variance:
It is expressed in terms of standard deviation as percent of mean. It refers to a variable’s degree of unpredictable change over time. It founds the highly volatility company share price BSE & NSE index which moves up and down rapidly over short time periods resulting on FII investment in Indian stock market. It is denoted by CV.

Formula:
\[
CV = \frac{\sigma}{\bar{X}} \times 100
\]

Mean:
It knows as average; mean is the most important and frequently used measure of central tendency. Mean is obtained by taking the sum of all observations comprising a given set of data and dividing the sum the total number of observations. Researcher has calculated mean by using the monthly average of FIIs Investments, BSE & NSE Indices. It is denoted by \( \bar{X} \).

Formula:
\[
\bar{X} = \frac{\sum_{i=1}^{n} X_i}{n}
\]

Median:
Median is a location average of sample. It is middle value of a daily average of FIIs Investments and BSE & NSE indices. It is denoted by M.

Formula:
\[
M = \frac{n + 1}{2}th.\text{observation}
\]
Skewness:

Skewness shows the skewed among the mean, median and standard deviation. It found the skewness between mean of monthly average of FIIs Investments and BSE & NSE indices, central value and volatility SD.

**Formula:**

\[ j_x = 3 \left( \frac{\bar{X} - M}{\sigma_x} \right) \]

Where, \( j_x = \text{Skewness} \).

Kurtosis:

Kurtosis describes the amount of peakedness of a distribution. There are three types of kurtosis leptokurtic, platykurtic, mesokurtic distributions. It makes distribution of mean of monthly average, central value and volatility SD of FIIs Investments and BSE SENSEX & NIFTY index. so kurtosis shows shape of distribution as leptokurtic distribution is flat and spread, platykurtic distribution is high and thin, mesokurtic distribution is normal distribution.

Minimum and Maximum:

Minimum value defines lowest value in variables and maximum value defines largest value of variables. Here minimum value shows lowest FIIs investment and lowest stock market indexes for the year 2003 to 2013. These are used to show boundary which indicates highest and lowest volatility in FIIs investments and BSE SENSEX and NIFTY. The different between minimum value and maximum value defined as range.

Range:

The range is the difference between the largest value of a data set and the smallest value of a set. Here, range calculated compare largest value and smallest value for monthly average of FIIs investments and BSE SENSEX and NIFTY. Range shows area for volatility in stock market indexes and FIIs investments activities. So, range defines variability among the variables of research study.

**Formula:**

\[ \text{Range} = \text{Minimum value} – \text{Maximum value} \]
3.4 Out line of Chapter Plan

The present study entitled "Role of Foreign Institutional Investors (FIIs) in Indian stock market" divided into chapters which are as follow:

Chapter 1 : Research Methodology
Chapter 2 : An overview of Indian Capital Market
Chapter 3 : Role Foreign Institutional Investors (FIIs) in Indian Stock Market
Chapter 4 : Data Analysis and Interpretation
Chapter 5 : An overall analysis of study
Chapter 6 : Summaries, Findings, Conclusion

3.5 Significance of the Study

India has steadily come into view as vital player of Foreign institutional investors in Indian stock market last one decade. in this present study explore the relationship of foreign institutional investment (FII) flows to the Indian equity market with its possible covariates based on a time series of daily data for the period January, 2003 to December 2012. Here study gives to identify the relevant covariates of FII flows into and out of the Indian equity market and also to conclude the nature of causality between the relevant variables. It is in this context that a cautious examination of the nature of foreign institutional investment (FII) flow into an economy may help identify, the strength of various factors likely to affect such flows, FIIs purchase, FIIs sales, FIIs net investment in stock market and also, the possible impact of such flows on the performance of the equity market concerned.

This present study gives idea and mechanism of Foreign Institutional investors in India. So it assists to investors to understand FIIs trend and its impact on stock market. Study provided result regarding the relationship between the FIIs investments equity investment pattern and Indian stock indices. Study employed trend movement of FIIs investments in India stock market and analysis of volatility in BSE SENSEX and NIFTY50. This study would rally round to fill in the loop this currently present in the knowledge on how do FIIs choose individual companies for their investment. This study would also provide the
much needed understanding of how do they spread the FIIs investment across the various securities listed in the market thereby try and broad base the market. The understanding of the determinants of FIIs investment would also help stop portfolio outflows being triggered by the specific happenings in a few companies. Study reversals of market performances make foreign equity investment extremely volatile and may have an effect on the domestic economy of the beneficiary country. It is therefore prudent to evolve appropriate built-in mechanisms in these economies such that destabilization and damages can be minimized in case foreign investors suddenly withdraw from the equity market. It is in this context that a careful examination of the nature of foreign institutional investment (FII) flow into an economy may help recognize the strength of various factors likely to affect such flows, FIIs purchase, FIIs sales, FIIs net investment in stock market.

3.6 Limitations of the Study

1. The study relates to the Indian stock market only. Not for global markets.
2. The study pertinent for the BSE SENSEX, NSE and industrial sectors indices only. Other indices have been excluded like as BSE200, BSE100, Dollex etc.
3. The study narrated with only FII investments, FDI investments do not consider.
4. This study is base on secondary data derived from published annual reports of the selected units. The reliability and finding are contingent upon the data published in annual report.
5. The inferences made are purely from the past year’s performance of variables.
6. The study use different statistical tools and techniques, so its own limitation which also apply to this study.

3.7 Conclusion

This chapter consists with the methodology which applied in this research study. Researcher has used various existing literatures that assist to formulate the title “Role of Foreign Institutional Investors (FIIs) In Indian Stock Market" and a choice of objective enclosed by the researcher, which leads to research study. The study is based of the secondary data, data classified, formulated hypothesis as per the objectives and nature of the data analysis. Researcher used descriptive statistical tools like as Mean, Median, and Coefficient of variance, Skewness, kurtosis, Standard Deviation, standard error, range, etc
Furthermore, in this study, researcher has used regression residual analysis, coefficient of correlation and coefficient of determinant $R^2$ and adjusted $R^2$ applied for the study. Formulate hypothesis and tests by $t$-test and $F$-test, at last shows chapter plan, significance, important of study and limitations of tools and technique which applied in the research study.

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