

**ANALYSIS OF FOREIGN INSTITUTIONAL  
INVESTMENTS IN INDIAN STOCK MARKET**

A Thesis

Submitted in partial fulfillment of the requirements for the award of the  
degree of

**DOCTOR OF PHILOSOPHY (Ph.D)**

**In**

**MANAGEMENT**

**By**

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**LOVELY PROFESSIONAL UNIVERSITY**

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**To My Parents,**

**(Mrs. Anuradha Gupta**

**and Mr. Ashok Gupta)**

**For being the ever-present pillars of strength  
and unconditional support. This was made  
possible because of their blessings.**

## **DECLARATION**

I hereby affirm that the thesis entitled, “**Analysis of Foreign Institutional Investments in Indian Stock Markets**” has been prepared under the guidance of **Dr. Mahesh Sarva**, Associate Professor (Department of Finance) at Lovely Professional University, Phagwara, Punjab is exclusively my own work. There are no collaborators and it does not contain any work for which a degree/diploma has been awarded by any other university/institution or fellowship previously.

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## **CERTIFICATE**

This is to certify that the thesis entitled, “**Analysis of Foreign Institutional Investments in Indian Stock Market**”, embodies the work carried out by **Miss. Akriti Gupta** and under my direct supervision and guidance in the Department of Finance, Lovely Professional University, Phagwara, Punjab. To the best of my knowledge, the present work is the result of her original investigation and study. No part of this work has ever been submitted for any other degree at any university. The thesis is worthy of consideration and fulfilment of the conditions for the award of degree of Doctor of Philosophy in Finance.

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## **ABSTRACT**

A Strong financial system steers the economic development of a country as it facilitates in fund flow from sectors having more funds to sectors which require additional funds which enables the usages of funds in their most productive manner. Earlier borrowers could only borrow money within the geographical boundary of a country but with the technological developments and increasing globalization foreign participants can also enter the financial markets of a country and provide money to domestic market players. Opening of the domestic financial markets to global participants helps a country streamline its financial market operations at par with global standards. The Indian government opened its gates to foreign investors during 1991 with the reforms of globalisation, privatisation and liberalisation. One of the crucial aspects of the reform was opening the Indian stock market to foreign institutional investors (FIIs). Since the reforms, investments from FIIs has increased which is evident from the year on year growth in net investments of FIIs. Also, the year on year growth in the number of SEBI registered FIIs have also increased which highlights at India being a preferred destination of FIIs. Studies conducted in the past have also exhibited towards a dominant role played by FIIs in the Indian stock markets. FIIs have been praised for increasing the demand of domestic stocks and at the same criticised for increasing the volatility in the markets. Previous literature has focused on various issues such as effect of FIIs investment on market volatility, factors determining the investments of FIIs, causal relationship between returns of stock market and inflows of FIIs. Several studies have also examined stock characteristics such as size, age, price and risk as significant determinants of foreign institutional ownership. But there is no detailed investigation that has conducted a thorough ‘analysis of foreign institutional investments in Indian stock market’. Thus, the current research aims a conducting an exhaustive study on FIIs investments in Indian stock market. The focal point of research is to examine the trends and pattern of FIIs in India, understanding trends of FIIs investment in equity, debt and derivatives market. Trends of growth in SEBI registered FIIs will be examined along with the total assets under custody held by investors belonging to different country and category. The research also provides a detailed study of influence of

exchange declared news announcement on stock returns and also on share ownership of FIIs. Further, study is directed at assessing the investment made by FIIs in different sectors of stock market and presence of variation in inflows into equity and debt segment by different categories of FIIs. The research has also established the impact of different variables in determining FIIs into the Indian stock market. The research has used different statistical techniques and methods such as compounded annual growth rate, percentage share, correlation, event study, market adjusted model, granger causality method, one-way ANOVA and generalized method of moment to achieve the objectives. The trend analysis revealed FIIs have had a positive outlook towards investment into the Indian market. In the initial years of reforms investments from FIIs remained lackluster but they gained momentum as the government provided clarity on different rules and regulations. FIIs investment were predominantly focused in the equity market in the initial years but with the introduction of new debt instruments and relaxation of norms for investment in debt instruments a shift in investment from equity to debt was seen. Furthermore, analysis of role of exchange declared announcements on returns of stocks in market revealed, news announcement of dividend and bonus have a significant influence on the returns of the companies. The results also signaled at a possible information leakage in the market as investors were able to earn abnormal returns before the release of the announcement. It was further evidenced that news announcement of right issue and earnings generates less stock returns while dividend and bonus issue generate more returns to investors investing in stocks of the companies. Which concluded that investors seeking to earn high returns from news announcements should invest in stocks announcing divided or bonus. Furthermore, analysis of news announcement on share ownership of FIIs revealed news announcement of dividend, bonus and stock split has considerable influence on the share ownership of FIIs. It was also evidenced that announcement of bonus issue had a positive influence on the share ownership of FIIs. The results also revealed that the change in FIIs ownership was seen majorly on the event day. The study also examined the investment behaviour of FIIs into different sectors of the Indian stock market. The results highlighted that investments by FIIs in banking, financial services and metals sectors are driven by the returns generated in the respective sectors. Moreover, emphasis was laid on

understanding the variation in foreign inflows by different categories of FIIs into the equity and debt market. The results showcased significant difference in investment in equity market amongst different categories of FIIs existed but no difference was seen in investment by different categories of FIIs in debt market. It was also observed that category-II of FIIs has the largest contribution in inflows of FIIs in equity and debt. The study also investigated the factors ascertaining FIIs in India and found strong influence of political risk, size of the market, financial market development, rate of return on investment and trade openness of the country on investment from FIIs. The scope of the research is limited to analysing FIIs investment with respect to Indian stock markets. The results have thus signalled that FIIs have been active in the Indian stock market and SEBI and RBI have been consciously taking efforts to provide a transparent and conducive investment environment to foreign institutional investors. To encourage more investments from FIIs and ensure stability in the inflows the government has been continuously monitoring rules and regulations and FIIs inflows and frame new policies to attract investments from potential investors across the globe. A country that ensures healthy investment environment is more likely to draw inflows from foreign investors which will facilitate in the optimum use of the domestic resources and ensure development of the economy.

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## **Chapter – 1**

# **INTRODUCTION**

The first chapter begins by providing an overall framework of study and gives a brief introduction to the reasons that entail the selection of research topic. It sets out by explaining the important issues, regulators and researchers face in Indian stock market with the advent of foreign institutional investors. Particular attention is given to the significance and research gap of the study, along with the objectives of the research and the intended contribution of the study to the existing body of knowledge. A brief overview of the structure outline of the chapter schemes is also presented.

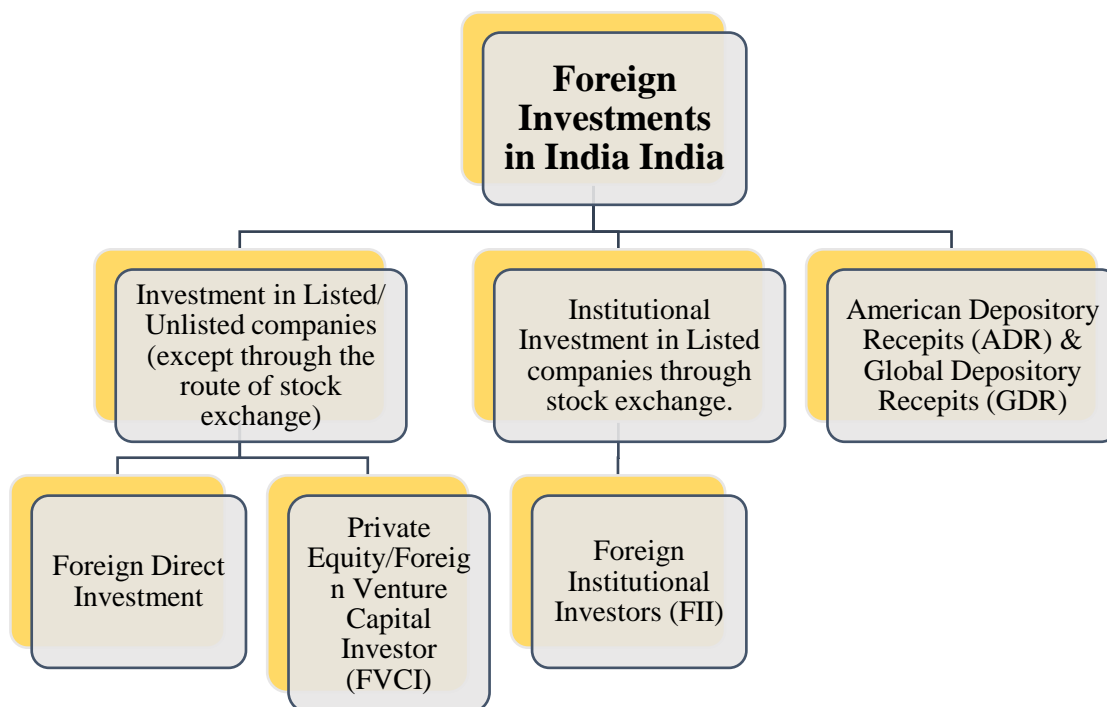
### **1.1 INTRODUCTION**

A Strong financial system steers the economic development of a country as it facilitates in fund flow from sectors that have surplus to those who have shortage, enabling the funds to be used in their most productive manner. Earlier borrowers could only borrow money within the geographical boundary of a country but with the technological developments and increasing globalization foreign participants can also enter the financial markets of a country and provide money to domestic market players. Opening of the domestic financial markets to global participants helps a country streamline its financial market operations at par with global standards. Entry of foreign investors also stimulates various economic reforms which strengthen the working of financial markets. The rapid globalization and liberalization in financial markets across the world has made world economies interdependent on each other. The health of a financial institution of a country not only influences the wealth and growth of that country but it also influences the cyclical performance of all economies across the globe. The recent example has been witnessed in US where the Sub-Prime crisis was triggered in 2008 and the trickledown effect was felt on all major developed and developing economies, India being one of them.

The financial system of India includes all the financial intermediaries and financial markets. Indian financial market consists of Capital market, Money market and Debt



market. Those bonds and stocks that mature over a time of one or more than one year are traded in capital markets. Government and businesses are the prime source of providing instruments in capital markets and households are the buyers of capital market instruments. The primary market and secondary markets jointly comprise the capital market of a country. Those bonds and stocks which are being offered for the first time by government or businesses to the initial supplier of funds namely households and investment firms are traded in primary market. A market where those securities and instruments which have previously been issued are bought and sold is defined as a secondary market. Well organized secondary market is also known as stock exchange. Indian stock exchange consists of twenty-eight exchanges out of which the two important exchanges that represent the Indian stock market are Bombay Stock Exchange (BSE) and National Stock Exchange (NSE). The oldest stock exchange in the country is the BSE which was established in 1975 (source: BSE) and NSE was established in 1992 (source: NSE). According to the World Federation of Exchanges report as on April 2018, BSE has a market capitalization of \$2.3 trillion and NSE has a market capitalization of \$2.27 trillion. The Securities and Exchange Board of India (SEBI) which was set up in 1988 governs and regulates the Indian stock market. Though SEBI was set up in 1988 but it started to act as a market regulator after the introduction of the 'SEBI Act' in 1992. SEBI is established to promote and regulate the business, protect interests of investors and to regulate the workings of securities market of India. SEBI was established as a result of reforms of 1991. Prior to 1991, foreign private investment played an insignificant role in Indian economy due to the government's opposition towards foreign investment. The reforms opened the gates of Indian market to foreign world after the government alleviated the limitations on foreign ownership, foreign direct investment and foreign institutional investments, bringing substantial changes in Indian economy and stock market operations. Currently, a person not belonging to Indian origin can invest into country via different routes such as Private Equity or Foreign Venture Capital Investor (FVCI), American Depository Receipts (ADR), Foreign Direct Investment (FDI), Global Depository Receipts (GDR) and Foreign Institutional Investment (FII).



**Source:** Indian Stock Market Review Report, 2011 published by NSE

**Figure 1.1 : Source of Foreign Investments in India**

Foreign Direct Investment (FDI) is defined as the investment made by non-resident person or organisation in 10 per cent or more of the equity capital in an enterprise which leads to direct or indirect ownership of voting rights in the resident country's enterprise. The Organisation for Economic Co-operation and Development (OECD) defines FDI as "a category of cross-border investment made by a resident entity in one economy (the direct investor) with the objective of establishing a lasting interest in an enterprise (the direct investment enterprise) that is resident in an economy other than that of the direct investor" (OECD, 2008). Reserve Bank of India (RBI) defines FDI as "the investment into the equity capital of a listed or unlisted company by a foreign individual. The investment can also be approximately to 10 percent or more than the total post issue paid-up equity capital of a company registered in India." The success of capital market of countries is due to the active role played by investors as they are the ones who channel their savings into the markets. Since, the Indian government opened its doors to the world investors', one class of investors have

continued to play a dominant role in the comprehensive performance of Indian stock market and they are foreign institutional investors (FIIs). FIIs have played a crucial role in the Indian stock market behaviour. Since their very entry, they have been consistent buyer of Indian securities compared to other emerging markets across the globe. Foreign institutional investments are defined as institutions which are registered in a country and make investments in securities of another country other than the country of the origin. Section 2 (f) of the SEBI (FII) Regulations 1995 defines, "Foreign Institutional Investor" as an institution established or incorporated outside India which proposes to make investment in Indian securities (SEBI Regulations, 1995). The biggest difference between FDI and FII is the mode and period of investment. FDI is when investors invest in the equity capital of a non-resident company and FII is mostly related to the capital inflow into the securities market of another country, meaning FDI investment primarily aims at primary market (Pradhan, 2008) and FII investment aims at secondary market. Entities that look to engage in long term ownership in an enterprise of another country usually enter the market through FDI and those investors who look to make short term gains invest in the form of FIIs. FDI helps in the creation of new job opportunities and brings new technology to the host country whereas FIIs helps in an efficient stock price discovery, deepen and widen the securities market. FIIs are notoriously called 'Hot Money' as they exit a market at the very fear of uncertainty (Jain and Swarup, 2011). Only those entities that are registered with Securities and Exchange Board of India are allowed to invest in Indian stock market through the route of foreign institutional investments. University funds, endowments, foundations, charitable trusts, pension funds, mutual funds, asset management companies etc. that are incorporated outside India and regulated by an appropriate foreign regulatory authority are allowed to apply as foreign institutional investors and invest in stock market of India (Shukla et al., 2011). FIIs are also required to get approval from Reserve Bank of India under the provisions of Foreign Exchange Regulation Act, 1973 to be eligible to make investments. However, those foreign investors that do not wish to get registered with Securities and Exchange Board of India but want to invest in Indian capital markets can do so by getting registered as sub-accounts with the

FII's. These sub-accounts make investment in Indian capital markets through an investment instrument called Participatory-Notes (P-Notes). An investor looking to invest in Indian stock market but wants to dodge the formalities of SEBI can do so by getting a P-note issued from FII. P-Notes is the derivative instrument that contains stocks of Indian companies as their underlying assets. Till the year 2011, the prime source of inflows from FII's have been contributed by P-Notes. However, the use of P-Notes as a medium of foreign investment has been criticized by regulators due to their anonymous nature of investment. It is argued that P-Notes are nothing but a route to launder the black money of Indian citizens into stock market. SEBI has tightened its noose on the use of P-Notes after it made compulsory for all FII's to furnish Know Your Customer (KYC) of all the P-Notes holder. This created instability in P-Note market and discouraged the inflow from FII's into the country. Since the dawn of 1990s reforms, there has been a plethora of policy changes by the government to attract, manage and regulate the flow of money through foreign institutional investors. The importance of foreign capital inflows on the balance of payment of the country is also discussed in the report titled 'High Level Committee' which was chaired by C. Rangarajan. The committee emphasized on less government intervention, stringent norms for External Commercial borrowings and shift towards increasing non-debt related flows rather than debt related flows. The government took active participation in creating a reform and regulatory environment for foreign institutional investors' post 1992. Reform process began after the government allowed foreign institutional investors to make investments in the primary markets of the country (Aggarwal et al., 2005). This was followed by mandatory registration of all FII's with the Securities and Exchange Board of India and requiring approval under the Foreign Exchange Regulation Act of 1973. Also, SEBI in its regulation of 1995 explicitly mentioned the entities that are qualified to enlist as FII's, their financial history and instruments eligible for investment. An overview describing the different policy reforms undertaken with regard to foreign institutional investors is presented in table 1.1 as follows:

**Table 1.1 : Evolution of Policy Reforms for FIIs in India**

<b>Year</b>	<b>Policy Changes</b>
<b>September 1992</b>	FIIs investments were allowed into the Indian capital markets. Permission was granted to FIIs to invest in both primary as well as secondary markets and all kinds of schemes promoted by various mutual funds in the country. These investments were subjected to a cap of 5 per cent for individual FII and up to 24 per cent of the total paid up capital of a company for investments by all FIIs.
<b>November 1996</b>	Debt FIIs were given operational flexibility of 100 per cent.
<b>April 1997</b>	To boost FII contribution in markets the investment limit of FIIs was raised to 30 per cent. This increased limit was applicable on fulfilling certain special process and resolutions.
<b>April 1998</b>	FIIs Investment limit on dated government securities was raised to US dollar 1.75 billion from US dollar 1 billion. Investments from debt route of FIIs and normal route was allowed by the government.
<b>June 1998</b>	Separate investment ceilings for FIIs, Non Resident Indians/Person of Indian Origin/ Overseas Commercial Borrowers were introduced. Further, the combined investment limit was raised to 10 per cent from previous 5 per cent.
<b>June 1998</b>	FIIs were given access to hedging instruments after they were allowed to engage in forward contracts in equity markets.
<b>February 2000</b>	Introduction of sub-accounts of FIIs. Foreign entities and high net-worth individuals were allowed to open a sub-account with registered FIIs. Domestic firms were also permitted to take investments from FIIs in the form of sub-accounts registered as FIIs.

<b>Year</b>	<b>Policy Changes</b>
<b>March 2001</b>	Increase in FIIs investment limit to 49 per cent under special provisions.
<b>September 2001</b>	Increase in FIIs investment limit to sectoral cap, subject to special procedure.
<b>December 2003</b>	To simplify the FIIs registration process the dual approval system required from both SEBI and RBI was replaced to a single approval by SEBI.
<b>November 2004</b>	To restrict the movement of flows rising from short term debts a limit of US dollar 0.5 billion was introduced on outstanding corporate debt.
<b>April 2006</b>	The budget of 2006-07 announced a raise in the corporate debt limit to US dollar 1.5 billion. Further, an increase in FIIs investments in government securities was announced to the tune of US dollar 2 billion.
<b>November 2006</b>	To promote demutualization and corporatization of stock exchanges the government allowed investment in infrastructure companies through securities market. The permissible limit was up to 23 per cent of the paid up capital which had to be invested in stock exchanges, depositories and clearing corporations.
<b>January and October 2007</b>	Increase in FIIs investment limit in government securities to US dollar 3.2 billion. This increase in limit was done in the month of January and October of US dollar 0.6 billion each month.
<b>December 2007</b>	Removal on the restriction of FIIs and sub-accounts of FIIs on short selling, lending and borrowing of securities. However, the permission to indulge in short sell was given after the FIIs and their sub accounts met the conditions stipulated by the Reserve Bank and SEBI.

<b>Year</b>	<b>Policy Changes</b>
<b>June 2008</b>	FII's investment limit in cumulative debt investment was raised to US dollar 5 billion from previous limit of US dollar 3.2 billion. Followed by an increase in the cumulative corporate investment to US dollar 3 billion from previous limit of US dollar 1.5 billion.
<b>October 2008</b>	Increase in cumulative debt investment to US dollar 6 billion from previous limit of US dollar 3 billion in corporate debt.
<b>October 2008</b>	Elimination of FII's investment limit in equity and debt in the ratio of 70:30, respectively.
<b>October 2008</b>	Previously the government had imposed restrictions on Overseas Derivatives Instruments. However, the said restrictions were removed on FII's investment.
<b>March 2009</b>	Introduced E- bid platforms for FII's and rejected lending of shares abroad by FII's.
<b>August 2009</b>	FII's participation in interest rate futures was approved.
<b>April 2010</b>	FII's were allowed to deposit to Indian stock exchange, domestic government securities and foreign sovereign securities having a credit rating of AAA as collateral securities for dealing in cash segment markets.
<b>November 2010</b>	FII's investment limit in corporate bond was raised to US dollar 10 billion and US dollar 20 billion for government bonds and securities respectively.
<b>March 2011</b>	Investment limit of FII's on the corporate bonds of infrastructure companies was raised by US dollar 20 billion to a composite limit of US dollar 25 billion.
<b>August 2011</b>	Under the corporate debt long-term infra category, those Non-Banking Financial Companies (NBFCs) which were classified as Infrastructure Finance Companies were authorized to issue investment to FII's.

<b>Year</b>	<b>Policy Changes</b>
<b>June 2012</b>	FIIs investment limit was increased to US dollar 22 billion in corporate debt long term infrastructure companies.
<b>September 2012</b>	Market regulator SEBI toned down the ‘Know You Client’ norms for encouraging more investment from FIIs.
<b>December 2012</b>	FIIs were permitted to procure shares of unlisted stock exchanges provided the transactions of such purchase were held outside a recognized stock exchange. However, restriction was imposed on procurement of shares for initial allotment.
<b>March 2013</b>	FIIs were permitted to offer collateral in the form of cash and foreign securities with AAA ratings in futures and options segment and only foreign securities with AAA rating in cash segment to fulfill the margin requirements. This was changed in the Union budget of 2013-14, where FIIs were permitted to present securities with AAA ratings such as corporate bonds, government securities, cash and foreign securities as collateral for their transactions in cash segment market and future and options market.
<b>April 2013</b>	FIIs and Qualified Foreign Investors (QFIs) were allowed to invest to the tune of US dollar 3.5 billion in commercial papers with a cap limit of US dollar 5 billion. Further, a new government debt limit was formed of US dollar 25 billion from the merger of government debt limits and long term debt limit totaling US dollar 10 billion and US dollar 15 billion respectively.
<b>January 2014</b>	Sub-limit for Sovereign Wealth Funds, Multilateral Agencies, Endowment Funds, Insurance Funds, Pension Funds and Foreign Central Banks (which was registered as FIIs with SEBI) was raised to US dollar 10 billion from US dollar 5 billion.



<b>Year</b>	<b>Policy Changes</b>
<b>February 2014</b>	FII's and QFI's investment limit in commercial papers was decreased to US dollar 2 billion from previous limit of US dollar 3.5 billion.
<b>April 2014</b>	FII's and QFI's investments in dated government securities was restricted to securities with a maturity of one year or more.
<b>October 2015</b>	The investment limit in Government Securities was further revised after consultation with the government.
<b>March 2016</b>	Approval was granted to FII's to invest on REITs, InvITs and AIFs under the amendments of Foreign Exchange Management Regulations 2015.
<b>October 2016</b>	Revised the investment limit in government debt short and long term to ₹148000 crore and ₹62000 crore respectively. Also, investment limit on State Development Loans was revised to ₹17500 crore.
<b>November 2016</b>	New instruments were made available for investment to FII's under the corporate bond route. Non-convertible debentures and bonds of Unlisted companies whether public or private were eligible for FII investment. Further, unlisted debt securities of infrastructure companies were also opened to FII's investment.
<b>January 2017</b>	No additional documentation or approval was required and permission was granted to work in International Financial Centers.
<b>April 2017</b>	Debt limits were revised to ₹184901 crore for government debt from previous ₹152000 crore, in Long term government debt limits were revised to ₹46099 crore and in State Development Loans limit was revised to ₹27000 crore from existing ₹21000 crore.
<b>September 2017</b>	Approval was given to transact in commodity derivatives contracts provided the contracts were related to non-agricultural commodities. The said contracts will be settled in cash and have a foreign currency denomination.

Year	Policy Changes
<p align="center"><b>January 2018</b></p>	<p>The FIIs investment limit in government debt for short term and long term was further increased to ₹191300 crore and ₹65100 crore respectively. Further, the investment limit in State Development Loans was further increased to ₹31500 crore.</p>

**Source:** Indian Stock Market Review- NSE and SEBI Annual Report

## **1.2 FIIS AND REGULATIONS IN INDIAN MARKET**

Foreign institutional investors are defined as institutions which are registered in a country and make investments in securities of another country other than the country of the origin. The government of India through SEBI regulates the working of foreign institutional investors and their investments in Indian markets. The SEBI regulations of 1995 mentions the eligibility criteria for entities who can get register themselves as FIIs in India. It also mentions the registration process and the registration fees required to be paid to get registered. The guidelines for investment in securities in detail and the limit of investment allowed is also mentioned in the regulations.

### **1.2.1 Institutions Eligible for Registration as FIIs**

All those institutions that are incorporated and established outside India as can apply to get registered as FIIs. Following are the entities that can register as FIIs in India under SEBI regulations of 1995:

#### **Pension Funds**

Pension funds are the financial entities that manage and invest the pool of money created by the contributions from employees, individuals and employers (Franzen, 2010). Pension funds invest the money in different securities, to generate additional income for the employees and the retirees.

#### **Investment Trust**

Investment Trust is defined as the public listed financial entity which invests in shares or financial assets of other companies on behalf of their shareholders. The

main objective of the trust is to generate profit for its investors. An investment trust invests the money collected from different investors into a wide range of securities. These investments enable individual investors access to large range of financial instruments which were otherwise not feasible for investment individually.

### **Mutual Fund**

A Mutual Fund is defined as a pool of collective investments made by individuals which usually is managed by an asset management company (Friedberg, 2015). The fund managers create a portfolio from the pool of investments and invests in different securities like stocks, bonds and other long- and short-term securities. The investments in mutual funds are less risky compared to investment made in individual stock or bond. The profits or losses are distributed amongst the investors in equal proportion.

### **Insurance Company**

An Insurance Company invests money into various financial instruments available in the market. The money invested stems from the premiums collected from the policyholders. The insurance policy of the insurers at times offers an option to invest in unit-linked funds. The returns generated from the investments are distributed proportionately amongst the insurers.

### **Banks**

Banks are the financial institutions which are engaged in the activity of borrowing and lending money. Banks earn a large amount of profit from the interest earned on the loans granted to its customers. They also diversify their investments by investing a certain portion of their collected money into stocks and bonds of different companies.

### **University Fund**

University fund represents a mix of the money and financial assets which are created as per the spending requirements of the universities or colleges. These funds are

intended to make investments which help in generating additional incomes to the organizations. The incomes generated are usually utilized for meeting the investment and expenditure requirement of the institute.

### **Foreign Governmental Agencies**

Foreign Government Agency is defined as a department or an entity established by the government of a foreign country. These entities make investment into the financial markets of other countries with the objective to earn profit on their investments.

### **Charitable Trust**

A Charitable Trust is a social welfare trust created in general for the betterment of the society. The funds of the trust can be dedicated for the development of education or religion or scientific needs of the society. They can also be directed towards the eradication of poverty and promoting advancement in the health of the public. Such institutes are exempted from all kinds of taxes.

### **Foundations**

Foundations are defined as the nonprofit organizations which make contributions in the field of education, science, culture and religion. There can be private owned foundations and public foundations aimed towards the upliftment of the society. These foundations also make certain investments from their pool of money into different financial instruments. Profits from these investments are further utilized for the development needs of future.

### **Endowments**

An Endowment is defined as the allocation of money or property to an organization, with the requirement that the donation should be used as per the requests of the donor. The endowments use the money for charitable purposes and save part of the money to invest in securities. Thus, enabling a long-term use of the donation and meeting future investment needs.

## **Hedge Funds**

A Hedge Fund is defined as the pooled investment structure where the funds are managed by the fund manager to earn profits for its investors (W. Lo, 2010). Hedge Fund managers can invest the pooled money domestically or globally into the financial markets. Each fund has different investment strategies and can follow aggressive investment options or conservative investment options.

Many entities can also make investment in India through broad based funds. A broad-based fund is a fund which is incorporated or established outside India in which no single individual investor is allowed to hold more than 49 per cent of shares of the particular broad-based fund and the fund should have at least twenty investors. Following are the foreign entities which can look to invest into India through broad based funds and are eligible to register themselves as FIIs:

- **An Asset Management Company**

An asset management company collects money from different investors aiming to have a small exposure to the markets. The money collected is pooled by the company and is invested into different kinds of securities such as stocks, bonds and debt which provide an exposure to high risk and low risk investment opportunities.

- **Investment Manager or Advisor**

Investment manager or advisor are the entities or individuals which invest money for the people looking to get returns on their investment. Such entities generally provide a risk and return analysis to their investors.

- **Bank or Institutional Portfolio Manager**

Institutional Portfolio Manager is one who oversees the portfolio of investments for single investor or a group of investors and institutions.

- **Trustees of Trust**

Trustees of trust is an entity that makes investment in diversified securities on behalf of the trust formed.

Further, those investors who do not wish to enlist with Securities and Exchange Board of India and adhere to its regulations but wish to make investment in Indian markets can do so by investing through sub-accounts. A sub-account is defined as an individual who is registered with a foreign institutional investor and resides outside India and allows foreign institutional investors to make investments on their behalf in Indian markets. Following are the institutions that can make investment via sub-accounts in India:

- a) Foreign corporate
- b) Foreign individual
- c) University Fund
- d) Endowments
- e) Foundations
- f) Charitable Trusts or Charitable Societies
- g) Proprietary fund of a registered foreign institutional investor

### **Foreign Corporate**

Foreign corporate is defined as a corporate body which is established outside India having its securities listed in a foreign stock exchange with asset base of minimum two billion US dollars and having a sustained average net profit of minimum fifty million US dollars for the last three financial years.

### **Foreign Individual**

Foreign individual is defined as an individual having at least fifty million US dollars of net worth, is in possession of passport of a foreign country for not less than five years, maintains a certificate of good credit issued by bank of foreign country and is a client of the foreign institutional investor for not less than three years.

## **1.2.2 Investment Instruments and Restrictions**

### **1.2.2.1 Investment in Instruments**

FII's can invest in equity and debt instruments in India. The third chapter of the Securities and Exchange Board of India (Foreign Institutional Investments)

Regulations, 1995 explains the guidelines and instruments in which FIIs and their sub-accounts can invest in Indian capital markets (source: SEBI Regulations 1995). Following are the different type of securities in which FIIs and sub-accounts can make investments:

- a) Securities of companies which are unlisted, listed or to be listed in a recognized stock exchange of India. These securities can be in primary and secondary market and contains shares, debentures and warrants.
- b) Derivatives tradeable on a stock exchange in India.
- c) Security receipts
- d) Dates government securities
- e) Commercial papers
- f) Domestic mutual fund units floated under different schemes
- g) Collective investment scheme units floated under different schemes

#### **1.2.2.2 Limits on FIIs Investment**

The investment limits of different foreign institutional investors in Indian companies are monitored by the Reserve Bank of India on a day-to-day basis. The central bank has capped a total up-limit of 24 percent of the overall investment in a company to its paid-up capital. However, for FIIs investment into public sector banks the investment limit is capped to 20 percent of the total paid up capital. Moreover, the Reserve bank has fixed an upper limit of 24 percent of FIIs investment to be raised in sectoral cap provided the general board of the company has passed a special resolution in that regard and has obtained an approval from the company's board.

#### **1.2.2.3 Forms of Investment by SEBI Registered FIIs**

FIIs are allowed to invest into equity and debt segment of the Indian market. There exist two forms in which FIIs investment is allowed:

- **Equity Investment**

FIIs investing via this route are also called regular FIIs. These investors invest in the ratio of 70:30, stating, atleast 70 percent of the total investment is done in

the equity instruments while 30 percent of the investment is made in debt related or non-equity instruments.

- **100 percent Debt Investment**

FIIIs under this category are allowed to invest solely into debt and debt related instruments.

### **1.2.3 Foreign Institutional Investors Registration in India**

FIIIs looking to invest into the Indian stock market are required to obey the rules and regulations formulated by Securities and Exchange Board of India.

#### **1.2.3.1 Procedure of FIIIs Registration**

Those foreign entities that aim to invest into Indian securities market have to apply for registration with SEBI. Such institutions or organizations can indulge into buying and selling of securities only after receiving the certificate from SEBI. According to SEBI (FIIIs) Regulations, 1995, following are the steps for registration:

**a) Applying for Certificate**

An application for requesting a certificate can be made in Form A to SEBI. Memorandum of Association (MOA), Article of Association (AOA) and Article of Incorporation (AOI) have to be furnished along with the application for certification.

**b) Providing Information, Clarification and Personal Representation**

The applicant shall furnish additional details and information as well as be called upon by the SEBI to fulfil the requirements for certificate. If deemed necessary, the applicant or its authorized representative shall be asked to personally appear before the board for request of certificate.

**c) Eligibility Norms for Applicants**

- An applicant should have a good track record, professional competence, sound financial health and should have an integrity in its reputation.



- Applicant should fall within the criteria of a fit and proper person as defined by SEBI.
- Regulation from an appropriate foreign regulatory authority is essential.
- Required to get approval as per the norms of Foreign Exchange Management Act.
- The applicant should be in existence for atleast 5 years before applying for certificate.
- Permission from the home country regulator to invest in securities abroad is also required to be furnished by the applicant.
- Details on a legal proceeding, if any, are being conducted by an appropriate legal entity are to be furnished.

**d) Conditions to be Met before Granting the Certificate**

Certain conditions that are required to be met before issuing the certificate to foreign institutional investors are as follows:

- An entity looking to make investment via foreign institutional investor route should fully comply with all the provisions of FIIs regulations.
- It is required to inform the board in writing about an information that has been presented in the past and has become false or is not appropriate.
- The institution is required to inform the board upon any change in the information that has previously been provided and is crucial for processing the application of certificate.
- The foreign investors are required to select a domestic custodian and enter into a contract with them for the provision of custodial services for investment in the securities.
- It is also required to open a special non-resident rupee or foreign currency account with a designated bank.

**e) Grant of Certificate**

Once an application is made for registration, SEBI is required to provide information within a period of three months and not more, regarding the

certificate of application. If the board feels that all the necessary information called upon is correct and all the requirements seemed to be met, then the individual is entitled for a grant of certificate, the board issues a form B for the grant of certificate.

### **1.3 POSITIVE AND NEGATIVE ATTRIBUTES OF FIIS**

Many regulators and market investors argue over the pros and cons of foreign institutional investments in the host country. Advocators for foreign institutional investment claim the foreign money can command an improved corporate governance of firms. They have the ability to alter a country's balance of payments position and impact the factor productivity to a great extent. It is contended, India is an emerging economy and the rising trade deficit of the nation can be met by inflows from foreign investors which can be supplied in the form of foreign capital from FIIs. This foreign fund inflow is likely to help the country strengthen its forex reserves and pay for its deficits. It is further asserted that the rise in the domestic stock prices and an improvement in the quantitative and qualitative aspects of a country are also owed to the investments made by FIIs. There is a common belief that in the absence of the FIIs, the sterling performance (from a shareholder's perspective) of India Inc. could not raise the equity prices to the current levels (Chandra, 2008). Foreign inflows aid in reducing the cost of capital in the host country as they create demand for local stocks which drives the prices of stocks leading to an increase in the prices. This increase in demand and price helps in bringing down the cost of capital for the domestic firms (Fischer, 1995). Following are some of the benefits of foreign institutional investments:

#### **1.3.1 Positive Attributes of FIIs Investment**

##### **a) Better Corporate Governance**

FIIs command firms to have better regulations and adequate disclosures to their investors, it is argued that foreign investors have less of local information than the domestic investors and face an information disadvantage. Therefore, international institutional investors are more likely to bring good corporate

governance to the domestic firms. (Aggarwal et al., 2005) remarked foreign investors' preference towards firms with better accounting and corporate policies. (Aggarwal et al, 2011) studied the influence of foreign institutional investors on the corporate governance of different companies across 23 countries. It was observed that their exits positive influence of foreign institutional ownership on governance of firms. The research propounded on the fact that organizations having larger share of foreign institutional investors had higher valuations and high turnover of poorly performing Chief Executive Officers (CEOs). Foreign institutional investors from countries with strong investors' protection are responsible for the dissemination of good corporate governance in the country of investment. The increased importance of an efficient corporate governance is also seen in Indian capital markets. Majority of the companies are competing with one another to attract foreign capital and are thus stressing on an improved governance practice. Further, to help the capital markets integrate with world markets adopting a uniform governance practice is the need of the hour. Therefore, FIIs play a crucial role in building a better corporate governance for local firms (Pathak, 2011).

**b) Efficient Capital Markets**

The internationalization of portfolio flows assists in the growth of the financial market of the recipient country. It helps by providing a common road to savers and investors and makes available foreign savings to domestic manufacturers. Foreign institutional investors provide alternatives to other sources of foreign finance and international borrowings to companies (Errunza et al., 1999). Similarly, FIIs have played a crucial role in the development of Indian capital markets. They have helped in efficient price discovery of stock prices and provided the required financial assistance to Indian companies (Gurusamy, 2009).

**c) Capital Formation**

Entry of foreign institutional investors has given a boost to the domestic stock prices. The increased demand for equity scripts has helped in lowering down

the cost of capital for firms and brought together the supply and demand of money in an organized platform. Allowing foreign investors to invest in equity market has positive effect on wealth of domestic investors as it helps in sharing of risks which in turn reduces the cost of equity capital (Henry, 2000). FIIs have also brought large amount of capital inflows into to the stock market. The reduced cost of capital and easy access to money has helped in the country's formation of capital (Pathak, 2011). Also, investment from international institutions provides a better understanding on managing diversified portfolios and teach new techniques to handle and manage risks related to capital markets (Evans, 2002).

**d) Efficient Management**

Investment from FIIs signal towards a sound and strong domestic economy. As FIIs are risk mongers their presence in Indian market signal towards an efficient market mechanism. Also, FIIs help is eliminating the information asymmetry and improve market stability as they operate in markets with full information (Kevin, 2010). FIIs also bring their native country's governance practices to the table of the host company's management board. This leads to efficient working principles and adoption to all rules and regulations in a professional manner (Gurusamy, 2009).

Though there are many advantages of foreign institutional investors they also pose few disadvantages to the host country. Following are some of the negatives of FIIs:

**1.3.2 Negative Attributes of FII Investment**

**a) Destabilization of Markets**

FIIs are return chasers and countries that have too much exposure of capital markets to foreign institutional investments can lie at a disadvantage. If FIIs experience lesser return on their investments than the expected they are likely to switch their place of investment and move to country with higher return. Also, a little hint of uncertainty in a receipt country can make FIIs jittery about the market and its ability to sustain growth. Thus, leading to an outflow of

money and destabilizing the market of host country (Shajan, 2006). The recent sub-primes crisis of 2008 is an example of FIIs change in investment pattern causing abrupt changes in the world markets. Also, the Asian crisis of 1997 is attributed to the sudden change in FIIs investment behaviour. FIIs are known as ‘Hot Money’ as they invest for a short term looking for speculative gains. They are responsible for increasing the volatility in capital markets and destabilize the market. FIIs tend to see emerging markets as a single portfolio and bad news in one emerging market causes FIIs to plug out their money from all emerging markets leading to destabilization in emerging economies.

**b) Control Over Management**

FIIs mostly invest in the equity shares and thus gain control of the working management of the company. Though they bring good governance practices on the board they also tend to misuse their power of ownership over a company which restricts the healthy working of a company. Further, the increased share in company at times lets FIIs leverage over certain things which is against the interest of small shareholders (Gurusamy, 2009).

**1.4 RATIONALE AND RESEARCH GAP**

Investigations of previous research has revealed that foreign institutional investors occupy a prominent role in Indian stock markets. The stagnation of markets in developed economies and lower rates of interest paved the way for foreign capital to emerging economies. The growing fascination amongst foreign investors for Asian economies especially India can be attributed to higher growth potential and lower cost of investment. As majority of the Asian economies are in the developing stage the governments have liberalized their foreign investment norms to attract more capital inflows. (Fernández-Arias et. al, 1996) expounded that increasing flow of FIIs investment into emerging markets was due to low rate of return in developed economies. These capital inflows stimulate the economic growth of a country by providing capital for development purposes and catch up with the world standards. The Indian stock market has undergone tremendous change after the government announced liberalization forms in 1991 and allowed foreign investment in the

country. Since their very entry economists, market regulators, academicians, researchers and investors have been arguing over the pros and cons of foreign institutional investments on Indian stock market. Literature in the past has focused on various issues that have cropped up with the emergence of FIIs in Indian stock market. Studies have been conducted to analyse the impact of FIIs on stock market volatility, determine the macroeconomic factors like inflation, Index of Industrial Production, exchange rate, rate of return etc. that attract foreign institutional investments into our country. Many researchers have also focused on the causal relationship between stock market movement and FIIs flows. Several studies have also examined stock characteristics such as size, age, price and risk as significant determinants of foreign institutional ownership. But there is no detailed investigation that has conducted a thorough 'analysis of foreign institutional investments in Indian stock market'. The research has identified the role played by exchange declared news announcements on share ownership of foreign institutional investor. Also, there is a need to assess the influence of foreign institutional investments towards different sectors of stock market. The study has also accessed the inflows from different categories into the equity and debt segment of the Indian market and the determinants of foreign institutional investments in India and identified which category of FIIs has played a significant role in determining FIIs and the factors that have influenced FIIs investments.

## **1.5 SCOPE AND OBJECTIVES**

Foreign institutional investments are known to play a significant role in the development of economies as they provide countries with funds that the domestic investments cannot support. India is considered a favorite destination by foreign investors as it has emerged one of the strongest growing economies of Asia. Foreign investors help in building the forex reserves of a country as they bring in investments. The distinctive institutional set up and investor structure prevalent in the Indian stock market, generates opportunities for researchers to understand the association amongst returns generated and share ownership of FIIs and their reaction to news announcements. The study will also analyse the trends and pattern of foreign institutional investors investment in Indian market and the influence of exchange

declared news announcements on stock returns and share ownership of FIIs. Further, the influence of FIIs investments on different sectors of the stock market and the variation in inflows by different categories of FIIs will also be studied.

Following are the objectives for which the research will be undertaken:

- 1) To analyse the trends and pattern of foreign institutional investors investment inflows in India.
- 2) To examine the role of exchange declared news announcements on stock returns.
- 3) To analyse the impact of exchange declared news announcements on share ownership of foreign institutional investors.
- 4) To examine the influence of foreign institutional investor trading behaviour on the different sectors of stock market.
- 5) To analyse variation in foreign inflows by different categories of foreign institutional investors.

## **1.6 DESIGN OF STUDY**

The present study has been divided into eight chapters as follows:

Chapter 1 introduces the topic of research, the objectives for which it is undertaken, the scope and relevance of the study.

Chapter 2 entails an exhaustive and thorough review of the studies that have been conducted related to the current research.

Chapter 3 discusses the sources of data and research methodology.

Chapter 4 presents the first objective of trends and pattern of foreign institutional investors investment inflows in India.

Chapter 5 deals with the role of exchange declared news announcement on stock returns.

Chapter 6 focuses on analyzing the impact of exchange declared news announcements on share ownership of foreign institutional investors.

Chapter 7 pertains to the examination of the influence of foreign institutional investor trading behaviour on different sectors of stock market.

Chapter 8 is devoted to analyzing the variation in foreign inflows of foreign institutional investors.

Chapter 9 presents the summary of findings and conclusions of the study.

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## Chapter – 2

# REVIEW OF LITERATURE

The research has been motivated by the growing importance of foreign institutional investors in the Indian capital market. Since the liberalization reforms of 1991, foreign institutional investments have become the source of cheap foreign capital for Indian stock market. India has emerged as one of the favorite countries of foreign portfolio investors amongst other emerging markets. Studies have shown foreign institutional investors bear positive as well as negative influence on stock market of host countries. Few researchers have presented a favorable influence of foreign institutional investors in development of equity market, integration of capital markets with world, reducing the cost of capital for the borrowers in the domestic market. However, some studies indicate towards a negative influence of foreign institutional investments as they cause instability and volatility in the stock markets of host country. FIIs are condemned for their short-term outlook as they use “quick exist” if they are likely to face any downside risk in the country of investment. Thus, the chapter focuses on analyzing the diversified issues relating to foreign institutional investments in Indian market. The chapter focuses on the broader literature that examines the studies conducted on the growing importance of foreign institutional investors in Indian stock market. It further presents the outline of topic of research and the purpose for undertaking the study.

The chapter has been arranged into four sub-sections:

- 2.1 Empirical Studies on Trends and Pattern of FIIs Flows to India
- 2.2 Exchange Declared News Announcements and Stock Returns
- 2.3 Exchange Declared News Announcements and Share Ownership of FIIs
- 2.4 FIIs Trading Behaviour and Different Sectors of Stock Market

## **2.1 EMPIRICAL STUDIES ON TRENDS AND PATTERN OF FIIS FLOWS TO INDIA**

Pal (1998) opined on the role played by foreign institutional investors in the stock market and economic development of India. It was found that FIIs failed to boost the Indian stock market and increased the market's volatility. The study reflected that FIIs entry led to the increase in market liquidity and turnover which led to increase in share prices. However, the increase in share prices was criticized as it implied that increased share prices did not contribute to any fresh investment and cause mere portfolio switching amongst the investors. The research also highlighted the fact that too much of FII investment led to the erosion of small investors from the market and failed to boost the Indian secondary market.

Pati (1999) reviewed the pattern of foreign institutional investments in Indian market after the government announced liberalization reforms in the country. The study showed India became one of the favorite destinations of FIIs investment as 80 per cent of the foreign portfolio investments in Indian markets were in the form of FIIs inflows. It further emphasized on the fact that the growing number of foreign investments and FIIs registered with SEBI highlighted towards FIIs confidence on India's growth prospects.

Kolhi (2003) conducted a research to understand the nature and effects of capital flows on Indian economy. The study showcased dominance of foreign portfolio flows compared to foreign direct investment in the initial years of LPG reforms of 1990s. The increase in foreign portfolio flows was attributed to the simple and one-time entry point registration for foreign investors. It was further observed that the increase in the major stock indexes during the period 1993-95 and 1999-2000 was due to the surge in foreign inflows into the country. Thus, the study concluded that entry of foreign investors created a demand for domestic stocks and increased the stock prices.

Vasudevan (2006) discussed the nature of foreign institutional investments and the co-movement of these foreign inflows with stock prices in India up to 2005. The research pointed that the improved performance of Sensex and S&P CNX Nifty

could be attributed to the wave of rising FII investment into the country. It also stated that the increased earnings prospect of Indian companies further attracts investments from FIIs, thus, enabling them to earn high returns on their investments. The surge in FII flows also contributed towards the appreciation of Indian rupee against US dollar.

Singh (2009) explored the trends and pattern of capital flows to India. The study revealed that the asset prices of stocks in Indian markets were largely influenced by shocks to FII flows. Increasing trend was observed in the volatility of both stock returns and FII flows to the market. It was noted that the foreign investment flows were largely susceptible to shocks in global markets while foreign direct investments were more prone to changes in the underlying fundamentals of the country.

Bhatnagar (2011) studied the trend of foreign institutional investments in Indian stock market from 2004-2009 and the impact of FIIs on Indian stock indices. The research stated that FIIs invested maximum amount in Indian markets during the year 2009 and they were the biggest withdrawers during 2008. The outflow of money during 2008 was owed to the global meltdown across the world. Economic conditions of India played a significant role in attracting foreign investment into Indian capital markets during the year 2008-2009. The study also revealed that size of market, political condition, labour cost and productivity, infrastructure, incentives also influenced FIIs investment decisions in India.

Jain and Swarup (2011) investigated the presence of correlation between Indian stock market movement and foreign institutional investments. Nifty which is one of the popular index of NSE was undertaken to represent Indian equity markets. It was established that exists positive but weak association between Nifty movement and FII investment and FII equity investment and turnover at NSE.

Karthikeyan and Mohanasundaram (2012) assessed the association between FIIs equity investment pattern and indices of Indian stock exchange namely, Sensex and CNX Nifty. The investigation highlighted towards a positive correlation between FII investment and Indian equity market. However, the study explained that FII investment did not bear any strong impact on Indian bourses stating Indian markets were not completely dependent on FII investment.

Sharma and Mehta (2012) investigate a study to check presence of a relationship between movement of foreign institutional investors and Indian stock market. The research undertook Sensex and CNX Nifty, the popular stock indices to represent Indian stock market. Weak but positive correlation between FII movement and Sensex and FII and Nifty was found which was supported by results of regression analysis. The Granger- Causality test revealed that Sensex and FII movement did not granger cause each other while, FII movement found to granger cause some fluctuations in Nifty index whereas Nifty did not granger cause FII movement.

Garg and Chawla (2015) conducted a study to examine the trends and pattern of foreign institutional investments and domestic institutional investments in Indian capital market. To facilitate research net foreign institutional investments were taken which were calculated as a difference between gross purchase and gross sales of FIIs. The logarithmic trend line showed an upward trend in foreign institutional investments beginning from 2007 to March 2015. The study also elaborated on the strong negative correlation between foreign institutional investments and domestic institutional investments. It stated that an inflow from FIIs meant and outflow of money from DIIs and an outflow of FIIs meant and inflow of DIIs in the capital market.

## **2.2 ROLE OF EXCHANGE DECLARED NEWS ANNOUNCEMENTS ON STOCK RETURNS**

Beaver (1968) examined empirically the informational value that earnings announcements have on stock prices and volume during the date of announcement. A sample of 143 firms with annual earnings announcements that were listed on the New York stock exchange for the period 1961 to 1965 was undertaken for estimation. The study concluded that the earnings announcement possessed the ability to change price and volume reaction of announcing firms for not only individual investors but influence the entire market reaction.

May (1971) assessed the influence of quarterly earnings announcement reports on investment decisions of investors. The research determined whether the announcement of earnings report exhibited any change in the market prices of the

stocks. A sample of firms listed at the American Stock Exchange was drawn and only those firms that reported quarterly earnings on a regular basis was selected. The results of the study evidenced that there were significant changes in the stock prices during the week of earnings announcement compared to the average change in stock prices.

Jordan (1973) explored whether there existed any difference in the market reaction to the announcement of annual and quarterly earnings reported for different quarters. The research employed analysis of variance technique to determine the difference in market reaction to different quarterly earnings. The results of the study showcased that there existed significant difference in the market assessment for earnings reported in the first and second quarter compared to the earnings reported in the third quarter and annual reports. The results also revealed that the companies that were seen as growth companies exhibited a different pattern of price change than companies which were labeled as non-growth companies.

Brown et al. (1977) observed the joint impact of dividend and earnings announcements on the share prices of the firms. The study divided the population into two samples and studied the change in the share price on a daily, weekly and monthly basis. The results highlighted towards a significant and greater change in share prices of firms whose dividend and earnings moved in the same direction compared to firms that announced a constant dividend and change in earnings or firms whose dividend and earnings moved in opposite direction. The results also signaled that the change in share price of stocks was positively associated with the change in dividend and earnings announcement as greater increase or decrease in dividend and earnings implied larger impact on stock prices.

Aharony and Swary (1980) studied whether there exists any additional information in the announcement of quarterly dividends other than the information revealed by earnings figure. The study undertook the companies who announced dividend and earnings on different dates and applied market model to ascertain whether the investors earned an abnormal return around the days of quarterly dividend and earnings announcement. The findings of the study evidenced quarterly dividend

announcements contained additional information for the investors apart from the information already conveyed by the earnings announcement and supported the theory of semi-strong form of efficient capital markets.

Chari et al. (1988) gauged that whether there exists any excess return for investors during the announcement of quarterly earnings. To investigate the problem the author collected data from 1976 to 1984 for firms whose data was available on the COMPUSTAT tape, earnings announcement data was collected from Standard and Poor's and daily return data from Center for Research in Security Prices at the University of Chicago. The results suggested that returns of small firms had an earnings announcement effect while returns of large firms did not experience any such effect, implying significant difference in the returns for small and large firms. This was validated by the fact that the annual return for 10 percent of the small firms was experienced at 16 percent two days before the announcement of quarterly earnings, while, no such case was seen for large firms.

Mendenhall and Nichols (1988) investigated the influence of earnings announcement on security returns of firms. The study hypothesized that market reaction to bad earnings news was more in non-fourth quarters than in fourth quarter. For the purpose of estimation event study methodology was used and the actual security return of a firm on the event day was compared with the expected return. Results concluded that strong reactions were evoked in security returns when the earnings did not match the forecasted earnings (bad earnings) in the non-fourth quarter. The study also postulated that managers were likely to delay the announcement of bad news to influence stock returns.

Peterson (1990) evaluated the question whether the seasonality of earnings information play any role in stock return seasonality. To assess the problem the author used earnings data from 1980 to 1986 and studied four seasonal patterns namely, intraquarter effect, intramonth effect, the January effect and the day of the week effect. The results showed that seasonality in the earnings information was not a key element that caused stock index return seasonalities as the return of the reporting periods were similar to or weaker than the returns of non-reporting periods.

Ball and Kothari (1991) explored how risk, return and abnormal returns perform during the days nearing announcements of quarterly earnings. The study hypothesized an increase in the expected returns during the periods of earnings announcement owing to concurrent price reaction which increased the variability and covariability of securities returns during the announcements. For the purpose of estimation Capital Asset Pricing Model (CAPM) was used to analyze the presence and pattern of positive abnormal returns around earnings announcements. The study found no conclusive evidence to support the hypothesis that abnormal returns have a v-shaped pattern and are negative. The research also used individual security returns rather than portfolio of returns to calculate standard deviation of returns and found the standard deviation of individual security returns increased during the earnings announcement period.

Lonie et al. (1996) studied the market reaction in the UK stock market to the announcement of dividends by companies and presence of a relationship between dividend and earnings announcements. The authors employed event study to determine the abnormal returns due to dividend announcement and regression analysis to understand the interaction effect between unexpected dividends and unexpected earnings. The results suggested that markets reaction was positive to an increase in dividend announcement as firms experienced largest abnormal return while a decrease in dividend garnered a negative reaction from market as investors believed a dividend decrease signaled towards a gloomy prospect of the company which led towards a reduction in the returns for the stock holders of the company. Also, the interaction between dividend and earnings was found to be significant implying that both the information together impacts the abnormal returns generated for firms.

Capstaff et al. (2004) analysed the effectiveness of dividend signaling theory in the Oslo Stock Exchange by examining the stock market reaction to dividend announcements. The study incorporated data from 1993 to 1998 and used the market model to measure risk adjusted returns. To understand the influence of unexpected dividend announcements on stock returns the author adopted two models of expected dividend, namely the naïve 'no change' expectations model and model based on

analysts' forecasts. The results demonstrated that announcements of dividend increase and dividend decrease led to significant abnormal stock returns. The authors also explored whether a combination of dividend and earnings announcement had any major influence on the average abnormal returns on the day of announcement and found that the positive (negative) average abnormal returns were experienced by firms with positive (negative) dividend announcement whether or not earnings announcements were made. However, investors reacted strongly to negative dividend announcements when combined with negative earnings announcements and no dividend announcement with negative earnings report.

Kadiyala and Rau (2004) examined four corporate actions- seasoned equity offerings, stock-financed acquisitions, share repurchases, and cash financed acquisitions in determining investors underreaction and overreaction to news announcements. The study supported the hypothesis of investors underreaction to news as it revealed that companies which declared a new event post a negative news were more likely to underperform irrespective of the nature of the current news. The study failed to provide any conclusive evidence to investors overreaction hypothesis.

Kalev et al. (2004) used GARCH methodology and purported that the conditional volatility of returns was significantly influenced by the rate of the news arrival. For the purpose of estimation, the authors proxied the information flow with the news announcements made by public companies and studied their information volatility. The results revealed that there existed positive and significant influence of the news on the conditional variance of stock returns. Also, the result of significant news impact on conditional variance of stock returns held true when the study controlled for potential effect of trading volume and high opening volatility.

Uddin (2005) tested the significance of dividend irrelevance theory. The study examined 137 stocks which had announced dividends and are listed on the Dhaka Stock Exchange. The result of t-statistics highlighted dividend announcement by companies did not reveal any information about the future prospects of the company and it failed to improve the wealth of the shareholders of the firm. The study signaled that dividend announcements does not lead to value creation for shareholders of the companies.



Dasilas et al. (2008) used event study technique to understand the stock price and effect on trading volume due to the corporate action of dividend and earnings announcement by companies. The study divided the corporate events into two- one entailing market reaction to interim dividend and earnings announcement and another consisting of final dividend and earnings announcement. The findings of the research supported the hypothesis of information content of dividends, pointing towards the fact that dividend announcement convey a powerful signal to the investors.

Dhar and Chhaochharia (2008) adopted event study technique to estimate the effect of stock split and bonus issue announcement on share price of firms in Indian stock market. The abnormal returns determined using Capital Asset Pricing Model were significant at 0.01 percent level signalling towards a semi-strong form of efficiency in the Indian market. The study undertook an 81 days event window comprising of 40 days prior and 40 days post the event date. The results further revealed that stock split announcement generated more returns as 77 percent of the stocks announcing stock split experienced positive mean returns while, only 57 percent of the stocks announcing bonus issue experienced positive mean returns. However, 83 percent of the firms announcing bonus issue generated positive returns while 69 percent of the firms announcing stock split generated positive returns on the event day.

Pani (2008) explored the effect of dividends on stock returns with the assumption of semi-strong efficiency in Indian corporate sector. The study collected data on a sample of 500 companies listed at the BSE, which were spread across six different industries- electricity, food and beverage, mining, non-metallic, textile and service industry. Results evidenced towards a negative relationship between the stock returns and debt equity ratio of the firm. Also, positive relationship between dividend retention ratio and stock return of firms was seen which affirmed that dividends have a great influence on stock returns on corporates in Indian markets.

Sharma (2009) raised questions about the semi-strong form of efficiency in the Indian capital markets by analyzing the stock returns during the public announcement of open offer made by firms. Investors in the market were influenced by the firm's decision to announce open offer as firms are looking to change the control, have substantial acquisition and consolidate their holdings. The results highlighted that

Indian capital markets were inefficient in the semi-strong form due to presence of insider trading as the average abnormal returns of firms on the announcement date were positive. The increase in the cumulative average abnormal return post thirty days of the open offer announcement further attested to the inefficient form of capital markets in India.

Sharma and Chander (2009) used the earnings announcement date to determine the informational efficiency of stock price reaction in Indian markets. The study revealed positive but insignificant abnormal returns before and after the announcement of earnings while, highest returns were experienced in the post event date. The insignificant returns implied information released from announcement of earnings were immediately absorbed into the prices of the stocks thereby leading to normal returns. The study also analysed the stock returns during the bear and bull phase of the market and found positive abnormal returns in the bear phase while negative abnormal returns in the bull phase. The positive returns in the bear market were likely due to the underestimation of the event by investors due to the prevailing bearish sentiment.

Hussin et al. (2010) inquired into the semi-strong form of the Malaysian stock market by dwelling into the stock market reaction to dividend and earnings news announcement. For the purpose of estimation, the study incorporated data on 120 firms announcing dividend and earnings information on the same day and applied market model for estimation of stock returns. Results concluded towards the presence of information content hypothesis of dividends as strong market reactions were experienced during the announcement period. Positive abnormal returns were earned for firms announcing higher dividends while negative dividends were seen for firms having lower dividend announcements. The study also revealed that dividend information of increase, decrease or no change garnered strong market reaction than earnings information.

Kumar and Halageri (2011) investigated the role of stock split information announcement in determining cumulative average abnormal returns and average abnormal returns and the efficient market hypothesis in context of Indian markets.

The results of the study propounded towards the absence of a significant abnormal returns during the announcement of stock split implying that stock prices were not influenced by the new information available to the market. Though the cumulative average abnormal return of the firms showed an increasing trend with few corrections the study supported the assumption of lagged response of Indian stock markets in reflecting the impact of news on stock prices of firms and thus dismissing the semi-strong form of the efficient market hypothesis.

Saravanakumar (2011) studied the influence of dividend announcement on stock return of ten companies listed at the National Stock Exchange of India. The research implied that out of the ten stocks studied only three stocks were capable of earning abnormal returns post the dividend announcement. Those stocks that earn abnormal returns post the dividend announcement were included by the investor in formulation of a strategy which might help to outperform the market while, stocks that do not earn abnormal returns post dividend announcement were not included. However, the results showed that the dividend announcement was primarily not able to influence the stock returns and incapable of formulation of strategy to outperform the market.

Taneem and Yuce (2011) analyzed the returns and stock price movement in Indian capital markets due to announcement of dividends. For the purpose of estimation dividend increase and dividend decrease were classified as good news and bad news. It was found that return on stocks increased following good news as investors believed a dividend increase implied better future prospects of the firms and bad news led to negative returns implying inefficient functioning of the company. The results confirmed to the signalling hypothesis of dividend announcements.

Suwanna (2012) applied event study methodology to investigate the influence of dividend announcement on stock prices and stock returns during the announcement date. The author collected data of dividend announcement on sixty Thai companies ranging from the period 2005-2010. The study showed that the abnormal returns and cumulative abnormal returns related to the market model were statistically significant as the abnormal returns and cumulative abnormal returns were seen to be positive two days after the dividend announcement date.

Rajagopalan and Shankar (2013) studied how returns in the Indian stock market were influenced by the information of buyback announcements and whether the information on buyback gave any different indication during the defined market conditions namely normal and active market. Results of the study pointed towards the presence of semi-strong form of efficiency during the normal market condition as the cumulative average abnormal return was significant and average abnormal return insignificant for the event frame. Thus, indicating that prices adjusted to the buyback information efficiently. Although, the average abnormal returns for active markets were significant but it pointed towards the fact that the securities were underpriced during the time period.

Gupta and Dhanda (2014) evaluated the abnormal returns of firms in different sectors post the announcement of stock split in long run and short time horizon. It was observed that those firms which experienced a bull-run in the stock market decided to split their stocks and the announcement of which led to significant positive abnormal returns in the pre and post announcement window followed by significant negative returns in the month of announcement. However, the returns during the long run horizon failed to show any significant movement in the returns of stocks belonging to different sectors. Thus, the stock generated unfavorable returns for firms in the month of announcement and favorable returns both post and pre announcement of stock split.

Mallikarjunappa and Dsouza (2014) tested the presence of semi-strong form of efficient market hypothesis by analysing the change in stock prices due to quarterly earnings announcements. Event study methodology was used to identify the market response to earnings announcement. Mean adjusted model, market adjusted model and market model were used to ascertain the average abnormal and cumulative average abnormal returns before, during and after the event date. The results of the study revealed positive influence of earnings announcement on stock market returns and positive average abnormal and cumulative average abnormal returns to the investors.

Pan et al. (2014) investigated the impact of dividend and earnings announcement on stock returns in China. To determine market reaction to announcements, the study

undertook information on cash dividend, stock dividend and combined dividend announcements along with earnings information and applied event study methodology to analyse the information effect in the event window. Findings of the event study reported that Chinese capital markets were prone to leakage of information as the abnormal returns of dividend paying firms on the event day was negative and prior to event day the abnormal returns were positive. The abnormal return was calculated zero for all stock paying dividend while the abnormal return for cash and combined dividends was calculated positive. The study also tested role of concurrent positive and negative earnings announcement on abnormal returns for stocks and found stronger cumulative abnormal returns for firms announcing positive earnings. Thus, the study concluded that earnings and dividend announcement had significant impact on stock returns.

Pandya and Patel (2014) studied the impact that share repurchase have on a company's share price and the wealth of its shareholders. The research studied how abnormal returns and cumulative abnormal returns of firms were influenced by two major events one the announcement of share repurchase and another the execution of share repurchase offer. The results revealed that share repurchase announcement was capable of generating positive abnormal return in the medium term to long term and also increase the wealth of the shareholders while no positive returns were earned for share repurchase announcement.

Sun (2014) researched how earnings management by the company's manager led to asymmetric behaviour in stock returns and return volatilities. For the purpose of estimation, the author used the Lucas asset pricing model and constructed a model of rational expectations where the firm managers may have a reason to paint a picture of success of the firm by misrepresenting the earnings information and another in which the market was uncertain about misrepresentations. The results revealed that distortion of earnings information by the firm managers can lead to creation of distrust and friction between the investors and managers which in turn can affect the aggregate pattern of stock returns.

Anwar et al. (2015) examined the influence of cash dividend announcements in both short-term and long-term on stock returns volatility of firms in India. The study used

event study methodology and used only 'pure' events for the purpose of estimation. The results revealed that during short-term period a change in the variance of abnormal returns was observed in a specific pattern. This change in variance of firms was largely on account of positive average abnormal returns during the event of cash dividend announcement by firms. The analysis also supported the presence of semi-strong efficiency in Indian stock market as results pointed to the fact that the variance of return of firms experienced changes in the long-term owing to the change in information flow to markets. Moreover, the study highlighted that the risk profile of the companies and their stock returns experienced changes at the announcement of cash dividends in Indian markets.

Rawat and Jessica (2015) focused their research to understand the characteristics of announcement of share right issue made by companies and its influence on their stock returns. Data on stock price was collected from 50 companies that were listed in both NSE's CNX Nifty and BSE's SENSEX during 2004 to 2013. Paired t-test was applied to assess the impact of the right issue news announcement on the abnormal and cumulative returns of the companies selected. Results showed that no significant change in the abnormal returns of Tata Motors, Tata Steel and Hindalco stock before and after the rights issues was seen while, the cumulative average abnormal returns was slightly negative for Tata Motors and positive for Tata Steel and Hindalco.

Sehgal and Bijoy (2015) undertook study to investigate the reaction of market during the announcement of quarterly earnings made by companies listed on BSE. The research analysed whether there existed any abnormal returns before or after the date of earnings announcement and whether the changes in stock price reaction were more pronounced during the short term than long term time period. The results of the study pointed towards an information leakage as there existed significant abnormal returns on days prior to the announcement. The results also revealed significant cumulative average abnormal returns in the post announcement period signaling towards the absence of semi-strong form of efficient markets in India.

Gupta (2016) probed into the influence stock buyback announcement have on stock returns of firms and its signalling effect. The results of event study reported statistical

insignificant average abnormal returns implying presence of undervaluation assumption due to absence of abnormal returns. The study further suggested that the stock prices of the firms making buyback announcement already reflected the news thereby affirming to the growing efficiency in the Indian stock market.

Khurana and Warne (2016) explored the reaction of stock market to the announcement of bonus issue made by Indian companies. It was found the cumulative average abnormal returns increased prior to the announcement of bonus issue date and decreased after the announcement which hinted at a possible leakage of the information in the stock market which led to speculative trading in few stocks. However, the insignificant negative average abnormal return indicated at a semi-strong efficient form of the Indian capital markets.

Rohit et al. (2016) tested the semi-strong form of efficient market hypothesis in the Indian stock market with the announcement of stock splits and right issue by firms. The study concluded that Indian capital markets are efficient in its semi-strong form as the changes in stock prices due to the new information get quickly absorbed making it difficult for the investors to earn abnormal returns. Though abnormal returns were seen during the announcement of stock split and bonus issue with higher returns generating from right issue than stock split, the returns were statistically insignificant implying no significant average abnormal returns were earned around the right issue announcement and stock split announcement.

Kumar (2017) assessed the influence on stock returns due to the announcements of dividend in context of before and after the introduction of Company's Act 2013. For the purpose of estimation, the author divided the time period as pre 2013, post 2013 and the year of introduction of Company's Act 2013. The results reflected significant increase in returns for firms announcing increase in dividends and highest average abnormal returns on the day of dividend announcement. Firms that announced a decrease in the dividend their abnormal returns became significantly negative and experienced highest negative returns on the day of the announcement. The study concluded that the abnormal returns for firms announcing dividend decrease was smaller than those that announced a dividend increase. Also, negatively insignificant returns were seen for firms that did not change their dividends on the day of

announcement. Further returns were negatively influenced by the size of the firm. The research also propounded that after the introduction of Company's Act 2013 dividend announcements had a greater influence on returns of stock on the event day.

Kaur (2018) observed the reaction of stock market to announcement of dividend increase in the Indian context especially after the US financial crisis and slowdown in the global economy. The study collected information on dividend increases by firms listed at the National Stock Exchange and used Comparison Period Return Approach to calculate the mean daily returns and compared them with the returns of the 'comparison period'. The results documented a positive reaction by stock market to the announcement of dividend increase and this positive reaction was seen to start five days prior to the announcement of dividend increase information and continued till two days post the announcement. Further, the study attested to the theory of signaling information of the dividends as markets cheered the dividend announcement. Also, it was observed that there exists a positive relation between the dividend increase announcement and future profitability of the firm.

Pradhan and Kasilingam (2019) addressed the impact of five different corporate actions on share price and shareholder wealth by analyzing the abnormal and cumulative abnormal returns of companies listed in the BSE. The five corporate events undertaken in the study were dividend announcement, bonus announcement, right issue announcement, stock split announcement and buyback announcement and their impact were studied both in long run, short immediate and medium-term time period. The abnormal returns of firms in the industries were zero or close to zero after the announcement of the corporate news which meant there existed a significant change in share price and long-term impact on shareholder wealth. The abnormal returns for investors investing in oil and gas was highest in the immediate and medium term and abnormal returns were highest for investors investing in textile and miscellaneous industry in the short and long-term effect of the news announcements. The results further emphasized that investors looking for long horizon of investment should base their decisions on bonus announcements and stock split announcements while investors looking for short term horizon should base their decisions on right issue announcement. The study concluded that in order to earn surplus returns around



corporate announcements investors should base their investment strategies on right issue, stock split and bonus announcements.

### **2.3 EXCHANGE DECALRED NEWS ANNOUNCEMENTS AND SHARE OWNERSHIP OF FIIS**

Lin and Shiu (2003) explored the factors determining foreign ownership of stocks in Taiwan's stock market. The results of linear regression analysis revealed size of the firm as one of the major characteristics influencing foreign investors investment in a firm. Further the results showed high foreign ownership in large firms with high export ratios and low ownership in firms with low book-to-market ratio. It was also found foreign investors favored large firms over small firms on account of export ratio characteristic. Moreover, it was discovered beta value acted as the chief determinant while making investment decision in small firms. The study evidenced the presence of asymmetric information in the market as foreign investors invested heavily in firms with high export ratio due to the firm's global presence.

Ali et al. (2004) analysed the institutional ownership and earnings announcement data to investigate whether institutional traders make an informed trading on their investments. The research used portfolio approach to analyse the association between the change in returns post earnings announcement and change in institutional ownership. The results of the study signaled towards a positive relationship between institutional ownership and earnings announcement returns implying that institutional investors indulged in informed trading during the announcement of earnings by companies.

Cai and Zheng (2004) researched into the dynamics of trading behaviour of institutional investors and stock returns. The results of Granger- Causality test indicated that stocks which experienced more inflow in the form of institutional purchases witnessed excess positive returns and negative excess returns for stocks which experienced increased institutional selling. The study also concluded that net purchases by institutional investors are associated with the past stock returns as institutions tend to acquire popular stocks post a rise in the market.

Sen (2009) examined the stock attributes that influenced the stock ownership of transient investors. The study categorized domestic mutual funds and foreign institutional investors as transient investors. Time series modelling was employed to understand the role played by earnings surprise in determining the ownership of transient investors. The research concluded that though the change in ownership of transient investors was positively correlated to earnings surprise but it did not largely impact the decision of transient investors in determining the ownership of stocks. It further stated that only recent earnings surprises played a small role in determining the ownership decisions of investors. However, it was evidenced that investors were more interested in high momentum large size stocks having high bid ask spread and low volume. The findings also revealed that investors were not capable of exploiting the earnings surprise mispricing.

Baker et al. (2010) tested the efficiency of mutual fund managers and the returns earned from selecting stocks before the earnings announcements by the companies. The study incorporated the “earnings announcement alpha” methodology based on the returns earned to determine the stock selection skill of the fund managers. The results showed that average mutual fund manager possessed some stock selection ability as the future earnings announcement returns were significantly high for stocks that the funds were buying than the earnings announcement returns generated in future for shares that were sold by funds.

Jegadeesh and Tang (2010) investigated into the trading patterns and profitability of institutional investors and their informational advantage around announcements of take-overs by firms. The analysis of the abnormal returns generated around the take-over announcement revealed that institutional investors do not possess an informational advantage over other investors in the market. It was found that large institutions ended up selling the stocks on the day of announcement and one post the announcement, implying the institutions perception of themselves of not able to access the public information in an efficient manner than the market. It was also found that the institutions ended up earning negative abnormal returns upon trading in stocks one month post the announcement of take-overs. Thus, signalling at the institution’s inability to interpret public information more efficiently than the market.

Acharya et.al (2014) examined the trend of relationship between foreign institutional investor flows and the volatility index (VIX) from the year 2001 to 2013 in Indian stock markets. The study found that during the crisis of 2008 FIIs purchase and sale decisions generate greater impact on market volatility compared to the times when there was a no-crisis situation. It was further propounded that FIIs purchase decisions had less impact compared to FIIs sales decision in the advent of crisis faced by market. However, during a non-crisis situation FIIs purchase decision had a stronger impact when juxtaposed to FIIs sales decisions. The study also highlighted towards the trend of negative correlation between FII flow and VIX levels during 2008 to 2010 period.

Amin et al. (2015) examined the role of institutional investors ownership in informed trading during the announcement of dividends by firms. The study also focused on analyzing the influence of dividend announcement in increasing or decreasing institutional ownership. The results of the research did not find any evidence on informed trading due to the presence of institutional investors. It further stated that long horizon institutional investors led to a decrease in informed trading and short horizon institutional investors failed to support the informed trading hypothesis. The findings further substantiated that institutional stock ownership was not driven by the announcement of dividend changes as they are better informed than the potential market players.

Batten and Vinh (2015) employed multivariate liner regression analysis to determine the influence of firm specific attributes such as size, dividend yield, risk, book-to-market ratio, financial strength, financial leverage and firm performance in influencing foreign ownership in Vietnam. The results of the research implied, foreign investors preferred large firms, firms with low leverage and low dividends, signaling towards the long-term investment decisions of foreign investors. The results further revealed foreign investors dismissed the trend followed by herd as they did not choose firms whose book value was low to the market value of the shares. However, the study found foreign investors abstained from stocks with high liquidity this was in contrary to evidence of (Dhalquist and Robertsson, 2001).

Hendershott et al. (2015) used comprehensive news data such as macroeconomic news, crisis news, earnings announcement news and media hype news and institutional trading data to examine whether the institutions were aware in advance regarding the news announcements and adjusted their trading activity accordingly. The study also employed the institutional trading calculated from the daily buy and sell trade to estimate whether institutional trading predicted news announcements. The findings of the research revealed news announcements, sentiment of the news, return on announcement day and earnings announcement surprises were predicted by institutional trading. The results further suggested that institutions had price impact on macroeconomic news and possessed information about the news emerging from a crisis and earnings announcement surprises. However, the findings suggested that institutions did not believe in the news emerging from hype created by media. The findings concluded that institutions were informed about the news released in the market.

Hariprasad (2016) studied the firm level characteristics such as- size of the firm, beta coefficient, book-to-market ratio and export ratio and the role of information asymmetry in influencing stock ownership of foreign institutional investors in India. The findings indicated foreign investors aversion towards stocks having high information asymmetry favoring domestic investors. Foreign investors were found to be inclined towards firms having high export ratio, and high book-to-market equity. The research also evidenced towards foreign investors preference for large firms having high export ratio comparative to large firms with low export ratio.

Gopikumar et al. (2019) used the Pitroski's F-score to measure the investment preferences and information processing technique employed by foreign institutional investors for stock selection in India. The study evidenced towards foreign institutional investors preference for stocks of riskier firms and higher market capitalization. Moreover, stocks with high profit potential were also preferred by foreign institutional investors. It was also found that foreign investors assigned more weight to risk- based metrics of stocks than the market capitalization of stocks.

## **2.4 FIIS TRADING BEHAVIOUR AND DIFFERENT SECTORS OF STOCK MARKET**

Chakrabarti (2001) discussed the positive association between equity market returns and FII inflows in India. The research established a causal relationship between stock returns and FII flows and stated that stock return in BSE caused FII flows as FIIs were return chasers. The study also explained the nature and pattern of FII flows during and after the Asian crisis of 1997. It was perceived that the major determinants of FII flow post the Asian crisis was the returns on BSE Index while the beta of the BSE index played a prominent role in assessing FIIs flows to stock market during the Asian crisis. Also, it was observed that the domestic investors imitated the moves of foreign institutional investors with respect to investments in individual stocks.

Mukherjee et.al (2002) analysed the association between foreign institutional investment flows and Indian stock markets. The study revealed that the return in Indian equity market had a strong influence on the FII inflow and outflow but did not find any influence of FII flows on stock market returns, thus, signalling towards a unidirectional causality from equity market return to FII flows. It was observed that the recent history of market return and its volatility in domestic as well as international market also influenced the investment decisions of FIIs. Volatility of equity return in domestic market impacted the FII purchase and sale decision but did not have any bearing on net inflows of FII, while volatility of return in foreign market effected the FII net inflow.

Batra (2003) investigated daily and monthly investment data of FII to understand their trading behaviour in Indian capital markets and stock market stability. The study established strong evidence of positive feedback trading by foreign institutional investors and concluded that FIIs behaved as trend chasers when daily investment data was analysed. However, when monthly investment data of FIIs was examined there did not exist any presence of positive feedback trading amongst foreign institutional investors. Herd trading by FIIs was largely seen in Indian equity markets even though it meant that all FIIs did not invest on the same day. Further, emphasis

was laid on the fact that during financial turmoil in the region FIIs tended to herd towards sell side of the market.

Chattopadhyay et al. (2018) undertook research to predict trading pattern of foreign institutional investors in India. High frequency data of eleven and half years on FIIs trading activity was collected from 2003 to 2014. The study revealed that there exist significant presence of herding amongst FIIs investors and showed FII herding on the buy-side dominated the FII herding on the sell-side.

## **2.5 SUMMARY**

Literature has focused on various issues that have cropped up with the emergence of FIIs in Indian stock market. The literature review presented above highlights studies that have examined the influence of foreign institutional investments on Indian stock markets focusing on the issues of volatility, stock returns and destabilization effect of FIIs. Few studies have signaled that FIIs exert favorable impact on the stock markets of the domestic country whereas, few studies contradict the findings and suggest that FIIs have a negative influence on the stock markets of the home country. Studies have also centered on analyzing the affiliation amongst FIIs and stock returns generated in the market.

Limited studies have examined the influence of earnings announcements on share ownership of foreign institutional investors. However, no specific research is conducted to examine the influence of the exchange declared news announcements on the ownership of foreign institutional investors in India. Further, absence of studies examining the trading behaviour of FIIs in different sectors of the stock market was also not explored in the studies discussed above. Thus, the current research focuses on the different aspects of FIIs investment in to the Indian stock market. The SEBI regulations of 2014, has categorized FIIs into three types and an analysis in the variation in foreign inflows by different categories of foreign institutional investors is also conducted. An examination into the trends and pattern of FIIs into the Indian stock market is also required to ascertain the investments made by FIIs into different investment instruments floated by the government.

Foreign institutional investors have been a pivotal source of foreign inflows into the Indian market and helped in providing a boost to the domestic stock prices. FIIs help in fulfilling the financial needs of the companies as they invest into the stocks which bridges the gap between the haves and have not. Though FIIs are significant in promoting growth and development of emerging economies, investments from foreign investors pose certain issues and challenges which can wreak havoc in the market of the home country. Therefore, it is essential to monitor and examine investments emerging from FIIs into a country.

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## Chapter – 3

# RESEARCH METHODOLOGY

The current chapter elaborates the research methodology adopted to meet the objectives stated in the thesis. Details about sources of data, type of data, technique of sample selection, tools and methodologies adopted for data analysis are discussed in detail. The study is based on the use of secondary data collected from different websites, publications and data collection entities. To meet the objectives different econometric techniques and statistical tests such as Granger-Causality Model, Generalized Method of Moment and ANOVA have been used. Further, the qualitative aspect of the study has been examined with the use of Event study.

### 3.1 DATA SOURCES

The study relies on secondary data. Data has been compiled from a varied number of sources like National Securities Depository Limited (NSDL), Central Depository Services Limited (CDSL), World Bank database, International Monetary Fund, Reserve Bank of India, Securities and Exchange Board of India, National Stock Exchange of India. Many online data sources have also been used for the purpose of data collection such as Centre for Monitoring Indian Economy (CMIE) Prowess and Capital Line. The yearly publications of RBI, SEBI, IMF and World Bank have also been used as our data sources. Following is the list of our main data sources:

- Data on yearly FIIs investment in equity, debt, derivatives, gross FII purchase and sale, number of FIIs registered each year are collected from published sources of SEBI handbook of Statistics, SEBI Annual Report, SEBI Bulletin, NSDL, CSDL, RBI Handbook of Statistics on Indian Economy and Indian Securities Market Review.
- Data on exchange declared news announcements has been collected from Prowess, Capitaline and Securities and Exchange Board of India.
- Data on Adjusted closing price of stocks is accessed from Prowess and Capitaline database.



- Data on Adjusted closing price of Nifty500 Index is collected from Capitaline and NSE.
- Data on FIIs share ownership is collected from Prowess database and NSDL.
- Data on variables like sector closing price and net FII investment in each sector is obtained from Capitaline and NSDL.
- Data on different determinants of FIIs is accessed from International Country Risk Guide provided by PRS group, data on trade openness of the country, market size is obtained from World Bank database.

### 3.2 METHODOLOGY

The research is focused to analyse the foreign institutional investments in Indian stock market. The study is based on secondary data collected from various government and government designated sources. Securities and Exchange Board of India, Reserve Bank of India, National Securities Depository Limited (NSDL), Central Depository Limited (CDSL), Centre of Monitoring Indian Economy (CMIE) Prowess and Capitaline Database.

The research has calculated Compounded Annual Growth Rate, Percentage Share, Correlation Coefficient, and t-test to understand the foreign institutional investments in India and its different trends and patterns. To perform an expanded analysis the study has used different statistical and econometric tools and methods. Event study analysis, Granger Causality, One-Way ANOVA and Generalized Method of Moment have been used.

To examine the annual average growth rate of foreign institutional investments in equity and debt, the gross purchase and sales, number of FIIs registered and assets under the custody of different custodians from a period of 2000 to 2019, compounded annual growth rate (CAGR) has been calculated:

$$\text{CAGR} = (X_{t2}/X_{t1})^{(1/N)} * 100$$

Where,  $X_{t2}$  is the value at the end of time period 't' and  $X_{t1}$  is the value at the beginning of time period 't' and N is the number of years.

Percentage share of FIIs investment in equity out of the total investment, debt investment percentage share, percentage share of assets under the custody of FIIs, percentage share in total market turnover, percentage share in GDP and percentage share in foreign exchange reserves has been calculated.

$$\text{Percentage Share} = (\text{Value of } X_t \text{ in total}) / (\text{total of all Units Value}) * 100$$

$X_t$  presents the value of a variable in time period 't'

### **Correlation Coefficient**

Correlation is defined as the quantitative technique that helps to find out the relationship and the degree of relationship between two or more variables. It assumes presence of a linear association amongst the variables. The correlation coefficient value derived from correlation analysis ranges between +1 to -1. Correlation coefficient also provides information on the degree of association and strength amongst the variables (Gogtay and Thatte, 2017). The research has estimated the correlation coefficient for different variables used in the study

#### **3.2.1 Event Study**

Event study helps to infer the influence of an unanticipated or an anticipated event on the prices and returns of a company's securities. It sheds light on how the stock prices and returns behave at the outset of the event in discussion and also helps to understand a reaction to similar events in future. The first use of event study is published in the work of (Dolley, 1933) which studied the influence of stock splits on price change. However, the use of event study to understand the influence of an event on share price and returns was made popular by (Ball and Brown, 1968) as it researched the effect of announcement of earnings and (Fama et al., 1969) explored the role of stock splits on prices and returns of the companies. Event study also helps in the determination of an abnormal change in the prices and returns of a company due to the corporate news announced. The abnormal return generated signals towards an unusual return occurred due to the happening of a particular event. (Kadiyala and Rau, 2004) explored the role of earnings, share repurchases, seasoned equity offerings and stock financed acquisitions in determining investors underreaction and

overreaction to news announcements, while, (Kalev et al., 2004) used event study to probe into the influence of public news announcements such as earnings, dividends, change in shareholdings on stock returns. Further, (Dasilas et al., 2008) used event study methodology to analyse the influence of corporate action such as dividend and earnings on the prices of stocks and trading volume of the companies. (Dhar and Chhaochharia, 2008) applied event study technique to estimate the effect of stock split and bonus issue announcement and (Pradhan and Kasilingam, 2019) addressed the impact of different corporate actions of stock split, bonus, right issue, dividend and share buyback on stock prices and returns.

The study has used event study technique to examine the role of exchange declared news announcements on stock returns in Indian stock market and impact on share ownership of foreign institutional investors. For the purpose of estimation, the hypothesis framed are as:

- (a) Presence of abnormality in stock returns around exchange declared news announcements.
- (b) Exchange declared news announcements effect share ownership of foreign institutional investors.

The study has undertaken six corporate news announcements due to the frequent disclosures by the companies and their strong influence on investment decisions of different investors and they are- Bonus Issue Announcement, Right issue Announcement, Stock Split Announcement, Share Buyback Announcement, Dividend Announcement and Earnings Announcement and they are explained as follows:

- **Stock Split Announcement**

When the existing number of shares traded of a company are split into two or more shares increasing the number of shares but maintaining the existing market capital is defined as stock split. Stocks are split as per the number and criteria defined by the company making the announcement. A company undergoes a stock split when it feels that the shares are being traded at an

excessive high price in comparison to its peer companies. It also helps to make the shares affordable to the smaller investors who are looking to make investments into the company.

- **Share Buyback Announcement**

Share buyback means investment by the company in the form of re-acquisition of the existing stock of shares which decreases the total number of shares traded in the stock market. Companies undergo a share buyback if they feel that the share is being traded below its actual value. Share buybacks instils confidence amongst the investors as it signals towards the surplus cash with the company ensuring security to the investors.

- **Right Issue**

When a company listed in the market raises money by issuing shares to its existing shareholders at a discounted price is known as right issue. Under right issue existing shareholders are given the option to buy but are not obligated to purchase the new shares offered. Right issue ensures security to the existing shareholders as shares are first offered to them at a discounted rate thus giving them an opportunity to increase their exposure in the company.

- **Bonus Issue**

Bonus issue is defined as the process when a listed company offers new shares to its existing shareholders without any payment or a discounted price. Bonus issue is an alternative to dividend announcement adopted by companies. Under bonus issue, shares are allotted to the existing shareholders in proportion to the number of shares held previously. Companies, usually announce bonus issue when they have limited cash and they are divided between using the money to make investments for future or give dividends to its shareholders.

- **Dividend Announcement**

Dividend is that part of the profit that is paid out to the shareholders upon approval from the board of the company. Dividends can be in the form of cash,

stock or any other form decided by the company. Though companies are not obliged to pay dividends every year but it is usually preferred as it boosts the confidence of the existing shareholders.

- **Earnings Announcement**

When a company makes its income statement, balance sheet and cash flow statement public to the investors at regular intervals is known as earnings announcement by the company. Companies declare their earnings to the market to facilitate comparison to their peers and its own past performance. Earnings report also helps to ascertain the movement of the company towards future goals and aspirations.

The use of event study, methods and implications have been discussed thoroughly in the work of (MacKinlay, 1997 and McWilliam and Siegel, 1997).

The steps followed while performing an event study analysis are:

- 1. Identify the event**

The first and foremost step before conducting an event study is to identify an event of significance. To define an event of significance, the event should cause a change in the prices or returns of the stock of the company which has made the announcement. The event can be an unanticipated event like the announcement of share-buyback or stock split or an anticipated event like a dividend or an earnings announcement (Saravanakumar, 2011)

- 2. Define the exact day of event**

Identifying the exact date of event is very important as it will help in correct estimation of the change in stock returns and prices. The day of announcement is defined as the event day and is denoted as day 0. Using daily data on stock returns and prices is preferred as it helps in getting a clear and deeper picture of the daily market movement.

**3. Identify the time period of the study**

The current research has divided the time period into 4 groups: (i) long period time period consisting of 61 days with 30 days before and 30 days after the announcement. (ii) Medium term period is the time period of 31 days, consisting of 15 days before and 15 days after the announcement. (iii) Short-term period consists of 11 days, with 5 days before the announcement and 5 days after the announcement. (iv) Immediate term is the time span of 3 days consisting of 1 days before and one day after the event.

**4. Determine the stock returns for the period of study**

The daily returns for stock and benchmark index are determined for the period undertaken in the study. The returns are calculated as:

$$RET_t = \text{Log}(P_t/P_{t-1}) * 100 \dots\dots\dots (1)$$

Where,  $RET_t$  is the return on day 't',  $P_t$  is the adjusted closing price on day 't' and  $P_{t-1}$  is the adjusted closing price one day prior to day 't'.

**5. Calculate the Abnormal Returns (ARs)**

The abnormal return is the return earned in excess of the actual return on the event day. The study has used Market Adjusted Return Model to calculate the abnormal return. According to Market Adjusted Return Model, abnormal return is calculated as actual return subtracted the return of the market index. The Market Adjusted Return Model is as follows:

$$AR_{it} = R_{it} - R_{mt} \dots\dots\dots (2)$$

where  $AR_{it}$  = abnormal return of a company i at time t,  $R_{it}$  = daily stock return of a company i at time t; and  $R_{mt}$  = daily market index returns at time t.

The Market Adjusted Abnormal Return is preferred over the market model as it is not dependent on the values of the pre-event window and is free from the problem of parameter estimation. In Market model parameter estimation is necessary and there exists problems with parameter estimation which can lead

to inaccurate results (Binder, 1998; Werner, 2010). Further, to reduce the risks from ARs of each stock return and provide a better insight into the statistical interpretation Average Abnormal Return (AAR) for each event day is calculated for all stocks during the time period (Kumar, 2017). AAR and CAR are calculated as:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{it} \dots\dots (3)$$

$$CAR_t = \sum_{i=1}^K AAR_{it} \dots\dots(4)$$

N is the total number of stocks and AR is the abnormal return of the stocks during the event day ‘t’. AAR is the average abnormal return; K is the number of days for which return is cumulated.

## 6. Interpretation and Analysis of the Results

Once the abnormal return is estimated inferences are drawn whether the event has had a significant, positive or negative influence on the returns of the stocks. The t-statistic is calculated to ascertain whether the difference in returns or abnormal return earned is significant or insignificant. Significance of the abnormal return affirms influence of news announcements on stock returns while, insignificant abnormal returns implies no influence of news announcements on stock returns. The t-statistics is calculated as follows:

$$t\text{-stat} = \left( \sum_{i=1}^N s \right) \frac{1}{N} \dots\dots (5)$$

Nifty500 is taken as the sample index and the companies listed under the index are undertaken for study. Nifty500 is chosen as the sample as it accounts for 96.1 percent of the total free float market capitalization of the stocks listed on National Stock Exchange. The index covers eighteen major sectors of the economy. Only those companies that are ranked amongst the top 800 companies on NSE are eligible for selection. The companies are further chosen on the basis of their average daily turnover and average daily full market capitalization during the past six months. A company is also required to have 90 percent of active trading days and a full market capitalization of 1.5 times of

the previous component of Nifty500 in the past six months. The research has undertaken NSE over the BSE due to higher stock turnover in NSE and more FII trading activities in NSE as the study undertakes to analyse the foreign institutional investments in India thus stocks listed on NSE are undertaken. Any company declaring one or more than one of the six news announcements during the specified time period is regarded as the sample unit for the current research. Separate samples are drawn for each corporate news announcement declared on stock exchange as each action has a separate timeline of announcement. The study has undertaken adjusted closing price of each stock to account for the changes of announcements like, stock split, bonus, dividend and right issue (Sehgal and Bijoy, 2015).

### 3.2.2 Granger Causality Model

Correlation coefficient only estimates the degree the association between the variables but it does not showcase the direction of relationship and the causation between the variables. The concept of Granger-Causality determines the presence of causal relationship between two variables, X and Y in a time series. Granger-Causality states that, if a given variable X affects another variables Y, then a change in variable X will occur before the change in variables Y as X causes Y and Y is the effect of the change in X.

The research has used Granger-Causality Model first proposed by (Granger, 1969) to examine the influence of foreign institutional investor trading behaviour on different sectors of the stock market. The study tests the hypothesis, whether there exists (i) Whether there exists bi-directional causality between net FIIs investment in each sector and sector returns. (ii) Whether there exists unidirectional causality between net FIIs investment in each sector and sector returns. (iii) Whether there exists no causality between net FIIs investment in each sector and sector returns.

The Granger-Causality equation testing the direction of causality between returns of sectors and FII inflows stated as follows:

$$RET_t = \alpha_i + \sum_{i=0}^m \beta_i RET_{t-i} + \sum_{i=0}^m \lambda_i FII_{t-i} + \varepsilon_{Rt} \dots\dots (6)$$



$$FII_t = \mu_i + \sum_{i=0}^m \delta_i RET_{t-i} + \sum_{i=0}^m \phi_i FII_{t-i} + \varepsilon_{Ft} \dots\dots (7)$$

In the above equation (6) and (7), FII and RET are the variables undertaken in the study. FII represent net inflows from foreign institutional investors in each sector and RET represent returns in each sector. t represents the time period and i represents the number of lags.  $\varepsilon_{Rt}$  and  $\varepsilon_{Ft}$  represent the white noise error terms.

$\beta_i, \lambda_i, \delta_i, \phi_i$  are the coefficients explaining the relationship between dependent variables and the lagged values of independent variables and the lagged values of the dependent variables itself.

### Unit Root Test

Before an econometric model or technique is used, it is required to check whether the series is free from the problem of unit root. A series that has constant mean and variance is defined as a stationary series. A non-stationary series if included in the research model will produce spurious results (Libanio, 2005). Augmented Dickey-Fuller Test is employed to test for stationarity in the series. The following ADF regression equation has been used to determine whether the variables adopted in the research are stationary or non-stationary:

$$Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \alpha_i \sum_{i=1}^m \Delta_{t-1} + \varepsilon_t \dots\dots (8)$$

The null hypothesis framed for checking stationarity is: (i) Series contains Unit Root. It implies that if  $\delta = 0$ , then the series is non stationary or has unit root and if  $\delta$  is not equal to 0 is implies that the series is stationary or does not have a unit root. In the equation (8) above,  $\varepsilon_t$  represents the white noise error term,  $\beta_1, \beta_2, \delta$  and  $\alpha$  represent the coefficients and  $Y_{t-1}$  represents the additional lagged terms.

If the series meet the condition of stationary, after that the presence of autocorrelation in the series is determined. To test the autocorrelation, Durbin-Watson test is employed. If the result of the Durbin-Watson test generates a value of 2 or approximate to 2, it is determined that the series does not have autocorrelation in it.

### 3.2.3 One-Way ANOVA

The current research has applied One-way ANOVA to analyse the variation in contribution to foreign inflows by different categories of foreign institutional investors. The concept of ANOVA was first introduced by (Fisher, 1925) as an extension to t-test. One-way ANOVA (Analysis of Variance) is a quantitative technique that is used to test the statistical difference between the means of two or more independent populations. ANOVA is a parametric test which facilitates in the acceptance or rejection of null hypothesis. Though ANOVA can be used to compare means between two groups but it is preferably use to make comparisons between three or more than three groups as comparison between means of two groups can also be done by running a t-test. Before, running an ANOVA few basic conditions are to be checked to ensure reliability of the test results.

- **Normal Distributed Population**

The population from which the sample observations are drawn should be normally distributed. A normal distributed data implies that the data drawn is drawn from a population that is normally distributed, thus ensuring the reliability of the results. To check the normality of the data the study has used Kolmogorov-Smirnov and Shapiro-Wilk test. Kolmogorov-Smirnov test of normality is a Goodness of Fit Test the helps to access whether the data drawn is from a normally distributed population. Kolmogorov-Smirnov test is an acceptable test to examine the presence of normality while running an analysis of variance. Shapiro-Wilk test helps to understand whether the sample derived from a population is normally distributed. This test is ideal and gives reliable results when the sample size is small. The null hypothesis ( $H_0$ ) and alternate hypothesis ( $H_1$ ;) have been framed to check whether the data meets the requirements of a normally distributed population. Following are the hypothesis framed:

$H_0$ : The data is normally distributed

$H_1$ : The data is not normally distributed

- **Homogeneity**

The variances should be homogeneous. Levene Statistic is conducted to check if the group variances are homogeneous or not. Homogeneity of variances is of prime importance before conducting a One-way ANOVA test. If the variances are heterogeneous it implies that the population distribution does not have similar means and variances and they are from different populations. The null hypothesis ( $H_0$ ) and alternate hypothesis ( $H_1$ ) are framed as follows:

$H_0$ : The variances are equal or homogeneous

$H_1$ : The variances are not equal or are heterogeneous

- **Independence of Sample**

The samples drawn from the population should be random and independent of each other, implying the observation drawn should not be dependent or related to another observation.

### **3.2.3.1 Tukey Post Hoc Test**

One-way ANOVA is used to determine whether there exists any significant difference between the means of two or more than two groups. However, it does not elaborate in detail which group differs from each other. Thus, once ANOVA has been conducted and significant difference in groups is found the next step is to check which groups differ from one another. To identify which group differs Tukey Post Hoc Test is performed which measures the means of the different pairs and identify which pairs produces a significant difference. Tukey Post Hoc Test is preferred to measure the difference in groups as it helps in maintaining the level of type I error equal to the selected value of level of significance, that is 5 or 1 percent (alpha value) (Abdi and Williams, 2010).

### **3.2.4 Generalized Method of Moment**

To assess the impact of different determinants such as political risk, economic risk, financial risk, trade openness of the country, financial market development, size of the economy and rate of return on investment on FIIs investment, the research has

employed Generalized Method of Moments (GMM) model. Distributed Lag model has been used for the purpose of analyzing the determinants of foreign institutional investments in India. The research has incorporated the lagged value of the dependent variable as an instrument similar to the work carried by Arellano and Bond (1991). The Generalized Method of Moments model was proposed by (Hansen, 1982) after he made modifications to the Method of Moments model by defining the properties of econometric estimators in terms of orthogonality conditions. GMM model is best applicable to deal with the presence of endogeneity in the lagged dependent variable. Generalized Method of Moments technique was adopted by (Bajpai and Sharma, 2018) to deal with the problem of endogeneity in their research. Also, GMM model was used by (Anwar and Sun, 2011) to understand the significance of financial development in the expansion of domestic markets and (Fanta, 2017) the importance of finance growth by adopting the indicators of financial development in emerging and developed economies.

$$Y_{it} = \alpha + \delta Y_{it-1} + \beta X_{1it} + \beta X_{2it} + \beta X_{3it} + \beta X_{4it} + \beta X_{5it} + \beta X_{6it} + \beta X_{7it} + \epsilon_{it} \dots (9)$$

$$\epsilon_{it} \sim \text{iid} (0, \sigma^2 \epsilon)$$

where:

$Y_t$  – net foreign institutional investment flows to GDP in India;

$X_1$  – economic risk;

$X_2$  – political risk;

$X_3$  – financial risk;

$X_4$  – trade openness of a country;

$X_5$  – size of an economy;

$X_6$  – financial market development of a country;

$X_7$  – rate of return on investment;

$\epsilon_{it}$  – composite error;

$t$  – time dimension;

$\epsilon_{it}$  – white noise error term (serially uncorrelated and independent) with zero mean and constant variance.

To ensure the goodness of fit of a model, it is important that the two basic conditions are met. The first condition requires the error term to have serial correlation in the first difference but no serial correlation is needed in the second difference, that is, an error term should comply to AR (1) but should not follow AR (2). Secondly, it is necessary to have no correlation amongst the error term and instruments used. To ensure unbiased and consistent estimators the study has used difference GMM model which converts the equation (1) of the model as follows:

$$\Delta Y_{it} = \Delta \delta Y_{it-1} + \Delta \beta X1_{it} + \Delta \beta X2_{it} + \Delta \beta X3_{it} + \Delta \beta X4_{it} + \Delta \beta X5_{it} + \Delta \beta X6_{it} + \Delta \beta X7_{it} + \Delta \varepsilon_{it} \dots \dots \dots (10)$$

### 3.3 SUMMARY

The above chapter has elaborated on the tools and techniques used to examine the objectives outlined in the study. The correlation coefficient has been calculated to identify the relationship and the degree of association amongst the variables undertaken. Further, the study employed event study technique to ascertain whether any significant change in stock returns and share ownership of FIIs was visible due to announcement of different corporate news announcements. The news announcements have been identified as bonus issue, right issue, share buyback, dividend announcement and earnings announcement. Granger causality test has been used to identify whether the foreign inflows from FIIs granger cause the returns in different sectors of the stock market. Moreover, ANOVA has been used to examine whether there is any significant difference in the foreign inflows from different categories of FIIs. The study has also used Generalized Method of Moment model to analyse the different factors that determine the inflows from foreign institutional investors in Indian stock market.

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## Chapter – 4

### TRENDS AND PATTERN OF FIIS IN INDIA

The chapter is devoted to analyzing trends and pattern of foreign institutional investments in Indian capital markets. Various aspects of foreign institutional investments with respect to Indian capital markets are covered in the chapter. Emphasis is laid on examining the trends of foreign institutional investments into the market, FIIs flows into equity, debt and derivatives, number of entities registered with market regulator SEBI, FIIs flows from different countries, role of FIIs in improving the gross domestic product of the country. Study also looks to explore the correlation between FIIs flows and stock market movement, FIIs flows and foreign exchange reserves of the country.

Since the dawn of liberalization, privatization and globalization, Indian markets have become a favorite destination of foreign investors across the globe. Foreign investments in the form of FIIs have seen an upsurge in Indian capital markets. Foreign institutional investors are commonly known as the movers and shakers of capital market in countries across the world. India has been a favorable destination of foreign investors and their investments have seen a continued uptrend in the domestic bourses. Table 4.1 explains the trend of FIIs purchase, sale and net investment pattern in India from 2002-03 to 2018-2019. Empirical evidence shows that FIIs have largely remained bullish towards the Indian market since their entry owing to strong domestic fundamentals of the country and the confidence in the growth ability. Initial years saw low volume of trades from FIIs largely due to the developing nature of the capital markets in India. 2000-01 saw a gross purchase of ₹ 74051 crore and gross sale of ₹ 64118 crore totaling to a net investment of ₹ 9933 crores in Indian stock market. Following the trend, FIIs remained net buyers of the Indian capital market in 2001-02 but the investment slacked from previous period to ₹ 8763 crore. 2002-03 marked a watershed for FIIs investments which were estimated at ₹ 2689 crore and the year-on-year growth was recorded negative 69.31 percent. The gross purchases declined by 6 percent while the gross sales increased by 7.41 percent. Investments did pick an uptrend in the beginning of 2002 after permission was granted to invest in the derivative segment of Indian market which was followed by positive macroeconomic news painted the picture pink of Indian markets.

**Table 4.1 : Trends in Foreign Institutional Investments in India**

Year	Gross Purchases (₹ Crore)	Gross Sales (₹ Crore)	Net Investment (₹ Crore)	Cumulative Investment (₹ Crore)	Change in Investment	Percent Change
2002-03	47062	44372	2689	-	-	-
2003-04	144855	99091	45764	67149	43075	1601.90
2004-05	216951	171071	45880	113029	116	0.25
2005-06	346976	305509	41467	154496	-4413	-9.62
2006-07	520506	489665	30841	185337	-10626	-25.63
2007-08	948018	881839	66179	251516	35338	114.58
2008-09	614576	660386	-45811	205705	-111990	-169.22
2009-10	846438	703780	142658	348363	188469	-411.41
2010-11	992596	846158	146438	494801	3780	2.65
2011-12	921285	827562	93725	588526	-52713	-36.00
2012-13	904845	736481	168364	756890	74639	79.64
2013-14	1021010	969361	51649	808539	-116715	-69.32
2014-15	1521346	1243886	277460	1085999	225811	437.20
2015-16	1324418	1342593	-18175	1067824	-295635	-106.55
2016-17	1507028	1458617	48411	1116235	66586	-366.36
2017-18	1728360	1583679	144681	1260917	96271	198.86
2018-19	1640810	1679741	-38931	1221985	-183612	-126.91
<b>Phase 1 (2002-03- 2009-10)</b>	460672.75	419464.12	41208.38	168372.5	-	-
<b>Phase 2 (2010-11- 2018-19)</b>	1284633.11	1187564.22	97069.11	933524	-	-
<b>CAGR (2002-03-2018-19) (In Percent)</b>	18					

**Source:** Author's Calculations based on SEBI, Handbook of Statistics on Indian Securities Market

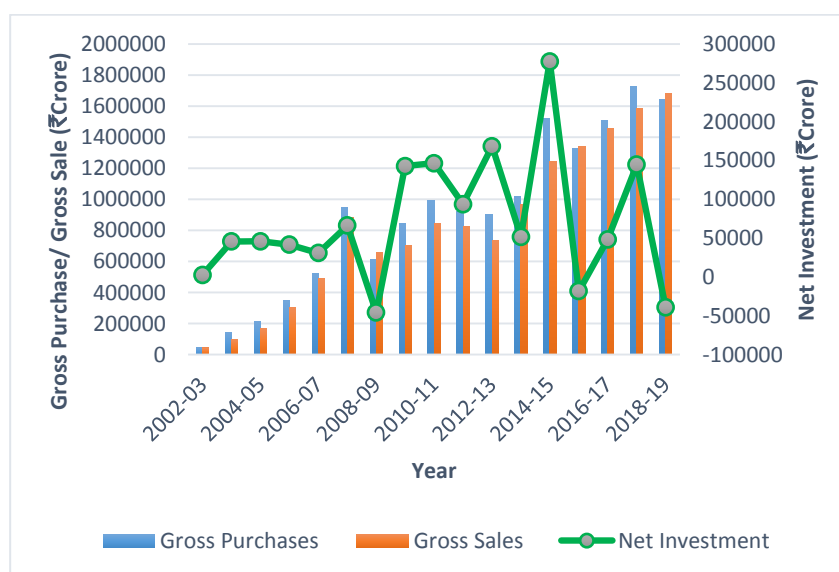
However, weak global cues on account of rising crude oil prices and commodities made FIIs jittery of developing economies and all the gains were erased as FIIs started to sell their stakes in capital markets of emerging economies. Depreciation of Indian rupee further added to the woes and aggravated FIIs selling pressure in India. 2003-04 saw a reversal in trend after markets clocked net investments to the tune of ₹45764 crore indicating an increase of ₹43075 crore from the previous year. The year-on-year growth in net investment was recorded at 1601.90 percent which was highest since FIIs participation in Indian securities market. FIIs share in gross purchase was a positive figure at 207.79 percent and 123.32 percent in gross sales. This increase was largely on account of relaxation in registration norms for FIIs with SEBI and RBI and allowing FIIs in currency hedging schemes. Further, robust growth fundamentals of the country compared to other economies in the region, improved earnings report from India Inc. and introduction of securities transaction tax boosted the confidence of foreign institutional investors. Securities transaction tax (STT) aided in reduction of cost of capital for institutional investors as it did away with the long-term capital gains tax and in turn increased FIIs participation in Indian securities.

FIIs inflows continued to increase in 2004-05 after cumulative investments touched ₹113029 crore. Net investments were recorded at ₹ 45880 crore with a year-on-year growth of 49.77 percent and 72.64 percent in gross purchases and gross sales respectively. The investments were a tad higher from the previous year by ₹ 116 crore. Consistency in investments from FIIs was maintained in the next year as well, as ₹ 41467 crore was the net FII investment in 2005-06. The gross purchase and gross sales increased from previous year by 59.93 percent and 78.58 percent respectively. The increased risk appetite of Indian markets encouraged FIIs to allocate more money in Indian securities. Further, improved signs from the corporate sector, robust profits and low inflation rates paved way for FII investments.

FIIs continued to be net buyers in Indian stock market as they invested ₹ 30841 crore in 2006-07, but the year-on-year growth in net investments saw a decline of 25.63 percent compared to previous year. Gross purchases and gross sales declined to ₹520506 and ₹489665 respectively. The year-on-year percentage decline in gross purchases and sales was down to 50.01 percent and 60.27 percent respectively. This



was largely on account of turmoil in global markets, sharp decline in prices of commodities market, equity markets and major correction in majority of Asian markets reduced the risk appetite of foreign investors. Further, stricter capital norms in Thailand added to the woes of FIIs and reduced their exposure to emerging economies like India. To add to the woes of investors rising inflationary conditions and imposition of new restrictions on FIIs in India curtailed the inflows from FIIs. However, the negative sentiment of FIIs was only short lived as the net investments rebounded from last years to total at ₹66179 crore in 2007-08. There was an increase of 114.58 percent in net investments compared to previous year with cumulative investments equaled to ₹251516 crore as FIIs had increased their participation in Indian securities through initial public offerings (IPOs) in primary market. FIIs enhanced their exposure to Indian markets as the gross purchases were increased to ₹948018 crore and gross sales increased to ₹881839 crore with a year-on-year growth of 82.13 percent and 80.09 percent respectively. This was largely due to improved economic fundamentals, bullish sentiment across the globe and better prospects of Indian companies. 2007-08 clocked highest cumulative investments from FIIs since their very entry. Sadly, the buoyancy in foreign inflows was halted by bearish sentiment travelling from major developed markets especially USA and FIIs turned net sellers in Indian market in 2008-09 with ₹45811 crore plugged out of the country.



**Source:** SEBI, Handbook of Statistics on Indian Securities Market

**Figure 4.1 : Trends of FIIs in India**

The investments dwindled to negative 169.22 percent owing to the mayhem in US markets. The collapse of Lehman brothers and US Subprime crisis added fuel to the fire and panic amongst investors across globe. Investors lost faith in US banking policies and rushed towards safe haven assets adding to the selling pressure in securities markets. Further, weak domestic fundamentals of Indian economy made FIIs turn their back to Indian markets. Rising trade and fiscal deficit, depreciation of Indian rupee and increased oil prices added fuel to diminishing FII flows. The global meltdown created panic amongst investors and raised concerns about developed countries governments' ability to take control of the situation.

In 2009, US Federal Reserve and European Central Bank announced stimulus package and reduced interest rate to zero to increase investors risk appetite. Saturation in major developed markets and bright prospects of Indian economy made FIIs take a U turn to India and other emerging economies. 2009-10 saw FIIs made a net purchase of ₹142658 crore in Indian securities with a year-on-year growth of 411.4 percent. The gross purchases made by FIIs were ₹846438 crore and gross sales were summed to ₹703780 crore. Investments from FIIs remained almost flat in 2010-11 with ₹146438 crore of net investments. The sluggishness in markets was largely on account of uncertain global environment. The net increase in investments was a meagre ₹3780 crore compared to 2009-10 adding only 2.65 percent compared to previous year's investment. Investments in 2011-12 remained lackluster as Indian markets failed to provide positive cues to FIIs. ₹93725 crore net investments were channeled from FIIs in the same year but a negative year on year growth of 36 percent was recorded. Indian economy's performance outdid its counterparts which sustained FII inflows. 2012-13 saw a growth of 79.64 percent in FIIs net investments and gross purchases and gross sales increased to ₹904845 crore and ₹736481 crore respectively. FIIs continued to remain net buyers of Indian securities in the succeeding year with net purchases of ₹51649 crore.

Foreign investors celebrated the formation of a new government and continued to stay invested in India in 2014-15 as net investments increased to ₹277460 crore and cumulative investments increased to ₹1085999 crore. The year-on-year growth in net investments recorded a gain of 437.20 percent. Following 2015-16 FIIs investments

entered the negative territory as the year marked an outflow of ₹295635 crore of FII money. Paralysis in the parliament and lackluster reforms dented FIIs hope and they turned into net sellers. Nevertheless, efforts from the market regulator SEBI helped reverse the outflow in 2016-17, after SEBI announced relaxation in entry norms for different kinds of FIIs. This move came in as a compensation for the tightening of the noose around the use of Participatory-Notes. The same year FIIs invested ₹48411 crore in stock markets. In 2017-18, though the global environment was tumultuous, due to Brexit, Presidential elections in US, increase in interest rate from US Federal Reserve and slowdown of the Chinese economy, FII investments increased to ₹144682 crore due to the growth potential of Indian economy and continued reform process. Government's ability to control inflation and the problem of twin deficits along with roll out of GST, improving the performance of public sector banks and adequate measures to handle insolvency boosted the foreign investor confidence. Also, strengthening of the equity markets and economic recovery of major developed countries like USA, Japan and Europe boosted the investment sentiment and enhanced capital flows to emerging countries. However, at the turn of 2018, FIIs offloaded their positions in the Indian market due to a speculation over a possible rate hike by US Federal Bank which would have made the investments costly in the emerging markets. Adding to the uncertain environment was the trade war between US-China. But the optimism regarding the development of the Indian markets, FIIs returned to the Indian economy by mid-2019.

The research has also divided the total foreign institutional investments into two phases. Phase I investigates FIIs investment into Indian market from 2002-2003 to 2009-2010. Phase II of FII investment starts from 2010-2011 to 2018-2019. FII flows have been compared on a year-on-year basis and also comparison has been made between different phases of FII investment. The average gross purchase in 2002-03 to 2009-10 was recorded at ₹460672.75 crore compared to the gross purchase of ₹1284633.11 crore in phase 2 of 2010-11 to 2018-2019. Average gross sales increased to ₹ 1187564.22 crore in phase 2 compared to ₹419464.12 crore in phase 1. The cumulative investment grew to ₹ 933524 crore during 2010-2011 to 2018-19 compared to ₹ 168372.5 crore of 2002-02 to 2009-10. Moreover, the average gross

purchase and gross sales over 17-year period was evaluated to ₹ 896887.06 crore and ₹ 826105.35 crore respectively.

The increase in gross purchases and gross sales in second phase was 3 times more compared to the first phase. Further, compounded annual growth rate (CAGR) was calculated to ascertain annualized growth of FII investments from 2002-03 to 2018-2019. India has recorded a CAGR of 18 percent over the period of 17 years. The year-on-year growth of FII investments ranged from -411.41 percent to 1601.90 percent. Therefore, it is evidenced that FIIs have continued to show resilience in the Indian economy's performance and ability to generate greater returns on investments.

#### **4.1 TRENDS OF FIIS INVESTMENT IN EQUITY AND DEBT**

Before 1990s, India directed majority of its strategies towards building a self-reliant nation and closed economy. This led to burgeoning current account deficit and reduced foreign exchange reserves. The Indian government in September 1992 consented to authorize foreign institutional investors to indulge in the purchase and sale of its securities thereby allowing them to freely bring in and take money out of the market. This important decision of the government to permit foreign inflows pushed the economy towards full capital account convertibility. The foreign institutional investors who play an important role in the Indian markets can invest into the capital markets by investing in equity and debt markets. A debt market is the market where bonds bearing a fixed rate of interest and less risk are bought and sold. Debt instruments ensure a fixed rate of return to the investors. However, equity market is where stocks of companies are bought and sold. The investments in stocks are riskier than investments in debt instruments as prices in equity markets are more prone to market fluctuations. FIIs participation into equity instruments is directed through portfolio investment schemes.

Government has imposed certain ceiling caps on FIIs investment into listed and unlisted equity scripts. After opening up of the Indian capital markets majority of investment from foreign institutions was seen in equity scripts. The first decade of economic reforms saw lukewarm response from foreign investors. However, as the economy strengthened and government introduced new regulations to smoothen the

flow of foreign inflows, investments picked an upward trend. Table 4.2 and 4.3 sheds light on the peculiar behaviour of foreign institutional investments in equity and debt market of India. During the year 2000-01 investment in equity market was preferred by foreign investors as the option to invest in other instruments like debt securities was limited. FIIs invested ₹ 10207 crore of money in equity scripts, which accounted for 102.76 percent of the total investment made by FIIs in 2000-01. FIIs chose to remain short on debt instruments and sold ₹ 274 crore as the government of India had only recently opened the debt market to FIIs in January 1999. In the year 2001-02 FIIs decreased their investment in equity to ₹ 8072 crore from previous year investment of ₹ 10207 crore and increased investment in debt to ₹ 691 crore. Foreign investors continued to invest large funds in equity scripts in 2002-03 as they invested ₹ 2527 crore in equity which explained for 93.98 percent of the total foreign institutional investments. Debt market accounted for meager 6.02 percent of the total investment of ₹ 162 crore.

**Table 4.2 : Trends of Foreign Institutional Investments in Equity**

<b>Year</b>	<b>Net Investment (₹ Crore)</b>	<b>Total Investment (₹ Crore)</b>	<b>Percent of Total Investment</b>	<b>Year on Year Percent Change</b>
2002-03	2527	2689	93.98	-
2003-04	39960	45764	87.32	1481
2004-05	44123	45880	96.17	10
2005-06	48801	41467	117.69	11
2006-07	25236	30841	81.83	-48
2007-08	53404	66179	80.70	112
2008-09	-47706	-45811	104.14	-189
2009-10	110221	142658	77.26	-331
2010-11	110121	146438	75.20	0
2011-12	43738	93725	46.67	-60
2012-13	140033	168364	83.17	220
2013-14	79709	51649	154.33	-43
2014-15	111333	277460	40.13	40
2015-16	-14172	-18175	77.98	-113
2016-17	55703	48411	115.06	-493
2017-18	25635	144682	17.72	-54
2018-19	-88	-38930	0.23	-100
<b>Phase-I (2002-03-2009-10)</b>	34570.75	41208.38	-	-
<b>Phase-II (2010-11-2018-19)</b>	61334.67	97069.33	-	-
<b>CAGR (2002-03 – 2018-19) (In Percent)</b>	9.90			

**Source:** Author's Calculations based on National Securities Depository Limited

2003-04 was marked as the first year when the investments by foreign investors into debt instruments was recorded at a double digit of 12.68 percent of the total investments. While investment in equity related instruments equaled to ₹ 39960 crore. In the year 2004-05 and 2005-06 equity investments dominated FIIs participation in Indian markets with ₹44123 crore and ₹ 48801 crore respectively, accounting to 96.17 percent and 117.69 percent of the total FII investment during both the years. Investments in debt remained weak in comparison to equity as they attracted only ₹ 1757 crore in 2004-05 and an outflow of ₹ 7334 crore in 2005-06.

Investment in debt market took a reversal in trend in 2006-07, when the Indian government announced on April 2006 to increase the cumulative investment limit of FIIs/Sub Account to US dollar 2 billion from previous limit of US dollar 1.75 billion in corporate debt and government securities. Further, announcement was made to push forward the existing limit in debt securities to US dollar 2.60 billion in government securities/Treasury bills by FIIs. This cheered the market for debt instruments and FIIs increased their appetite to ₹ 5605 crore covering almost 19 percent of the total FII investment. Equities share to total FII investment for the first time dropped to 81.83 percent in the same year to ₹ 25236 crore. FIIs continued to remain invested in debt securities in the second year as they raised their exposure to debt markets to ₹ 12775 crore in 2007-08 while investment in equity stood at ₹ 53404 crores. This was the highest investment by FIIs in debt in 2007-08. For the first time in 2008-09 FIIs turned net sellers in equity market and plugged out ₹47706 crore. Surprisingly, FIIs remained invested in debt market with a total of ₹ 1895 crore. This was attributed to the global meltdown in valuations of equity and commodity markets due to the subprime crisis in US. Thailand tightened its capital control which further aggravated the situation for equity markets in major Asian countries. Foreign institutional investors chose to remain safe with their investments and therefore shifted their proportion to debt instruments. Foreign investors returned to the equity markets in 2009-10, after majority of the governments of developed countries introduced stimulus packages to boost investor appetite. Poor macroeconomic fundamentals of major emerging economics and strong growth potential of Indian economy facilitated equity markets in India to absorb ₹ 110221 crore from foreign institutional investors.

**Table 4.3 : Trends of Foreign Institutional Investment in Debt**

Year	Net Investment (₹ Crore)	Total Investment (₹ Crore)	Percent of Total Investment	Year on Year Percent Change
2002-03	162	2689	6.02	-
2003-04	5804	45764	12.68	3483
2004-05	1757	45880	3.83	-70
2005-06	-7334	41467	-17.69	-517
2006-07	5605	30841	18.17	-176
2007-08	12775	66179	19.30	128
2008-09	1895	-45811	-4.14	-85
2009-10	32437	142658	22.74	1612
2010-11	36317	146438	24.80	12
2011-12	49987	93725	53.33	38
2012-13	28331	168364	16.83	-43
2013-14	-28060	51649	-54.33	-199
2014-15	166127	277460	59.87	-692
2015-16	-4003	-18175	22.02	-102
2016-17	-7292	48411	-15.06	82
2017-18	119036	144682	82.27	-1732
2018-19	-42357	-38930	108.80	-135.5
<b>Phase-I (2002-03 – 2009-10)</b>	6637.62	41208.38	-	-
<b>Phase-II (2010-11 – 2018-19)</b>	35342.89	97069.33	-	-
<b>CAGR (2002-03-2018-19) (In Percent)</b>	18.85			

**Source:** Author's Calculations based on National Securities Depository Limited

During the same year debt market also experienced an increase of FII investment to ₹32437. For the first time FIIs share to debt market was more than 20 percent at 22.74 percent of the total investment. For the second consecutive year FIIs made a massive investment of ₹ 110121 crore and ₹ 36317 crore in equity and debt market respectively at the end of 2010-11.

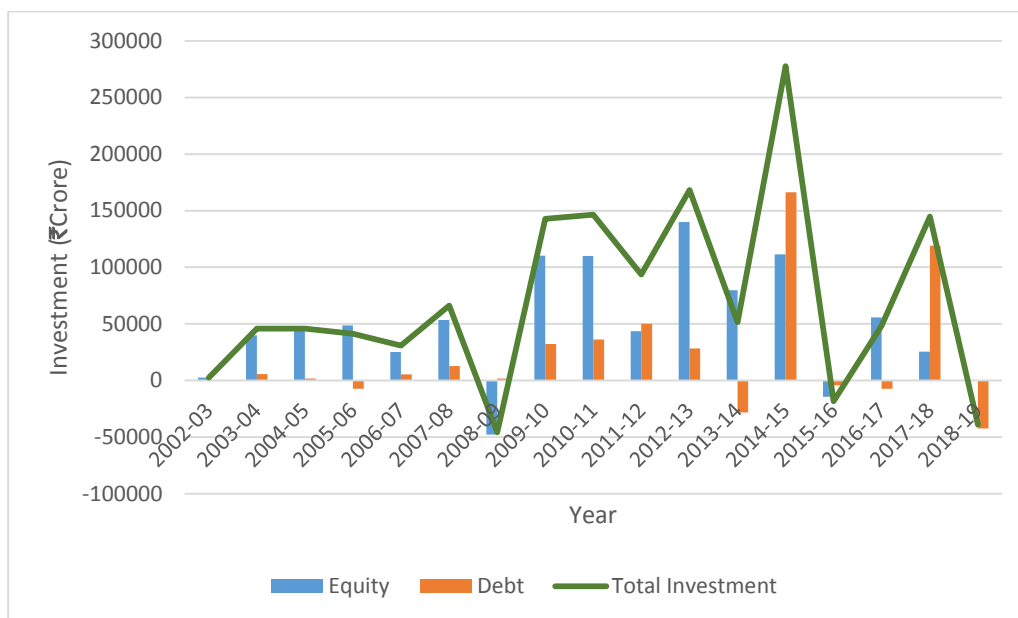
Owing to the financial turmoil in the world, FIIs in India preferred to have a higher exposure to debt market than equity market. For the first time, in 2011-12 FIIs share to debt market stood at ₹ 49987 crore accounting to 53.33 percent of the total net investment. This was the highest investment by FIIs in debt securities and



instruments. FIIs net investment in equities stood at ₹ 43738 crore estimating to 46.67 percent of the total net investment. FIIs net investment in equity picked massive trend in 2012-13 to ₹ 140033 crore rebounding to 83.17 percent of the total net FII investment. During the same time, net FII investment to debt market declined sharply to 16.83 percent from previous year 53.33 percent to total investment. Further, in 2013-14 FIIs share to equity investment surged to a robust 154.33 percent at ₹ 79709 crore of the total investments. While, investments in debt market plummeted to their lows with inflows turned negative to ₹ 28060 crore. Foreign investments bounced back in debt market in 2014-15 to ₹ 166127 crore raising their share in debt to total investment to 59.87 percent. Compared to investments in debt, equities suffered a setback as FIIs share of investment was calculated at only 40.13 percent compared to 2013-14 share of 154.33 percent. Markets suffered a major setback after FIIs turned net sellers in both equity and debt market in 2015-16. For the first time, since their entry into Indian markets FIIs had negative inflow of ₹ 14172 crore and ₹4003 crore in equity and debt market. Weak global cues were one of the prime causes that triggered sell-off in Indian markets. However, the sell-off was short lived as markets bounced back in 2016-17 and FII returned to equity markets with an investment of ₹ 55703 crore. Demand for debt instruments remained gloomy as FIIs continued with their selling spree which led to a negative flow of ₹ 7292 crore. In 2018-19, FIIs shorted the Indian equity and debt markets owing to the global factors like those of an uncertain Brexit and US Federal Reserve increase in interest rate. The largest sell-off was seen in the debt market as ₹ 42357 crore were plugged out of the market. This was the largest sell off ever seen in the debt segment. However, the sentiment turned positive at the start of April 2019 as FIIs faith in the Indian economy was restored.

In the initial years of investment in Indian markets, equity markets dominated majority of the FIIS investments. But as the government opened other markets for FIIs, they started to diversify their investments to other markets. Opening of debt market to FIIs was a major development for FIIs. Over the years, it was observed that foreign institutional investors started to increase their investments in debt and reduce their exposure to equity scripts. Highest amount of investment in debt segment was seen in 2017-18 where investment in debt market accounted for 82.27 percent of the

total net investment by FIIs compared to -2.6 percent in 2000-01. While, investments in equity market accounted for 102 percent of total net FII investment in 2000-01, they were reduced to meagre 17.27 percent in 2017-18.



Source: National Securities Depository Limited

**Figure 4.2 : FIIs Investment in Equity and Debt**

A change in FIIs investment pattern in different markets show that FIIs are hedgers and like to averse risk during turbulent times. This is evident from 2008-09, 2014-15 and 2017-18 when uncertainty loomed over global and domestic markets FIIs got inclined towards safe investment like those of debt market. Also, the year-on-year growth in equity and debt markets was negative in 2001-02 and 2002-03 respectively. However, the trend was short lived as investment bounced back in 2003-04, 2004-05 and 2005-06 respectively. For two consecutive years investment in equity clocked double digit year on year growth of 10 percent and 11 percent in 2004-05 and 2005-06 respectively, while, the year-on-year growth in debt remained negative at 70 percent and 517 percent respectively. Post the US subprime crisis, the year-on-year growth in debt turned positive while year on year growth in equity turned negative due to reduced risk appetite of foreign institutional investors. 2010-11 and 2011-12 were the years when the year-on-year growth in equity was zero and negative while debt market enjoyed a growth rate of 12 percent and 38 percent

respectively. Thus, the pragmatic analysis of FII investment explains the idiosyncratic behaviour towards different market types. FIIs are the strategists as they understand the risks and returns associated with different markets and plan their proportion of investments accordingly which has helped them generate good returns in Indian markets.

The CAGR in equity investments is estimated at 9.90 percent and debt at 18.85 percent. Signalling, that FIIs earned an average annual return of approximately 10 percent by investing in equity instruments and debt securities generated an average annual return of 18.85 percent to FIIs. Investment in equity scripts is riskier than investment in debt instruments as debt is safer due to its inherent nature. Investors that look to invest in large amount generally prefer to invest in safe instruments and FIIs invest in crores of rupees in Indian capital market and thus it is evident that FIIs have gradually increased their exposure towards debt securities compared to investment in equity instruments. Earlier Indian government had limited the market of debt instruments for foreign investors but with the gradual reforms and liberalization foreign institutional investors have shifted their exposure to debt instruments.

#### **4.2 TRENDS OF FIIS INVESTMENT IN DERIVATIVES**

A derivative instrument is defined as a security whose underline value is derived from the value of another instrument namely stocks, bonds, commodities, currencies etc. The uncertainty in the stock market exposes investors to risks, causing huge losses on their investments. Derivatives act as a hedging instrument to protect the investors from uncertainty arising from their investment. They are the risk management tools that enables a company to mitigate its risk exposure (Vashishtha and Kumar, 2010). The government of India introduced derivatives instruments in June 2000 to widen the scope of the market. The introduction of derivative instruments was welcomed by stock market and they gained popularity as the market turnover in these instruments increased tremendously. The Indian government has introduced index futures, index options, stock futures and stock options as the derivative instruments which can be bought and sold by foreign and domestic investors. An index future is defined as a derivative instrument which derives its

value from the underlying index and can be bought or sold at a pre-defined price at some specified date in future. An index option is defined as an instrument which gives the right to the option holder to buy or sell the instrument at a given price on or before the expiry but is not obliged to do so. A stock future is defined as an instrument which derives its value from the underlying stock and can be bought or sold at a pre-defined price at some specified date in future. Stock option is defined as an instrument which gives the right to the option holder to buy or sell the instrument at a given price on or before the expiry but is not obliged to do so.

The financial reforms of 1991 allowed foreign institutional investors to invest only in the equity and debt segment of the Indian stock market and restricted investment in derivatives market. In order to make hedging instruments available to foreign institutional investors the government permitted FIIs participation in derivatives market on February 2002. The removal of investment restrictions for FIIs did not necessarily imply immediate participation from foreign institutional investors. Though the restrictions on FII investments in derivative market was eased in the year 2001-02, the year of investment and the year of easing are not necessarily same (Umutlu et al., 2013). Thus, the initial years experienced few FIIs investing in the derivative market due to the lack of clarity on the investment security from the government. Table 4.4 and table 4.5 outlines the investments made by foreign institutional investors in the derivative instruments and the notional value of FIIs open interest in derivatives in India. Investments from FIIs started gaining traction only in 2004-05 as FIIs chose to remain short to the tune of ₹497.7 crore. The open interest position of FIIs in total derivative markets was accounted at ₹70335 crore with stock futures attracting largest amount of investment of ₹45329 crores followed by ₹20683 crore in Index futures, as on 31<sup>st</sup> March, 2005. Investment in stock futures was 68.67 percent of the total investment in futures and 64.45 percent the total investment in derivatives instruments. On March 2006, FIIs were net buyers in index futures and options at ₹436 crore and ₹12319.35 crore respectively. However, large selling in stock futures and options of ₹12811.6 crore and ₹189.2 crore pushed the net FIIs investment in the negative at ₹245.3 crore. While, the open interest position of FIIs was calculated at ₹4270650 crore of which stock futures held the maximum share at 54.02 percent (₹2306982 crore), followed by index futures at 37 percent

(₹1580318 crore), index options at 8.72 percent (₹36731 crore) and lowest in stock options at 0.3 percent (₹10620 crore).

After the initial years of heavy selling FIIs turned net buyers in derivative instruments, with an investment of ₹3605.53 crore in 2006-07. Only stock options witnessed selling pressure from FIIs as they remained in negative territory at ₹447.95 crore. The notional value of total open interest position of FIIs stood at ₹308264 crore with 50 percent of the investments coming from stock futures. Stock options was still the least favorable investment instrument of FIIs as the investment share was less than 0.5 percent of the total. Following the uptrend of 2006-07, an increase in FIIs net purchase of ₹387997.87 crore was experienced in 2007-08 as FIIs made huge purchases in index futures at ₹354372.5 crore. The notional value of open interest position of FIIs in derivatives was determined at ₹640930 crore of which stock futures share was 52.73 percent, followed by index futures at 34.08 percent, index options at 13.07 percent and stock options at 0.12 percent. Net FIIs investment slipped into negative to ₹ -186989 crore in 2008-09, owing to the turmoil in the global markets. The notional value of open interest of FIIs in derivatives decreased to ₹496816 crore, for the first time since their entry FIIs shifted their investment from stock futures to index options as index options garnered the highest FII investments of ₹177813 crore. Index options share to the total open interest was calculated at 35.80 percent and stock futures share declined to 33.26 percent from previous year share of 52.73 percent. In 2009-10, FIIs remained net sellers in the derivatives products at ₹4256.89 crore out of which largest selling was seen in stock futures at ₹44384.8 crores. Though FIIs remained net buyers in stock and index options at ₹3546.13 crore and ₹45578.55 crore respectively the total net investments were negative. The total notional value of open interest of FIIs in derivatives was the highest in 2009-10 at ₹18487998 crore with a year-on-year increase of 3621.30 percent. The index options contributed the largest share at 45.25 percent (₹8367148 crore), followed by stock futures at 33.08 percent (₹6116210 crore), index futures at 18.60 percent (₹3440430 crore) and stock options with 1.19 percent (₹220167 crore). Reversing the selling pressure, FIIs turned net buyers in 2010-11 after they purchased derivatives worth ₹129357.5 crore with purchases of index options highest at ₹146204.3 crore.

The total notional value of open interest of FIIs in derivatives increased to ₹26269042 crore with a year-on-year growth of 42.09 percent. Maintaining the trend, index options remained the largest contributor to the open interest position of FIIs with an investment of ₹13468589 crore, followed by stock futures at ₹8503938 crore, index futures at ₹4047719 crore and stock options at ₹248796 crore. Net FIIs investment in derivative products continued to fluctuate between positive and negative territory as net investments in 2011-12 turned negative at ₹52929.2 crore. FIIs remained net buyers only in stock options with a small investment of ₹90.26 crore. The year-on-year growth in open interest position of FIIs in derivatives decreased to -16.84 percent compared to previous years increase of 42.09 percent. Open interest position in index futures decreased to ₹3667835 crore, index options to ₹ 10791391 crore, stock futures to ₹7166653 crore and stock options to ₹218306 crore respectively. Though FIIs cumulative open interest position was calculated at ₹93341836 crore and the year-on-year growth still remained negative at -4.07 percent in the year 2012-13. Open interest positions declined to ₹294795 crore in index futures and to ₹6636503 crore in stock futures and slightly increased in index options to ₹10904693 crore and stock options to ₹464470 crore. FIIs remained net buyers in the derivative products with a total investment of ₹519574 crore. FIIs remained largest net buyers in index options with a net investment of ₹448927.2 crore, followed by net investment of ₹73631.26 crore in stock futures and ₹26636.63 crore in stock options. In the year 2013-14, the net FIIs investment in derivatives decreased to ₹59221.82 crore with a year-on-year decline of 88.60 percent.

**Table 4.4 : Trends in Foreign Institutional Investments Investment in Derivatives**

Year	Derivative Products												Total Investment in Derivatives (Crore)
	Index Futures (₹Crore)			Index Options (₹Crore)			Stock Futures (₹Crore)			Stock Options (₹Crore)			
	Buy	Sell	Net	Buy	Sell	Net	Buy	Sell	Net	Buy	Sell	Net	
2004-05	45842.64	47900.92	-2058.28	5911.97	854.58	5057.39	58523.06	62006.06	-3483	229.08	242.89	-13.81	-497.7
2005-06	165495.2	165059.1	436.15	16427.52	4108.17	12319.35	141111.9	153923.5	-12811.6	624.78	813.98	-189.2	-245.3
2006-07	365352.1	365119.8	232.3	47258.24	22991.86	24266.38	226892.8	247337.9	-20445.2	1030.1	1478.05	-447.95	3605.53
2007-08	988353.2	633980.7	354372.5	129821.8	69129.11	60692.67	483790.2	507033.4	-23243.3	1786.34	2004.79	-218.45	391603.4
2008-09	504523.3	493350	11173.25	171299	141996.3	29302.62	303036.9	535782.4	-232745	10371.85	5091.36	5280.49	-186989
2009-10	470468.9	479465.7	-8996.77	760465.1	714886.5	45578.55	504983.2	549368	-44384.8	9484.63	5938.5	3546.13	-4256.89
2010-11	674854.3	683278.8	-8424.51	1658790	1512586	146204.3	731138	737086.6	-5948.6	88882.17	91355.87	-2473.7	129357.5
2011-12	669260.7	674389.3	-5128.59	2940420	2976542	-36122.4	707250.6	719019.1	-11768.5	100634.7	100544.4	90.26	-52929.2
2012-13	466575.6	496196.6	-29621.1	3448003	2999076	448927.2	664347.5	590716.3	73631.26	332483.7	305847.1	26636.63	519574
2013-14	646673.3	633119.5	13553.74	3997947	3943799	54148.13	848096.1	853865.8	-5769.68	304835.7	307546	-2710.37	59221.82
2014-15	632246.1	627101.7	5144.38	3854539	3743542	110997	1278601	1314705	-36103.9	522325.3	526545.7	-4220.35	75817.13
2015-16	627433	636539.6	-9106.55	7956146	4991364	2964782	1263732	1914329	-650596	448150.5	505994.7	-57844.2	2247235
2016-17	697186	679148	18038.07	8950464	8840098	110366.2	2305228	2341170	-35942.4	1034224	1039203	-4978.22	87483.65
2017-18	648120	702219.2	-54099.2	13807346	13654903	152443.3	2843774	2807883	35891.33	1592806	1588186	4619.25	138854.7
2018-19	968186.5	965750.2	2436.34	25731544	25531680	199864.3	3950970	3951379	-408.71	48832000	5597218	43234783	43436674
<b>Phase-I (2004-05 – 2010-11)</b>	459269.96	409736.44	49533.52	398567.71	352364.68	46203.03	349925.15	398934.00	-49008.85	16058.42	15275.06	783.36	47511.08
<b>Phase-II (2011-12 – 2018-19)</b>	669460.14	676808	-7347.86	8835801.04	8335125.30	50065.74	1732749.98	1811633.32	-78883.33	6645932.52	1246385.56	5399545.95	5813991.39

**Source:** Author's Calculations based on Securities and Exchange Board of India, Annual Reports

**Table 4.5 : Notional Value of Open Interest of FIIs in Derivatives**

Year	Index Futures (₹ Crore)	Index Options (₹ Crore)	Stock Futures (₹ Crore)	Stock Options (₹ Crore)	Interest rate Futures (₹ Crore)	Total (₹ Crore)	Cumulative Investment (₹ Crore)
2004-05	20683	4175	45329	148	0	70335	-
2005-06	1580318	372730	2306982	10620	0	4270650	4340985
2006-07	115248	36731	155458	827	0	308264	4649249
2007-08	218422	83772	337959	777	0	640930	5290179
2008-09	147561	177813	165283	6159	0	496816	5786995
2009-10	3440430	8367148	6116210	220167	0	18487998	24274993
2010-11	4047719	13468589	8503938	248796	0	26269042	50544035
2011-12	3667835	10791391	7166653	218306	0	21844185	72388220
2012-13	2947950	10904693	6636503	464470	0	20953616	93341836
2013-14	139963	479944	333261	8205	0	961373	94303209
2014-15	14251	50064	54351	1300	0	119966	94423175
2015-16	24534	87030	52588	4577	21	168750	94591925
2016-17	22565	44645	77907	150	229	145496	94737421
2017-18	25070	76019	79121	7711	379	188301	94925722
2018-19	17751	56561	87965	2263	39	164578	95090300

**Source:** Author's Calculations based on Securities and Exchange Board of India, Annual Reports

The open interest position of FIIs in derivatives also declined to ₹961373 crore as the position in index futures, index options, stock futures and stock options declined to



₹139963 crore, ₹479944 crore, ₹333261 crore and ₹8205 crore respectively. The year on year decline was recorded at 95.41 percent respectively. The negative sentiment continued to prevail in the year 2014-15, as FIIs started to reduce their exposure in derivative instruments which led the total open position of FIIs to decrease by 87.52 percent to ₹119966 crore. Open positions in index futures, index options, stock futures and stock options were further decreased to ₹14251 crore, ₹50064 crore, ₹54351 crore and ₹1300 crore respectively. However, trend was reserved in 2015-16 after the net investment in derivatives increased to ₹2247235 crore with a year-on-year growth of 2864.02 percent. The increase was due to the largest purchase in index options of ₹2964782 crore while FIIs remained short on other derivative products such as stock options, stock futures and index futures. This increase in derivatives was further witnessed as FIIs open interest position increased to ₹168750 crore, with index options contributing the largest share at ₹87030 crore (51.58 percent), followed by stock futures ₹52588 crore (31.16 percent), index futures ₹24534 crore (14.53 percent) and ₹4577 crore (2.71 percent) in stock options. In the year 2016-17, the year-on-year investment in derivatives decreased to 96.10 percent with total net investment determined at ₹87483.65 crore. The open interest position also declined to ₹145496 crore compared to ₹168750 crore from the previous year. The largest decline was witnessed in stock options as the FIIs position decreased to ₹150 crore, followed by a decrease of ₹42385 crore in index options. Slight increase in net investment in derivatives was seen in 2017-18, as the year-on-year net investment increased to ₹138854.7 crore out of which the largest buying occurred in index options at ₹152443.3 crore. The national value of open position of FIIs in derivatives also increased to ₹188301 crore in the same year with stock futures having the highest share of FIIs position at 42.01 percent (₹79121 crore), followed by index options at 40.37 percent (₹76019 crore), index futures at 13.31 percent (₹25070 crore) and stock options at 4.09 percent (₹7711 crore).

It has been seen that FIIs started as major buyers of stock futures but later switched to index options as the major form of investment in derivative market. In the initial years, stock futures had more than 50 percent share of FIIs investment amongst all other derivative instruments but with the progression and development of other

derivative instruments FIIs investment in stock futures decreased and index options became the new favorite instrument of FIIs. Further, options are suitable to hedge large positions during uncertain times and FIIs like to minimize their risks associated with the investments. Thus, it can be inferred that options as a tool of investment lets FIIs hedge their investments during turbulent times.

### **4.3 TRENDS IN SEBI REGISTERED FIIS**

Foreign investments in the forms of FIIs have seen an upsurge in Indian capital markets. The number of entities registering as FIIs have increased indicating a favorable trend of foreign inflows towards India. All the entities looking to invest in India through FII route have to get themselves register with the Securities and Exchange Board of India. Table 4.6 highlights the number of entities registered as FIIs with market regulator SEBI. As per the table, 527 foreign institutional investors registered under SEBI regulations as FIIs in the year 2000-01. However, the number of FIIs registered in 2001-02 dropped to 490 as the investors were skeptical about the regulations being framed by the government. Many existing FIIs failed to renew their existing registrations which also led to a decline in the number of new registrations. As the regulatory policies were framed to facilitate the entry of foreign investors and positive signs on the economic front the number of FIIs registering with SEBI followed an upward trend. 12 new FIIs were added in the year 2002-03 making the total number of foreign institutional investors to 502. Very soon India became a favourite destination of FIIs amongst its counterparts with 540 entities registered with SEBI in the year 2003-04. With 7.5 percent increase in the registrations from the year 2002-03. The pace of FII registrations was sluggish in the initial decade but it picked trend in 2004-05 with 145 new registrations clocking an increase of 26.85 percent from the previous year. This was the first year that saw a double-digit growth in number of FIIs registered with market regulator SEBI. Followed by an increase of 28.75 percent in the year 2005-06 with 882 enterprises registered.

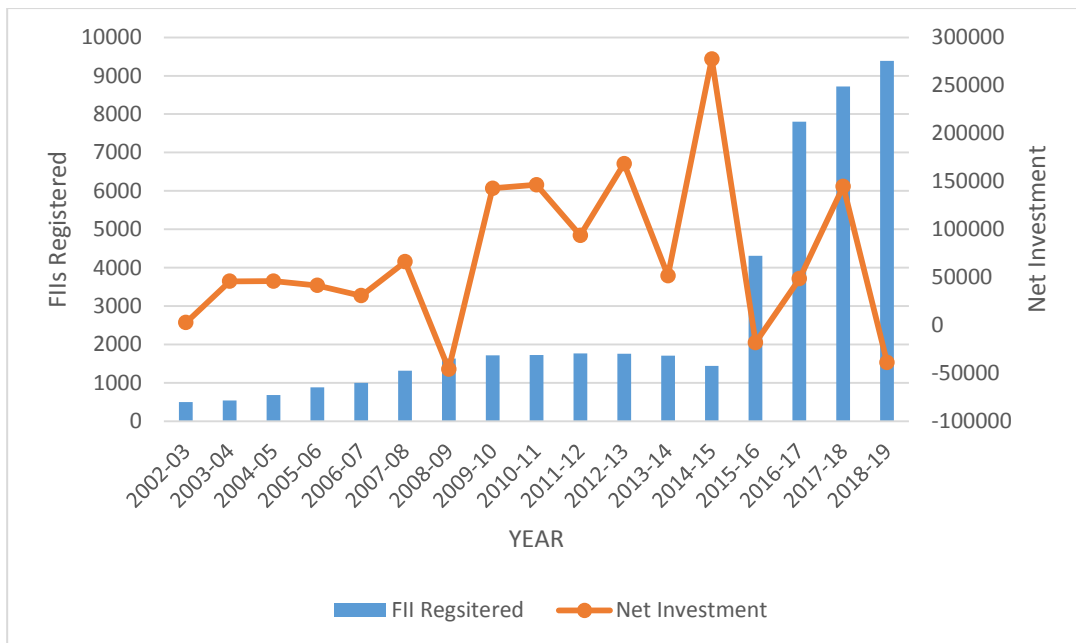
**Table 4.6 : SEBI Registered FIIs in India**

<b>Year</b>	<b>FIIs at End March</b>	<b>Increase in FII during the year</b>	<b>Percent Change in Total FIIs Registered</b>
2002-03	502	12	-
2003-04	540	38	7.56
2004-05	685	145	26.85
2005-06	882	197	28.75
2006-07	997	115	13.03
2007-08	1319	322	32.29
2008-09	1635	316	23.95
2009-10	1713	78	4.77
2010-11	1722	9	0.52
2011-12	1765	43	2.49
2012-13	1757	-8	-0.45
2013-14	1710	-47	-2.67
2014-15	1444	-266	-15.55
2015-16	4311	2867	198.54
2016-17	7807	3496	81.09
2017-18	8721	914	11.71
2018-19	9390	669	7.67
<b>CAGR 2002-03 – 2018-19) (In Percent)</b>		20.09	

**Source:** Author's Calculations based on Annual Reports, SEBI

FII's continued to remain bullish on the Indian capital markets, owing to strong economic fundamentals compared to other countries in the region. Compared to the previous year, in 2006-07 the number of FII's registered increased to 997 but the growth of the new additions decreased to 13.03 percent when compared with 2005-06. However, it was just a momentarily decline in growth as the year 2007-08 saw the total number of FII's registered to 1319 with the highest percentage increase of 32.29 percent. The government's effort to abolish long term capital gains tax and introduce securities transaction tax boosted FII's confidence towards India. Further, appealing valuations of Indian companies and strong macroeconomic fundamentals led to a surge in FII registrations. There was a net addition of 316 SEBI registered FII's which totaled to 1635 in the year 2008-09. The year also saw 311 fresh registrations from FII's hailing from different countries and 89 renewals of the existing registrations. Figure 4.3 presents the picture of number of FII's registered and their net investments.

The year 2009-10 saw a tepid rise with only 78 new registrations totaling to 1713 compared to that of 1635 in 2008-09. However, the effect of sub-prime crisis started to trickle to Indian markets and FII's started to plug out of emerging market. Only 9 new FII's registered with SEBI, it was the lowest of all-time registrations. This took the total number of FII's to 1722 in 2010-11. The increase in the number of new registrations remained slow with only 2.49 percent of net addition in the year 2011-12. However, FII's turned negative for the first time in 2012-13 as the number of FII's declined to 1757 compared to 1765 in 2011-12. This slide in number of FII's was largely due to the depreciation of the Indian rupee against US dollar. Decline in rupee decreased the value of major FII's and FII's turned their back to Indian markets. 2013-14 saw 122 new FII's were given registration and 632 registrations were renewed by Indian government but this failed to cheer the existing investors as the slide continued with the number of FII's declined to 1710 and 1444 respectively in 2013-14 and 2014-15.



Source: Annual Reports, SEBI

**Figure 4.3 : Growth of FIIs in India**

2014-15 saw the largest number of FIIs leaving the Indian market with 266 entities exiting India, effecting a decline of 15.55 percent. 2015-16 saw a rebound in the number of new FII registrations with a whopping increase of 198.54 percent compared to the previous year. This was due to the new regulations introduced by the government to attract foreign inflows into the country. The total number of FIIs registered with SEBI stood at 7807 in 2016-17. Total number of registered FIIs stood at 8721 and 9390 in the year 2017-18 and 2018-19 respectively. It is evident from the above table that FIIs feed on positive fundamentals and leave at a slight hint of uncertainty.

The study also analyses the compounded annual growth rate of FIIs registrations over the period of time. Compounded annual growth rate is the average rate at which the number of FIIs increased on a year-on-year basis. The CAGR is calculated at 20.09 percent which entails that the FIIs increased at an annual rate of 20.09 percent. FIIs have faith in the performance of Indian economy and this is reflected in continued increase in the number of FIIs registered with SEBI, except in the year 2012-13, 2013-14 and 2014-15. This indicates towards a positive sentiment of FIIs towards

growth and stability of the Indian capital markets. Though, FIIs registration remained slow in the first decade but it picked pace as the Indian markets became more flexible and approachable.

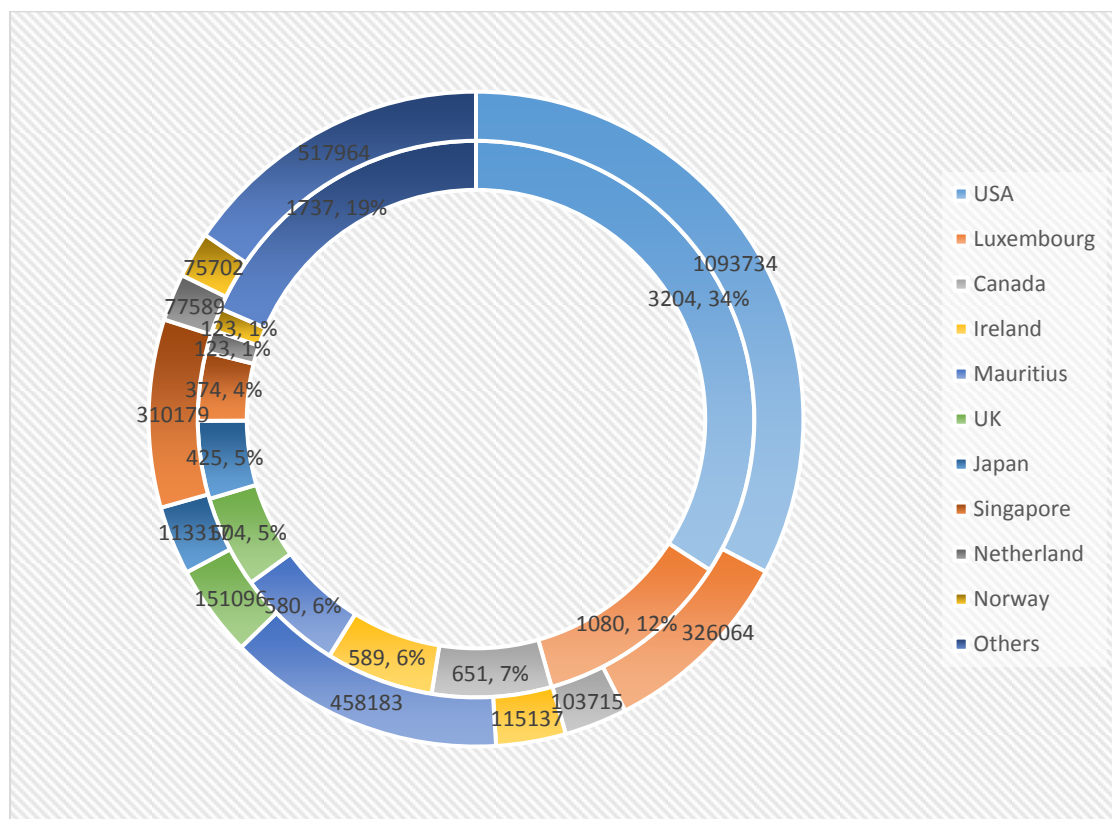
**Table 4.7 : Number of FIIs Registered According to the Country of their Origin as on March 2019.**

<b>Country of Incorporation</b>	<b>Number of FIIs Registered</b>	<b>Percentage Share to Total</b>
USA	3204	34.12
Luxembourg	1080	11.50
Canada	651	6.93
Ireland	589	6.27
Mauritius	580	6.17
UK	504	5.36
Japan	425	4.53
Singapore	374	3.98
Australia	327	3.48
Cayman Island	301	3.21
South Korea	134	1.43
Netherland	123	1.31
Hong Kong	112	1.19
Denmark	112	1.19
Others	874	9.31
<b>Total</b>	<b>9272</b>	<b>100</b>

**Source:** Author's Calculations based on CSDL and NSDL

The chapter not only looks to analyse the trends of FIIs registered with SEBI it also looks at exploring the different countries of origin of FIIs registered with the market regulator. Table 4.7 highlights the number of FIIs registered with SEBI from different countries during the year end on March 2019. The study also examined the

assets under the custody of FIIs originating from different countries. Figure 4.4 presents an overview of the assets held under the custody of FIIs from different countries and the number of FIIs registered from each country as on March 2019.



Source: SEBI Annual Reports

**Figure 4.4 : Country-wise AUC and Number of FIIs Registered**

In the initial years India attracted most of the foreign institutional investment from few developed countries like USA, UK, Singapore and Mauritius. Singapore and Mauritius were the prime source due to the Double Taxation Avoidance Treaty signed between India and Mauritius which made them favorable destinations of FIIs. But with the strong macroeconomic fundamentals and growing investor confidence towards the growth potential of Indian economy, there has been an increase in the number of FIIs registered with SEBI from diversified countries. As on March 2019, data from SEBI shows the source of the FIIs registered from different countries of origin. FIIs ranging from 59 countries have registered themselves in India. USA (34.12 percent), Luxembourg (11.50 percent), Canada (6.93 percent), Mauritius (6.17

percent), UK (5.36 percent), Japan (4.53 percent), Ireland (6.27 percent), Singapore (3.98 percent) and many other countries have had major stake in the number of FIIs registered.

#### **4.4 ASSETS UNDER THE CUSTODY (AUC)**

##### **4.4.1 Assets Under the Custody of Different Countries**

Table 4.8 presents the assets held under custody by FIIs originating from different countries in the Indian market over a period of time. Out of all the countries United States of America, Mauritius, Singapore, UK, Canada and Luxembourg are the countries of significance which hold the maximum number of assets under their custody. USA ranks number one in terms of assets held under custody and number of FIIs registered during the period. There has been a consistent increase in the number of assets under the custody by investors originating from US. The Assets held under custody increased to ₹10877967 crore in 2019 to ₹3582126 crore in 2012. The bi-lateral trade and investment agreements between US and India is one of the possible reasons why more FIIs are based in US. Further, the US Federal Bank's no interest rate policy has given money in the hands of the investors increasing their appetite for emerging markets like India. FIIs based in Mauritius have the second highest assets held under the custody and they increased to ₹ 4296642 crore in 2019 from ₹3693311 crore in 2012.

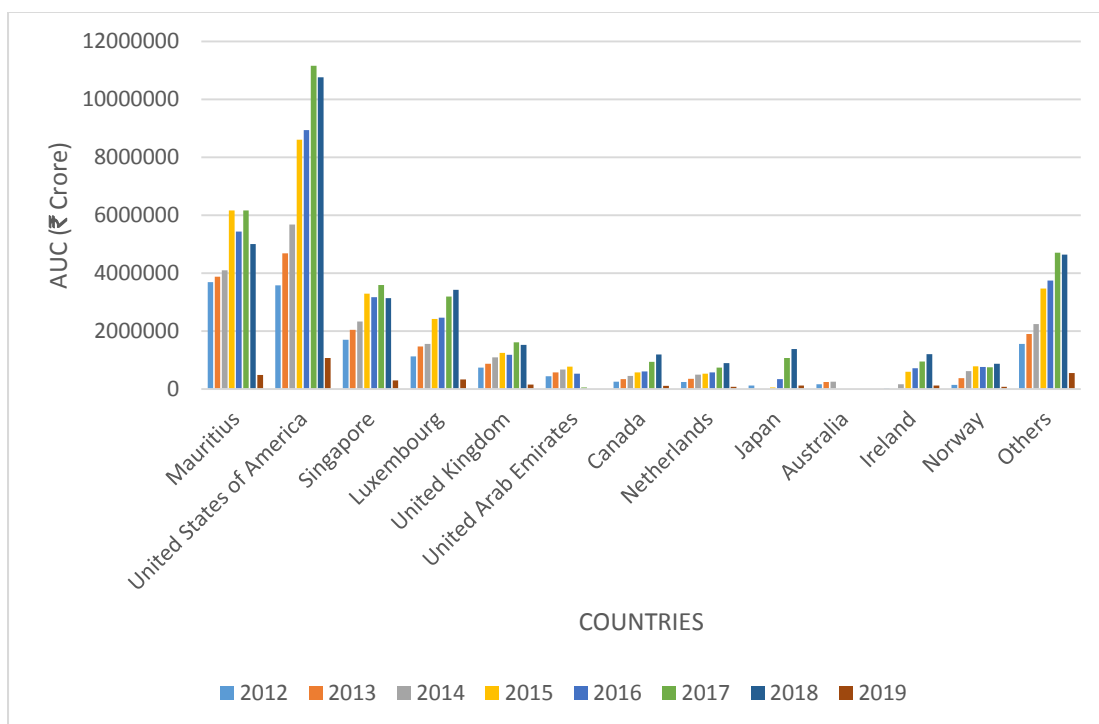
Prior to 2014, foreign investments and FIIs were largely based from Singapore and Mauritius due to their status of tax haven and Double Avoidance tax agreement with India. However, post 2014, the Indian government tightened its noose and introduced stringent tax laws on the investments originating from Singapore and Mauritius especially those coming in the form of Participatory-Notes (P-Notes). During the same period, Luxembourg, Ireland and Norway emerged as the new countries sourcing FIIs investments into India. The new tax regulations have led to shift in the FIIs decision of destination as they now aim to register with countries that ensure a hospitable environment and an ease of doing business.



**Table 4.8 : Assets Under Custody (AUC) of Different Countries**

Country	(₹ Crore)							
	2012	2013	2014	2015	2016	2017	2018	2019
<b>Mauritius</b>	3693311	3881129	4101589	6162418	5430146	6166501	4999586	4296642
<b>United States of America</b>	3582126	4687843	5674182	8600506	8939200	11158772	10764488	10877967
<b>Singapore</b>	1702358	2038203	2326755	3289320	3165362	3588195	3144198	3067137
<b>Luxembourg</b>	1125082	1473067	1552965	2412825	2467633	3190917	3428359	3226490
<b>United Kingdom</b>	742531	866239	1087740	1249529	1176042	1611800	1529789	1548271
<b>United Arab Emirates</b>	437239	576974	675987	768471	532769	59309	0	0
<b>Canada</b>	256861	340608	448211	568672	606626	939038	1193361	1109346
<b>Netherlands</b>	239002	352525	496292	528519	571612	733483	892636	934536
<b>Japan</b>	114815	0	0	48478	339401	1068802	1375038	1132526
<b>Ireland</b>	15550	0	161362	595671	714647	948955	1204210	1154011
<b>Norway</b>	140431	379668	622388	779767	765233	751433	871695	934428
<b>Others</b>	1554427	1897445	2237594	3465066	3747402	4701718	4645125	5115546

**Source:** National Securities Depository Limited



Source: SEBI Annual Reports

**Figure 4.5 : Assets Under the Custody of Different Countries**

Thus, countries like Luxembourg, Ireland, Norway and Canada are favored by FIIs for investments focused to India. The assets under the custody of investors coming from Luxembourg increased to ₹3226490 crore in 2019 from ₹1125082 crore in 2012. Similarly, the assets under the custody of foreign institutional investors originating from Ireland increased to a whopping ₹1154011 crore in 2019 from a meager ₹15550 crore in 2012. The assets under the custody of FIIs based in Norway rose to ₹934428 crore in 2019 from ₹140431 crore in 2012. Moreover, the assets under the custody of FIIs established in Canada also saw an increase of ₹852485 crore between the period of 2012-2019. The investments from United Kingdom also increased to ₹1548271 crore in 2019 from ₹742531 crore in 2012, the increase was 108 percent ranging from 2012-2019. Thus, it can be inferred that FIIs originating from US, Mauritius, Luxembourg, Japan, Ireland, Norway and United Kingdom have a large portion of assets of Indian markets under their custody.

#### **4.4.2 Assets Under the Custody of Different Custodians**

Table 4.9 reports the assets under the custody of different custodians as per each category in the Indian market. Foreign institutional investments are not the only source of foreign capital inflows into the India, there exist many other kinds of investors and investments contributing to foreign inflows. These investors are FIIs which are known as foreign institutional investors, financial institutions (FIs), mutual funds, Non-Resident Indians (NRIs), Foreign Venture Capital Investments (FVCI), Overseas Commercial Borrowings, Corporates, Banks, Foreign Direct Investment (FDI), Local Pension Funds, Insurance Companies, Foreign Depositors and Others. The research has estimated the percentage share of foreign institutional investors investments to total foreign investments and it is observed that the contribution of FIIs to total foreign inflows has increased commencing from 2002-03 ending 2018-19. The assets under the custody of foreign institutional investors during the year 2001-02 was estimated at ₹61753 crore and their percentage share to total foreign inflows was estimated at 22.84 percent. AUC of FIIs in the year 2003-04 increased to a whopping ₹159397 crore exhibiting a year-on-year growth of 184 percent. The year-on-year percent increase in assets under the custody of FIIs ranged between -45 percent to 184 percent. The AUC of FIIs demonstrated an increasing trend from 2001-02 to 2007-08. However, due to the subprime crisis the AUC of FIIs decreased to ₹391954 crore in the year 2008-09. This fall was only temporary as the increasing trend in FIIs resumed from 2009-10 to 2018-19. The study has also divided the time period of study into two phases. Phase-I constitutes the years 2002-03 to 2009-10 and Phase-II constitutes the time period of 2010-11 to 2018-19. It was observed that the average inflows from foreign institutional investors in the first phase was estimated at ₹435266.5 crore and it increased to ₹2108609 crore in the second phase. The percentage share of FIIs to total inflows in the first phase was estimated at 31.09 percent and 34.34 percent in the second phase.

**Table 4.9 : Assets Under the Custody of Custodians**

<b>Year</b>	<b>FII (₹ Crore)</b>	<b>Fis (₹ Crore)</b>	<b>Mutual Funds (₹ Crore)</b>	<b>NRI (₹ Crore)</b>	<b>OCBs (₹ Crore)</b>	<b>Corporates (₹ Crore)</b>	<b>Banks (₹ Crore)</b>	<b>FDI (₹ Crore)</b>
2002-03	56139	113154	41368	263	1136	13498	20814	-
2003-04	159397	151655	90338	563	1330	20156	21188	-
2004-05	236257	168232	126286	1481	1466	22289	24531	-
2005-06	453636	260697	204518	1633	1616	37630	31872	-
2006-07	547010	291030	290378	1056	1198	25656	24522	-
2007-08	736753	397124	469776	606	1238	36795	29983	-
2008-09	391954	32008	378954	455	596	19430	27859	92694
2009-10	900986	47607	584628	1209	1011	29328	42597	145555
2010-11	1106550	62600	591937	910	1005	48723	85863	146231
2011-12	1107399	64409	587249	2624	790	48200	93661	231841
2012-13	1336557	75304	650963	7752	939	50197	128858	240731
2013-14	1593869	169287	767896	1318	1178	54189	143931	294945
2014-15	2411810	85897	958332	2093	1784	62502	174169	455033
2015-16	2224537	69999	1105915	2379	1658	57849	192946	468498
2016-17	2705729	74174	1536949	2849	2175	73927	303380	591977
2017-18	3148350	109010	2278220	3249	2425	87065	352781	733302
2018-19	3342680	60866	2278220	3486	1949	104563	320445	802860
<b>Phase I (2002-03 – 2009-10)</b>	<b>435266.5</b>	<b>182688.38</b>	<b>273280.75</b>	<b>908.25</b>	<b>1198.88</b>	<b>25597.75</b>	<b>27920.75</b>	<b>29781.12</b>
<b>Phase II (2010-11 – 2018-19)</b>	<b>2108609</b>	<b>85727.33</b>	<b>1198075.67</b>	<b>2962.22</b>	<b>1544.78</b>	<b>65246.11</b>	<b>199559.33</b>	<b>440602</b>

Year	Local Pension Funds (₹ Crore)	FVCI (₹ Crore)	Insurance Companies (₹ Crore)	Foreign Depositories (₹ Crore)	Others (₹ Crore)	Total (₹ Crore)	Percent of FII Share to Total Investment
2002-03	-	-	-	15890	16593	278855	20.13197
2003-04	-	-	-	34636	30717	510015	31.25339
2004-05	-	-	-	47780	39264	668585	35.33687
2005-06	-	-	-	84048	93463	1169113	38.80172
2006-07	-	-	-	100361	119399	1400610	39.05513
2007-08	-	-	-	139918	229839	2042212	36.07623
2008-09	3274	16579	442117	71839	99857	1577589	24.84513
2009-10	24266	17604	780610	156616	13199	2862961	31.47043
2010-11	34970	24002	908112	185931	154242	3351076	33.02074
2011-12	49777	35041	916598	143370	226776	3507735	31.5702
2012-13	61789	54144	957172	157159	264254	3985819	33.53281
2013-14	76961	48854	958995	190529	298323	4600247	34.64747
2014-15	133988	52184	1216122	254124	379681	6187719	38.97737
2015-16	175627	57928	1227301	235914	430774	6251326	35.58504
2016-17	227369	31695	1440523	272830	543187	7806763	34.65878
2017-18	332925	31420	1578987	295548	564217	9315688	33.79622
2018-19	422317	37261	1732889	354340	683200	10252964	32.60208
<b>Phase I (2002-03 – 2009-10)</b>	3442.5	4272.88	152840.88	81386	80291.38	1313742.5	-
<b>Phase II (2010-11 – 2018-19)</b>	168413.67	41392.11	1215188.78	232193.89	393850.44	6139926.33	-

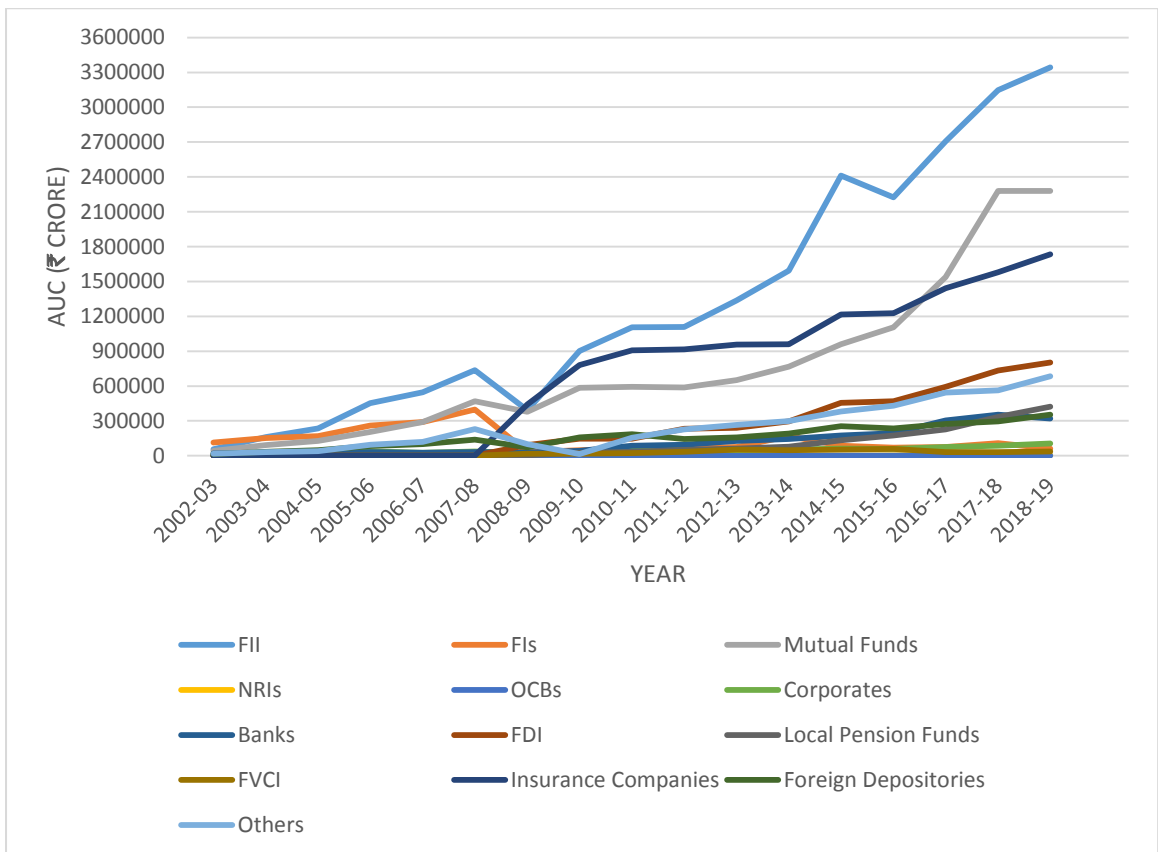
**Source:** Author's Calculations based on SEBI, Handbook of Statistics

The AUC of financial institutions was estimated at ₹110824 crore in 2001-02 and it reduced to ₹60866 crore in 2018-19. The average inflows from Fis in phase-I was estimated at ₹182688.38 crore and at ₹85727.33 crore in phase-II. Post the sub-prime crisis it was observed inflows from financial institutions decreased drastically. A study of inflows and AUC of mutual funds revealed that the AUC of mutual funds at the beginning was estimated at ₹32570 crore and it increased to ₹2278220 crore by the end of 2018-19.

The average AUC of mutual funds in the first phase was estimated at ₹273280.75 crore and at ₹1195075.67 crore in the second phase. During the recent years, mutual funds have been actively investing in the Indian stock market and contributing towards the length and breadth of the market. Though the investments from mutual funds have increased stupendously, still the AUC of FIIs was estimated at ₹3342680 crore which is more than the AUC of mutual funds of ₹2278220 crore for the year end 2018-19. Furthermore, the AUC of NRIs during the time period was very small compared to the other custodians. The AUC in the year 2001-02 was estimated at ₹185 crore and at ₹3486 crore ending 2018-19.

The highest AUC of NRIs was observed in the year 2012-13 at ₹7752 crore. The AUC of overseas commercial borrowings was estimated at ₹1285 crore during the year 2001-02. The AUC of overseas commercial borrowing remained static throughout the entire time period. No huge variations in the AUCs were observed and they ranged from ₹596 crore to ₹1784 crore. Similarly, the AUC of corporates was estimated at ₹13311 crore during 2001-02 and increased to ₹104563 crore during 2018-19. The average AUC of corporates was calculated at ₹25597.75 crore in phase-I and at ₹65246.11 crore in phase-II. The increase in AUC was twice in phase-II compared to phase-I. Moreover, the AUC of banks was estimated at ₹17798 crore in 2001-02 and it increased to ₹320445 crore in the year 2018-19. It was observed that the increase in the AUC of banks have been consistent throughout the entire period. The average AUC of banks increased to ₹199559.33 from ₹27920.75 crore in the second phase. Similarly, during the study period the AUC of foreign direct

investment, local pension funds, foreign venture capital investments and insurance companies increased from ₹92694 crore, ₹3274 crore, ₹16579 crore and ₹442117 crore to ₹802860 crore, ₹422317 crore, ₹37261 crore and ₹1732899 crore respectively. It was assessed that major growth in the AUC of FDI, local pension funds, foreign venture capital investments and insurance companies was seen in the second phase of the study period. The AUC of foreign depositors was calculated at ₹17297 crore during 2001-02 and increased to ₹354340 crore during 2018-19. The average increase AUC of foreign depositors in phase-I was calculated at ₹81386 crore and it increased to ₹232193.89 crore in the second phase. The increase in AUC in phase-II was three folds more than the that of phase-I. The figure 4.6 has examined the assets under the custody of different custodians and the percentage share of AUC of FIIs to total share of AUCs.



Source: SEBI, Handbook of Statistics

Figure 4.6 : Assets Under the Custody of Custodians

#### **4.5 TRENDS IN FIIS AND NIFTY**

Foreign institutional investors are responsible for capital formation in a country and are also credited with the development and growth of capital markets. The wave of globalization and liberalization has increased the importance of capital flows internationally and especially for developing and emerging economies. After India opened its door to foreign investors in 1992, it led to the integration of Indian markets with the financial markets in the world. The globalization of Indian capital market led to free flow of capital from capital surplus nation to capital scarce Indian markets. Foreign inflows were attributed as one of the reasons for the spectacular performance of Indian indexes and increased market discipline. Indian stock market consists of twenty-eight stock exchanges of which Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) are the two prime exchanges with large volume and liquidity. Bombay Stock Exchange (BSE) was established in 1975 and National stock exchange was established in 1992 to ensure transparency to markets and remove various bottlenecks associated with earlier methods of trading. The Securities and Exchange Board of India (SEBI) which was set up in 1988 governs and regulates the Indian stock market. Though SEBI was set up in 1988 but it started to act as a market regulator after the introduction of the 'SEBI Act' in 1992. It is established to promote and regulate the business, protect interests of investors and to regulate the workings of securities market of India. SEBI was established as a result of reforms of 1991. Prior to 1991, foreign private investment played an insignificant role in Indian economy due to the government's opposition towards foreign investment. A well-developed stock market facilitates in the financial development of a country's economy and also assists in investor protection function. An established stock markets aids in the attracting capital from foreign as well as domestic investors to support the growth of the corporate sector.

To examine the relationship between FII flows and stock market the study has taken S&P CNX Nifty to represent the Indian stock market, as it is one of the prominent indices traded in the country. Nifty consists of 50 stocks of blue-chip companies out of the total 1600 companies listed with NSE. Nifty stands for National Stock Exchange Fifty and represents stocks covering 12 sectors of Indian economy. The

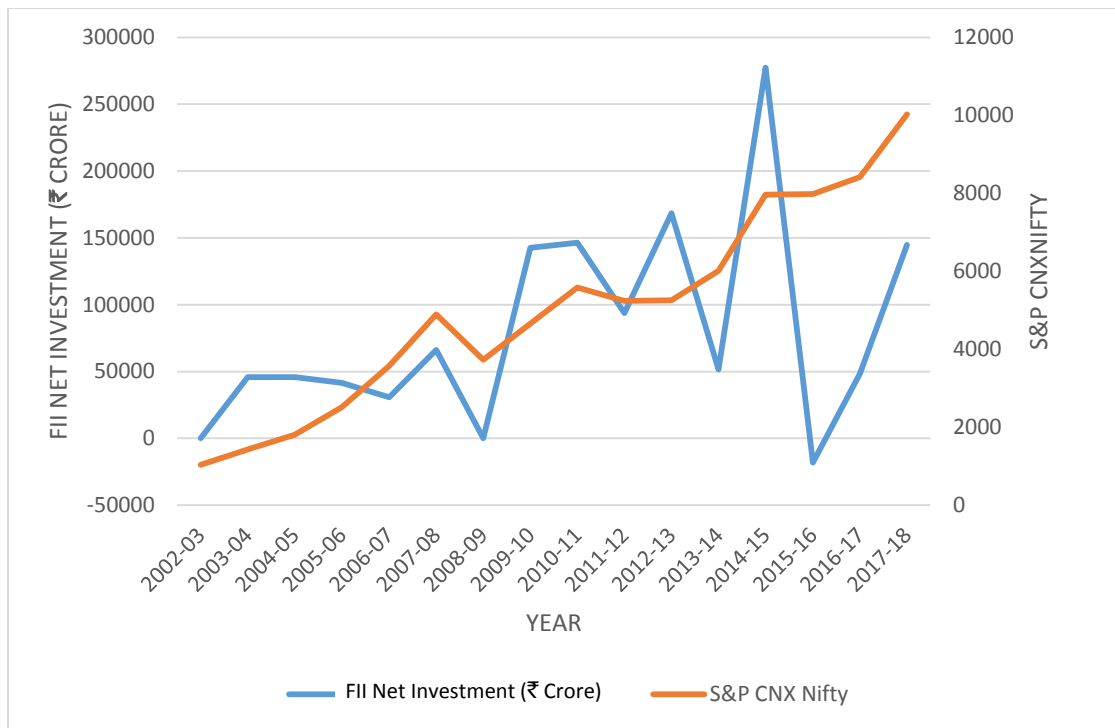


stocks covered in Nifty are the largest and most liquid stocks traded in the Indian securities market. Table 4.10 shows net investment from FIIs and movement of Nifty index and it presents a picture of nifty moving in tandem with FII flows. To check the association between Nifty and FII flows, correlation analysis has been conducted. The Pearson correlation value between the two variables is calculated at 0.45 indicating towards a positive and moderate relationship between Nifty and FII flows.

**Table 4.10 : Movement in S&P CNX Nifty and FIIs Net Investment**

Year	FII Net Investment (₹ Crore)	S&P CNX Nifty Value (Points)	Percent Change in S&P CNX Nifty	Percent Change in FII
2002-03	2689	1037	-	-
2003-04	45764	1428	37.70	1601.90
2004-05	45880	1805	26.40	0.25
2005-06	41467	2513	39.22	-9.62
2006-07	30841	3572	42.14	-25.63
2007-08	66179	4897	37.09	114.58
2008-09	-45811	3731	-23.81	-169.22
2009-10	142658	4655	24.77	411.41
2010-11	146438	5584	19.96	2.65
2011-12	93725	5243	-6.11	-36.00
2012-13	168364	5257	0.27	79.64
2013-14	51649	6010	14.32	-69.32
2014-15	277460	7967	32.56	437.20
2015-16	-18175	7984	0.21	-106.55
2016-17	48411	8421	5.47	-366.36
2017-18	144682	10030	19.11	198.86
2018-19	-38931	10586.51	8.27	-126.91

**Source:** Author's Calculations based on SEBI, Handbook of Statistics on Indian Securities Market and NSDL



**Source:** SEBI, Handbook of Statistics on Indian Securities Market and NSDL

**Figure 4.7 : Trends in Net FIIs and Nifty**

Positive correlation means that if a variable X moves in upward direction then variables Y also moves in upwards direction and vice versa. Therefore, it is represented in the form of direction of FII flows and movement of Nifty index. Figure 4.7 showcases the trends in FIIs and nifty. 2003-04 saw an increase of 37.70 percent in the year-on-year growth of Nifty and a similar rising trend was also reflected by FIIs net flows increasing by 1601.90 percent compared to previous year. Table 4.10 shows a movement in the Nifty and FIIs inflows during the period of study. 2013-14 saw movement of Nifty index and FII flow in opposite direction. The year saw FIIs year on year investment declined by 69.32 percent but nifty experienced a year-on-year increase of 14.32 percent. The fall in FII investments was largely due to the depreciation of the Indian rupee which led to diminishing of the returns of foreign investors which in turn led FIIs become net seller in Indian market. Further, 2015-16 saw FIIs turned net sellers to the tune of ₹ 18175 crore which was largely driven due to the fear of meltdown in Chinese economy, while movement in

nifty remained flat compared to the previous year. Selling from FIIs was largely compensated by buying from domestic investors which helped nifty remain in positive territory. In the year 2016-17, as the fundamentals of the market improved, the performance of Nifty also improved which attracted inflows from FIIs. Therefore, it can be said that FIIs inflows and Nifty move in tandem with each other, implying, if an increase in Nifty index is observed it is followed by a rise in FIIs inflows and a rise in FIIs inflows is followed by an increase in Nifty index.

#### **4.6 FIIS SHARE IN MARKET TURNOVER**

FIIs have grown deep in Indian markets and expanded their reach to various instruments in the market. It is observed from the tables above that there is positive correlation between FIIs investment and Indian markets in general. They have also been attributed with increasing the breadth and liquidity of Indian securities markets. FIIs buy and sell securities in large number and thus play a considerable role in market turnover. Stock market turnover is defined as the number of times a stock is bought and sold in the market. It is calculated by dividing the total number of shares bought and sold (traded) by the outstanding shares during a particular period of time. A high turnover of a market signals towards greater liquidity in that particular market. Therefore, it is essential to understand the role played by FIIs investment in the total market turnover. To understand the part played by FIIs in stock market turnover, the study has undertaken total of gross purchase and gross sales of FIIs and taken their ratio to the total market turnover. Table 4.11 Shows the trends and contribution of FII flows to the total market turnover in India. Trends and pattern of FIIs net investment point that India has been one of the favorite investment destination of foreign investors investments amongst its peers due to valuable returns generated from Indian securities market.

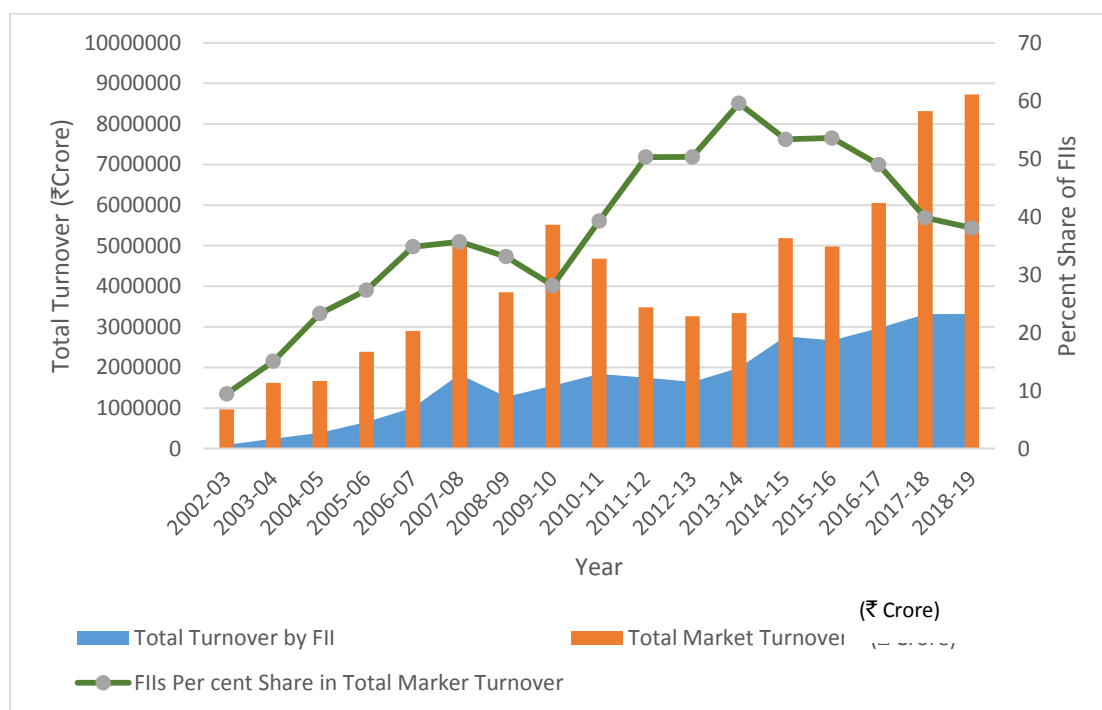
**Table 4.11 : FIIs as Percent of Total Market Turnover**

<b>Year</b>	<b>Gross Purchases (₹ Crore) (a)</b>	<b>Gross Sales (₹ Crore) (b)</b>	<b>Total Turnover by FII (a+b)</b>	<b>Total Market Turnover (Cash Segment) (₹ Crore)</b>	<b>FIIs Percent Share in Total Market Turnover</b>
2002-03	47062	44372	91434	968909	9.44
2003-04	144855	99091	243946	1620932	15.05
2004-05	216951	171071	388022	1666898	23.27
2005-06	346976	305509	652485	2385632	27.35
2006-07	520506	489665	1010171	2901472	34.82
2007-08	948018	881839	1829857	5129895	35.67
2008-09	614576	660386	1274962	3852097	33.10
2009-10	846438	703780	1550218	5516833	28.10
2010-11	992596	846158	1838754	4682437	39.27
2011-12	921285	827562	1748847	3478392	50.28
2012-13	904845	736481	1641326	3261700	50.32
2013-14	1021010	969361	1990371	3341416	59.57
2014-15	1521346	1243886	2765232	5184500	53.34
2015-16	1324418	1342593	2667011	4977278	53.58
2016-17	1507028	1458617	2965645	6054422	48.98
2017-18	1728360	1583679	3312039	8317987	39.82
2018-19	1640810	1679741	3320551	8724653	38.06

**Source:** Author's Calculations based on SEBI Handbook of Statistics on Indian Securities and Annual Report

It is evident from the above table that since their entry into the Indian stock markets, FIIs share in stock market turnover has seen an upward trend. It is observed that FIIs share was meagre 4.80 percent in total market turnover during 2000-01 and increased to 59.57 percent in 2013-14. Thus, FIIs are rightly called the movers and shakers of

market. In 2001-02, FIIs increased their share by 6 percent in total market turnover. Increased potential of Indian markets, greater profitability, improved performance of corporates and bullish sentiment towards Indian economy were few of the contributing factors.



**Source:** SEBI Handbook of Statistics on Indian Securities and Annual Report

**Figure 4.8 : FIIs as Percent of Total Market Turnover**

The positive sentiment continued as FIIs increased their activity in Indian market which was apparent by the increased proportion of FIIs to market turnover to 15.05 percent in 2003-04. The increase in FII share to total market continued with 23.27 percent, 27.35 percent, 34.84 percent and 35.67 percent in 2004-05, 2005-06, 2006-07 and 2007-08 respectively. However, at the onset of global financial crisis in 2008-09, FIIs reduced their share to total market turnover just by 2.5 percent to stand at 33.10 percent. This demonstrates FIIs confidence in the performance of Indian economy even during testing times. 2009-10 saw a reduction in FIIs share to total market turnover to 28.10 percent but this was only temporary as FIIs stake in total market turnover increased to 39.27 percent and 50.28 percent in 2010-11 and 2011-

12 respectively. Further, 2012-13 saw highest contribution of FIIs to total market turnover in India with 59.57 percent on the backdrop of better growth prospects and continued reforms in Indian economy. Moreover, FIIs turnover proportion to total market turnover stood stable at 53.34 percent and 53.58 percent in 2013-14 and 2014-15 respectively. However, during the year 2016-17 FIIs share in total market turnover fell below 50 percent to 48.98 percent. The decline continued for the next two years as FIIs share to total turnover fell to 39.82 and 38.06 percent in 2017-18 and 2018-19 respectively. Rise in interest rate by US federal bank was one of prime reason for a reduced FII trading share in Indian markets as FIIs have been shifting their exposure from emerging markets to US.

The study has further calculated correlation between FII turnover in equity segment and NSE turnover during the period of study. The correlation coefficient is estimated at 0.91 signalling there is a strong positive association between FII turnover and turnover at NSE. The p-value is calculated at 0.00 percent which is less than the acceptable level of significance of 0.05 percent. Thus, indicating at the significance of association between FII turnover and NSE turnover.

#### **4.7 FIIS SHARE IN MARKET CAPITALIZATION**

Market capitalization is defined as the market value of a company which is estimated by multiplying total number of outstanding shares to the current market price of the company's stock. Market capitalization is an important variable as it helps the investors to gauge the current and future performance of a company. It also helps in the comparison of one company with another. NSE and BSE are ranked amongst the top 10 in the world in terms of market capitalization. Foreign institutional investments have been one of the prominent forces that has helped in the capital flows in the domestic equity market. Thus, the study aims to understand the role played by FIIs in boosting the market capitalization of domestic markets in India.

**Table 4.12 : FIIs Proportion in Market Capitalization**

<b>Year</b>	<b>Net FII Investment (₹ Crore)</b>	<b>Total Cumulative Net Investment (₹ Crore)</b>	<b>Market Capitalization (NSE) (₹ Crore)</b>	<b>Percent Change in Market Capitalization</b>	<b>Percent Share of Total Cumulative Net FII to Total Market Capitalization</b>
2002-03	2689	21385	537133	-15.66	3.98
2003-04	45764	67149	1120976	108.70	5.99
2004-05	45880	113029	1585585	41.45	7.13
2005-06	41467	154496	2813201	77.42	5.49
2006-07	30841	185337	3367350	19.70	5.50
2007-08	66179	251516	4858122	44.27	5.18
2008-09	-45811	205705	2896194	-40.39	7.10
2009-10	142658	348363	6009173	107.49	5.80
2010-11	146438	494801	6702616	11.54	7.38
2011-12	93725	588526	6096518	-9.04	9.65
2012-13	168364	756890	5232273	-14.18	12.13
2013-14	51649	808539	7277720	39.09	11.11
2014-15	277460	1085999	9930122	36.45	10.94
2015-16	-18175	1067824	9310471	-6.24	11.47
2016-17	48411	1116235	11978421	28.66	9.32
2017-18	144682	1260917	14044152	17.25	8.98
2018-19	-38931	1221985	14934227	6.33	8.18

**Source:** Author's Calculations based on SEBI, Handbook of Statistics on Indian Securities Market and NSDL

Table 4.12 presents the total net FII investments, total cumulative net investments, market capitalization at NSE and percentage share of FII total cumulative investment to market capitalization. FIIs percent share to total market capitalization was around 1.5 percent in the year 2000-01. As the markets developed and government introduced investor friendly norms FIIs share to total market capitalization increased steadily.

FIIs contributed 12.13 percent to total market capitalization during the year 2012-13, highest during the 17-year period. However, FIIs proportion to total market capitalization declined to 8.98 percent in the year 2017-18 due to poor macros and uncertain global environment. Though the market capitalization and cumulative net FII investment has increased during the same period, FIIs share to total market capitalization has reduced. Market capitalization has increased twenty-two folds and cumulative FII investment has increased hundred folds from 2002-03 to 2018-19.

#### **4.8 TRENDS IN FIIS AND FOREIGN EXCHANGE RESERVES**

Foreign institutional investors are a source of foreign capital to the host country as they provide fiscal and monetary support to the domestic markets by bridging the gap between demand and supply of money. These FIIs bring the investment in the form of foreign currency which adds to the forex reserves of the host country. Foreign exchange reserves are the reserves held by the central bank of a country in terms of cash or other kinds to facilitate foreign payments. A strong foreign exchange reserve strengthens the global financial outlook of a country and builds confidence amongst foreign traders and investors. Foreign exchange reserves can be held in the form of cash, gold reserves, bonds, treasury bills and government securities.

The trends and pattern of foreign institutional investments reveal that FIIs have continued to invest into the Indian stock markets and their net investments have grown by leaps and bounds. Also, FIIs investment has brought foreign currency which has contributed towards the development of foreign exchange reserves of the country (Morgan 2002). (Srikanth and Kishore, 2012) found a unidirectional relationship between FII inflows and exchange reserves and established FIIs granger-cause foreign exchange reserves in Indian market.

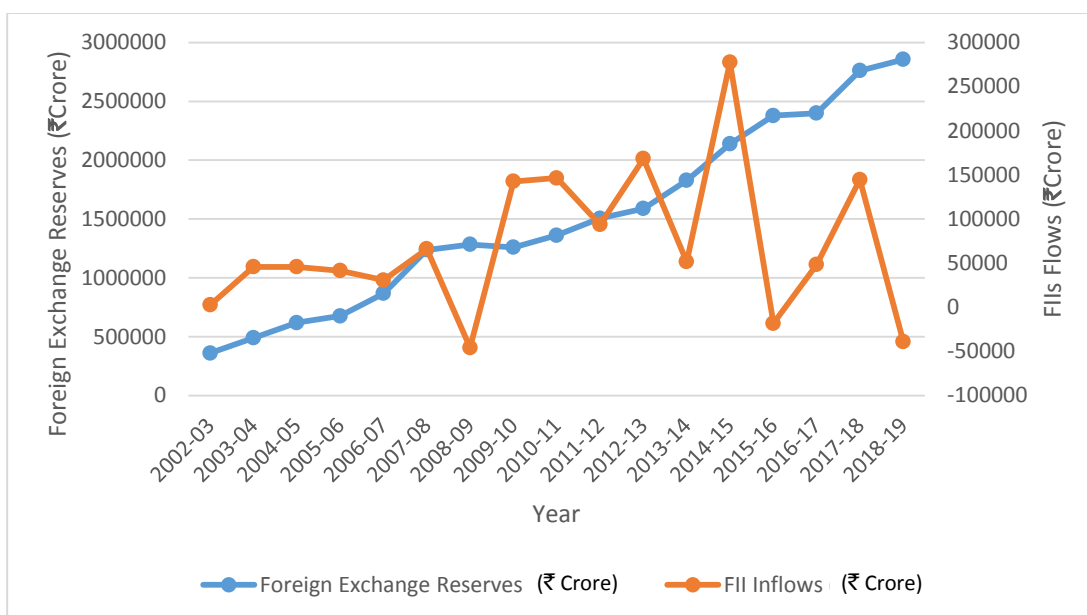


**Table 4.13 : FIIs Inflows and Foreign Exchange Reserves**

<b>Year</b>	<b>FII Investment (₹ Crore)</b>	<b>Foreign Exchange Reserves (₹ Crore)</b>	<b>Percent Change in Foreign Exchange Reserves</b>	<b>FIIs Percent Share to Foreign Exchange Reserves</b>
2002-03	2689	361470	36.90	0.74
2003-04	45764	490129	35.59	9.34
2004-05	45880	619116	26.32	7.41
2005-06	41467	676387	9.25	6.13
2006-07	30841	868222	28.36	3.55
2007-08	66179	1237965	42.59	5.36
2008-09	-45811	1283865	3.71	-3.57
2009-10	142658	1259665	-1.88	11.33
2010-11	146438	1361013	8.05	10.76
2011-12	93725	1506130	10.66	6.23
2012-13	168364	1588420	5.46	10.60
2013-14	51649	1828380	15.11	2.82
2014-15	277460	2137640	16.91	12.98
2015-16	-18175	2378740	11.28	-0.76
2016-17	48411	2398200	0.82	2.02
2017-18	144682	2760850	15.12	5.24
2018-19	-38931	2855882	3.44	-1.36
<b>CAGR (2002-03 – 2018-19) (In Percent)</b>	18	16	-	-

**Source:** RBI, Handbook of Statistics on Indian Economy

Further, (Bhatia and Kishore, 2013) found bi-directional causality between FII inflows and exchange reserves. Thus, the study further looks to understand the relationship between FIIs investment and India's forex reserves. Table 4.13 presents the net FIIs inflows and India's forex reserves during the time period of 2002-03 to 2019-19. Forex reserves were estimated at ₹197204 crores during the year 2000-01 and increased to ₹2855882 crores in 2018-19. Since, the liberalization policies of 1991, the foreign investments have also contributed towards the building of forex reserves as the foreign investments bring with them the foreign currency. The CAGR value is calculated at 16 percent which shows that the forex reserves have increased at an annual rate of 16 percent per year and foreign institutional investments have increased by an annual average of 18 percent.



Source: RBI, Handbook of Statistics on Indian Economy

**Figure 4.9 : FIIs and Foreign Exchange Reserves**

The figure 4.9 showcases the foreign exchange reserves have followed an upward trend from the very beginning and continued till 2019. Foreign exchange reserves were highest in the year 2018-19 at ₹2855882 crores. The percentage change in foreign exchange reserves has ranged from 36.90 percent to -1.88 percent. The change in foreign exchange reserves has been positive every-year and except for the

year 2009-10 when the percent change in foreign exchange reserves was -1.88 percent.

The study conducted correlation between net FII investment and foreign exchange reserves during the time period of study. The correlation coefficient is estimated at 0.24 which implies presence of positive association between net FIIs investment and foreign exchange reserves. Presence of positive correlation signals that if foreign exchange reserves increase, net FIIs increases and when net FIIs increases, foreign exchange reserves of the country also increase. The value of correlation coefficient is 0.24 which implies that there exists moderate to medium correlation between net foreign institutional investments and foreign exchange reserves. It also implies that there are other variables which influence foreign institutional investments and foreign exchange reserves of India.

#### **4.9 FIIS AND GROSS DOMESTIC PRODUCT**

Gross domestic product (GDP) is defined as the aggregate of product and services at market value produced in a period of one year in an economy. GDP signals towards the health of an economy and also identifies the different sectors that contribute towards the economic well-being of a nation. GDP paints the picture for different types of investors and help them make their investment decisions in home and host country. A nation cannot survive solely on its foreign exchange reserves, exports and imports or savings by households, to compete with other countries quality and quantity of foreign investments is also necessary for a country to sustain growth.

India's ability to continue on the growth trajectory and sustain long term development has helped the country attract money from foreign investors. India's phenomenal economic and long-term potential to sustain growth has garnered attention from all kinds of foreign investors including foreign institutional investors. Since, the time FIIs have been permitted to invest in Indian economy they have invested crores of rupees in Indian stock market. One of the prime reasons for such large investments is the strong GDP numbers. Therefore, it is necessary to find out the correlation between GDP and foreign institutional investors and the share of foreign institutional investors in India's GDP because, stronger GDP numbers will attract more foreign investment and foreign investment will further help in improving

the economic activity of a country. Table 4.14 shows the net and cumulative investments and India's GDP at current prices which points towards the fact that the GDP has grown stronger with every year. 2000-01, saw the GDP figure at ₹ 2177413 crore which increased to ₹ 18971237 crore in 2018-19.

**Table 4.14 : FIIs as Percent of Gross Domestic Product (GDP) of India**

Year	GDP at Current Prices (₹ Crore)	FII Net Investment (₹ Crore)	Cumulative Net Investment (₹ Crore)	Percent of FII Cumulative Investment to GDP
2002-03	2536327	2689	21385	0.84
2003-04	2841503	45764	67149	2.36
2004-05	3186332	45880	113029	3.55
2005-06	3632125	41467	154496	4.25
2006-07	4254629	30841	185337	4.36
2007-08	4898662	66179	251516	5.13
2008-09	5514152	-45811	205705	3.73
2009-10	6366407	142658	348363	5.47
2010-11	7634472	146438	494801	6.48
2011-12	8736330	93725	588526	6.74
2012-13	9944013	168364	756890	7.61
2013-14	11233522	51649	808539	7.20
2014-15	12467959	277460	1085999	8.71
2015-16	13764037	-18175	1067824	7.76
2016-17	15253714	48411	1116235	7.32
2017-18	16773145	144682	1260917	7.52
2018-19	18971237	-38931	1221985	6.44

**Source:** Author's Calculations based on RBI Handbook of Statistics on Indian Economy, Central Statistics Office and World Economic Outlook

It is evident from the above table that there has been eight-fold increase in GDP in the past seventeen years. During the same time, FIIs net investment has increased from ₹ 9933 crore to ₹ 144682 crore and cumulative investment ₹ 1260917 crore. FIIs share to total GDP has increased over a period of time, in 2000-01 cumulative

FII investments stood at 0.46 percent of total GDP and it increased to 7.2 percent in 2017-18. The highest proportion of cumulative FII investments was calculated at 8.71 percent in 2014-15. This increase in FII investment can be attributed to the formation of new government and foreign investors' optimism towards reforms introduction in the economy. The correlation analysis shows a positive correlation coefficient of 0.40, implying that there exists positive correlation between net investments from foreign institutional investors and GDP. Thus, it can be inferred that GDP stimulates investments from foreign investors and vice versa.

#### **4.10 SUMMARY**

Foreign institutional investors have been a pivotal source of foreign inflows into the Indian market and has helped in providing a boost to the domestic stock prices. FIIs help in fulfilling the financial needs of the companies as they invest into the stocks which bridges the gap between the haves and have not. The chapter conducted a trend analysis of the FIIs investment into the country during the period of study. The trend analysis revealed FIIs have had a positive outlook towards investment into the Indian market. In the initial years of reforms investments from FIIs remained lackluster but they gained momentum as the government provided clarity on different rules and regulations. Empirical evidence also pointed towards Indian markets being impacted by the happenings around the globe especially during the subprime crisis of 2008. Though the bearish global market sentiment influenced FIIs investment decisions towards emerging countries like India. But the domestic fundamentals of the country played a substantial part in sustaining the inflows from FIIs and restricting a complete exit from the market.

FIIs investment in equity and debt segment revealed towards a shift in the investment preferences of FIIs as it was observed that equity markets attracted majority of the FIIs investments in the initial years. But as the government opened debt market to FIIs they started to diversify their investments. Results also show FIIs have increased their exposure to investment in derivative instruments. The study also presented an analysis of investments made by FIIs and trends in nifty market, market turnover, forex reserves, market capitalization and gross domestic product. Market

capitalization of India is around 1 percent of the total market capitalization of the world and much less than the market capitalization of US which is around 40 trillion USD. Thus, the country needs more investment from foreign institutional investors to increase its contribution to total world market. India's biggest competitor for foreign investment is China as trillions of dollars have been channeled to Chinese economy. India has managed to attract investment in its information and technology (IT) sector which has opened the vista for institutional investors from different countries in different sectors of Indian economy. Thus, the investments from different investors into different sectors brings with them technology which increases the prospects for growth and boosts prosperity. These foreign investments bring with them better infrastructure, technology and generate employment opportunities. Thus, paving road for development. It is also found investments by FIIs boosts the liquidity and increase the volume of the market which is fundamental for the growth and development of an emerging market such as India. Foreign institutional investors are more focused on getting attractive returns on their investments and thus indirectly contribute towards increasing the consumption of the country. India is one of the largest growing economy with highest consumer demand and thus attracts more investments from these foreign investors. In the present globalized world, India to become a part of international trade and increase its reach worldwide this cannot be done without the active participation of FIIs as they are the ones who help in bringing capital and help in increasing growth prospects of the country.

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## Chapter – 5

# EXCHANGE DECLARED NEWS ANNOUNCEMENTS AND STOCK RETURNS

The current chapter discusses the influence of exchange declared news announcements and the subsequent change in the stock returns of the companies making the announcement. Companies listed with the exchange are required to inform the exchange about any changes or news related to the working of a company. An announcement made by the company listed might influence working of the company presently or in near future. The study has determined the corporate news announcements of stock split, bonus issue, right issue, share buyback, dividend and earnings which signal to the market about the current and future performance of the company. The announcement of the news might be perceived by market participants positively or negatively which in turn have an influence on the stock price and stock returns of the respective company as they are responsible for setting the tone amongst the investors about the company's future growth potential. A stock return is an additional profit or loss generated to the investor due to sale or purchase of the stock of a particular company. A change in stock returns helps in further understanding the abnormal returns generated due to the announcement made by the company. The current research has used event study methodology to ascertain the daily change in stock returns of the companies declaring the corporate news over a period of 17 years.

The present study tries to bridge the gap as prior studies have not conducted a comparative analysis of the information content of the six news announcements with respect to Indian stock market. For all the corporate actions, news announcement date has been undertaken as the date on which a particular corporate action by a company has been declared to the stock exchange. Those news announcements for which the date of a particular news announcement is missing the study has taken the announcement date as the date on which a specific news announcement was announced to the Securities and Exchange Board of India or a date on which the board of directors approved a particular action. Table 5.1 highlights the number of

stocks selected in each industry, the number of companies and announcements for each corporate news. The filter applied for sample selection is as follows:

- A minimum of 3 companies in each industry and 5 announcements from 2003 to 2019 is selected.
- Since, dividend and earnings are a regular announcement made by companies, the study has selected only those stocks which have been consistent in announcing dividend and earnings.

**Table 5.1 : Number of Announcements and Companies**

News Announcements	Industries	Companies	Total Announcements
Bonus	11	164	259
Stock Split	14	211	241
Share Buyback	8	72	116
Right Issue	7	50	89
Dividend	15	220	4905
Earnings	15	246	12753

## **5.1 SECTION-I ANALYSIS OF INDIVIDUAL NEWS ANNOUNCEMENTS**

### **5.1.1 Stock Reaction to Announcement of Bonus Issue**

Table 5.2 presents the results of the abnormal returns, cumulative abnormal returns and their t-statistic before and after the announcement of bonus issue by companies. The table showed positive and significant abnormal returns of 1.40 percent were earned on the event day that is 0 day. The immediate event window of 3 days indicated that investors earned positive abnormal returns having statistically significant returns at 1 percent level of significance. Thus, emphasizing on the investors ability to factor the event and earn positive returns from the announcement of bonus issue (Dhar and Chhaochharia, 2008). The analysis of abnormal return in the short-term time period revealed that investors earned positive returns during eight



days and negative returns were earned only for three days. The magnitude of returns was highest on day -4 as investors earned positive abnormal returns of 3.98 percent which was significant at 1 percent. Cumulative average abnormal returns (CAAR) were highest on -4 day thus confirming that investors earned highest return four days prior to the bonus issue announcement. Positive returns were observed on day -5, -4, -2, -1, 0 and 1. From day +2 the returns were slightly reversed and a change in the trend was observed for ARs post the announcement of bonus issue and investors ended up earning negative returns. However, the losses were compensated by positive returns on day +4 and +5 but the magnitude of returns could not match magnitude of negative returns earned in the previous days.

**Table: 5.2 : Analysis of Impact of Bonus Issue on Stock Returns**

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-30	0.236	1.869	0.236	0	1.404	4.886*	8.405
-29	0.020	0.159	0.257	1	0.810	3.259*	9.215
-28	-0.184	-1.207	0.073	2	-0.256	-1.265	8.959
-27	-0.135	-0.861	-0.062	3	-0.098	-0.580	8.861
-26	0.151	1.035	0.089	4	0.127	0.826	8.988
-25	-0.284	-2.068**	-0.195	5	0.037	0.257	9.025
-24	0.216	1.550	0.020	6	3.009	0.984	12.034
-23	-0.102	-0.879	-0.082	7	-3.131	-1.022	8.902
-22	0.149	1.092	0.067	8	2.942	1.014	11.844
-21	3.832	1.073	3.899	9	-2.925	-1.008	8.919
-20	-3.460	-0.965	0.439	10	2.574	0.959	11.493
-19	0.346	2.309**	0.785	11	-2.785	-1.041	8.708
-18	0.433	2.655*	1.218	12	0.159	1.113	8.866
-17	0.217	1.483	1.435	13	0.162	1.276	9.028

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-16	0.067	0.386	1.502	14	0.087	0.639	9.115
-15	0.004	0.026	1.506	15	0.142	1.017	9.258
-14	0.337	1.975**	1.842	16	0.345	2.197**	9.603
-13	0.177	1.305	2.019	17	-0.085	-0.578	9.518
-12	0.059	0.391	2.078	18	0.147	1.055	9.665
-11	0.120	0.850	2.198	19	0.022	0.158	9.687
-10	0.259	1.606	2.458	20	-0.015	-0.100	9.672
-9	0.523	3.338*	2.980	21	-0.075	-0.519	9.597
-8	0.334	2.053**	3.315	22	0.406	2.103**	10.003
-7	0.356	2.096**	3.670	23	0.202	1.266	10.205
-6	0.403	2.253**	4.073	24	0.117	0.804	10.322
-5	0.625	2.797*	4.698	25	0.383	2.849*	10.705
-4	3.984	1.081	8.683	26	0.380	2.776*	11.085
-3	-3.110	-0.845	5.573	27	0.243	1.826	11.328
-2	0.791	4.159*	6.364	28	4.194	1.020	15.522
-1	0.637	3.962*	7.001	29	-3.778	-0.922	11.745
0	1.404	4.886*	8.405	30	0.177	1.103	11.922
* 1 percent Significance							
** 5 percent Significance							

Further, a buildup in the abnormal returns was also seen prior to the announcement of bonus issue which attested to the notion of information advantage to few investors and their ability to earn positive abnormal returns. Further, an analysis of abnormal returns has been conducted for the medium term of 31 days that is (-15, 0, 15). It was revealed that investors managed to earn positive abnormal returns 25 times prior to

and post the event, while they earned negative abnormal returns only six times in the total event window. The returns were statistically significant on day -14, -9, -8, -7, -6, -5, -2, -1, 0 and 1, highlighting that more significant abnormal returns were earned in the days prior to the event. The trend of positive abnormal returns remained from -15 to -4 days with a one-day reversal in trend on day -3 however, this reversal was short lived and returns again turned positive signalling towards the investors ability to generate abnormal returns from the happening of an event. The returns turned negative only on day +2 and +3 and experienced a reversal from day +4 garnering positive returns for investors. The CAAR maintained a rising trend from day -15 which continued till day -4 attesting to the positive abnormal returns earned during the pre-event window.

Further, analysis of the abnormal return in the long-term period (61 days) revealed investors were able to earn positive abnormal return 45 times and negative abnormal return 15 times during the event window. The return on -25, -19, -18, 16, 22, 25 and 26 day was statistically significant. The CAAR became stagnant from day +13 to +25 highlighting very little opportunity left for investors to make additional gains post the happening of the event. The analysis also showcased more positive abnormal returns were earned in the pre-event window than the post event window, while greater negative abnormal returns were earned in the post event window. Thus, it can be inferred that investors were able to exploit the announcement of bonus issue and generate abnormal returns. The investors ability to earn significant positive abnormal returns prior to the announcement signals towards the fact that there exists an information leakage in the market which is exploited by the traders to their benefit.

### **5.1.2 Stock Reaction to Announcement of Right Issue**

Table 5.3 highlights the statistics of stock returns implied by abnormal returns and cumulative abnormal returns during the pre, post and event window of announcement of right issue. The table shows investors earn negative abnormal return of -0.77 percent on the announcement day of right issue.

**Table 5.3 : Analysis of Impact of Right Issue on Stock Returns**

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-30	0.627	1.963**	0.627	0	-0.773	-1.452	2.906
-29	0.536	1.148	1.163	1	-0.585	-1.601	2.321
-28	0.651	1.709	1.815	2	-0.267	-0.748	2.054
-27	-0.185	-0.749	1.630	3	-0.345	-1.264	1.709
-26	-0.022	-0.065	1.607	4	0.409	1.383	2.117
-25	0.108	0.387	1.715	5	0.228	0.693	2.345
-24	-0.365	-1.251	1.350	6	0.196	0.608	2.541
-23	0.306	0.900	1.656	7	-0.929	-3.714*	1.613
-22	-0.473	-1.758	1.183	8	-0.427	-1.638	1.186
-21	0.231	0.540	1.414	9	-0.409	-1.270	0.777
-20	0.660	1.717	2.073	10	0.148	0.365	0.926
-19	0.303	0.846	2.376	11	-0.078	-0.249	0.847
-18	0.033	0.114	2.409	12	-0.088	-0.234	0.759
-17	-0.371	-1.450	2.038	13	-0.624	-2.047**	0.136
-16	0.292	0.912	2.331	14	-0.103	-0.373	0.033
-15	0.087	0.357	2.418	15	-0.521	-1.549	-0.488
-14	-0.290	-1.072	2.128	16	-0.302	-1.243	-0.790
-13	-0.240	-0.859	1.888	17	-0.326	-1.168	-1.116
-12	-0.266	-0.771	1.622	18	0.180	0.497	-0.936
-11	-0.430	-1.421	1.191	19	0.057	0.196	-0.878
-10	-0.014	-0.038	1.177	20	0.544	1.638	-0.334
-9	0.425	1.486	1.603	21	0.152	0.508	-0.182
-8	0.741	1.860	2.344	22	0.628	2.255**	0.445
-7	-0.428	-1.178	1.917	23	-0.180	-0.714	0.266
-6	0.483	1.568	2.400	24	-0.015	-0.052	0.250
-5	0.158	0.412	2.558	25	-0.307	-0.705	-0.057

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-4	0.611	1.718	3.169	26	-0.027	-0.068	-0.084
-3	-0.166	-0.562	3.003	27	-0.543	-2.044**	-0.627
-2	0.033	0.113	3.035	28	0.042	0.153	-0.585
-1	0.643	1.476	3.679	29	9.939	0.983	9.354
0	-0.773	-1.452	2.906	30	-10.028	-0.984	-0.674
* 1 percent Significance							
** 5 percent Significance							

This indicates that investors assumptions regarding the event and the abnormal returns were more than the actual returns earned thereby earning negative returns. Though, the abnormal returns were negative but they were not significant on the event day. Thus, implying no significant influence of announcement of right issue on stock returns (Rawat and Jessica, 2015; Rohit et al., 2016). The study revealed that in the immediate time period of 3 days (-1, 0, +1) investors earned positive abnormal return one day prior to the event and earned negative abnormal return on event day and one day post the event. In the short-run time period of 11 days (-5, 0, +5) positive abnormal returns were earned on days -5, -4, -2, -1, +4 and +5. The abnormal returns had the highest magnitude of 0.64 percent one day before the event day. This was further attested by the CAAR which was highest at 3.67 percent. Further analysis highlighted that investors earned a significant positive abnormal return of 0.61 percent four days prior to the announcement of right issue. However, the positive returns were changed to negative returns of -0.16 percent on day-3. The negative returns could not hold momentum and abnormal returns turned positive on day -2 and -1. Further, the abnormal returns turned negative on the event day and this trend was followed till +3 days post the announcement. The medium-term analysis of abnormal returns and cumulative abnormal returns indicated investors earned positive abnormal returns only 12 times while the negative returns were earned 19 times during the event window of 31 days. The CAAR fluctuated from 3.67 percent to -0.48 percent during the event window of medium term. The magnitude of positive

return on -15 day was small and it was followed by a series of negative AARs from day -14 to day -10. This trend was reversed on day -9 when the abnormal returns turned positive until the event day. The buildup in the abnormal returns from day -9 and a reversal of trend from the event day to +3 day arguments that the information leakage did happen and few investors were able to make gains from the investment. However, the window of opportunity to make abnormal gains was available for only a limited period of time. The abnormal returns were significant on -8, -4, +7 and +13 days only. In the pre-event window, the abnormal returns were positive and significant whereas, in the post event window negative and significant abnormal returns were generated implying investors booking their positions from the small window of opportunity to earn profits in the pre-event window.

Moreover, in the long-term time period of 61 days (-30, 0 +30), investors earned negative returns 32 days and positive returns for 29 days. The abnormal returns were positive and significant on -30, -20, +22 days and they were negative on -22 and +27 days. The cumulative abnormal returns gained an upwards trend in the pre-event window and a trend reversal was seen post the happening of the event. The significance of abnormal returns points that the announcement of right issue by firms has an influence on the returns earned by stock even in the long-run but the opportunity to earn abnormal returns was available only for a short period of time.

### **5.1.3 Stock Reaction to Announcement of Stock Split**

Table 5.4 details the abnormal returns and cumulative abnormal returns earned and its t-statistics during the pre- and post-announcement period. The abnormal returns were positive and significant on the event day of stock split. In the immediate time period of 3 days (-1, 0 +1) investors earned negative abnormal returns of -1.81 percent before the announcement whereas significant and positive returns of 2.34 percent and 0.94 percent were generated on day 0 and day +1. Abnormal returns on the announcement day of stock split were found to be significant and positive. The same can be evidenced from the work of (Dhar and Chhaochharia, 2008). The results of the current study were contrary to the findings of (Kumar and Halageri, 2011) which found absence of a significant abnormal returns during stock split

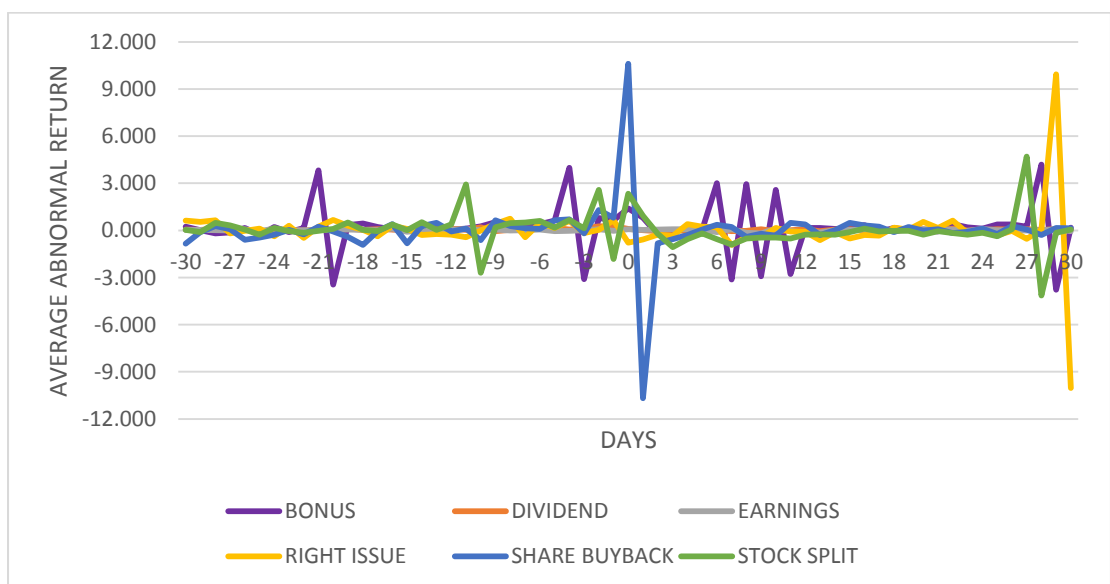
announcement. The difference in the returns earned on the event day and post event highlighted that investors were able to earn maximum returns on the day of announcement. The cumulative abnormal return on event day was estimated at 8.39 percent and 9.32 percent on +1 day. The short-term analysis of abnormal returns and cumulative abnormal returns generated during the 11 days event window (-5,0 +5) signaled towards an increasing trend in the abnormal returns and cumulative abnormal returns before the event day.

**Table 5.4 : Analysis of Impact of Stock Split on Stock Returns**

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-30	0.024	0.133	0.024	0	2.337	6.673*	8.391
-29	-0.107	-0.627	-0.083	1	0.937	2.999*	9.328
-28	0.479	2.528**	0.397	2	-0.205	-0.789	9.123
-27	0.310	1.732	0.706	3	-1.066	-5.044*	8.057
-26	0.054	0.328	0.760	4	-0.565	-2.943*	7.492
-25	-0.277	-1.663	0.484	5	-0.183	-0.663	7.309
-24	0.153	0.881	0.636	6	-0.565	-2.659*	6.745
-23	-0.046	-0.292	0.590	7	-0.899	-3.881*	5.845
-22	-0.148	-1.032	0.443	8	-0.515	-2.183**	5.331
-21	-0.023	-0.117	0.420	9	-0.454	-2.416**	4.877
-20	0.102	0.537	0.522	10	-0.446	-2.375**	4.430
-19	0.503	2.559**	1.025	11	-0.524	-2.232**	3.907
-18	0.027	0.181	1.052	12	-0.268	-1.733	3.639
-17	-0.041	-0.205	1.011	13	-0.251	-1.252	3.388
-16	0.374	1.839	1.385	14	-0.266	-1.698	3.122
-15	0.011	0.060	1.395	15	-0.107	-0.722	3.016
-14	0.516	2.811*	1.912	16	0.113	0.677	3.129
-13	0.024	0.136	1.936	17	-0.063	-0.302	3.066

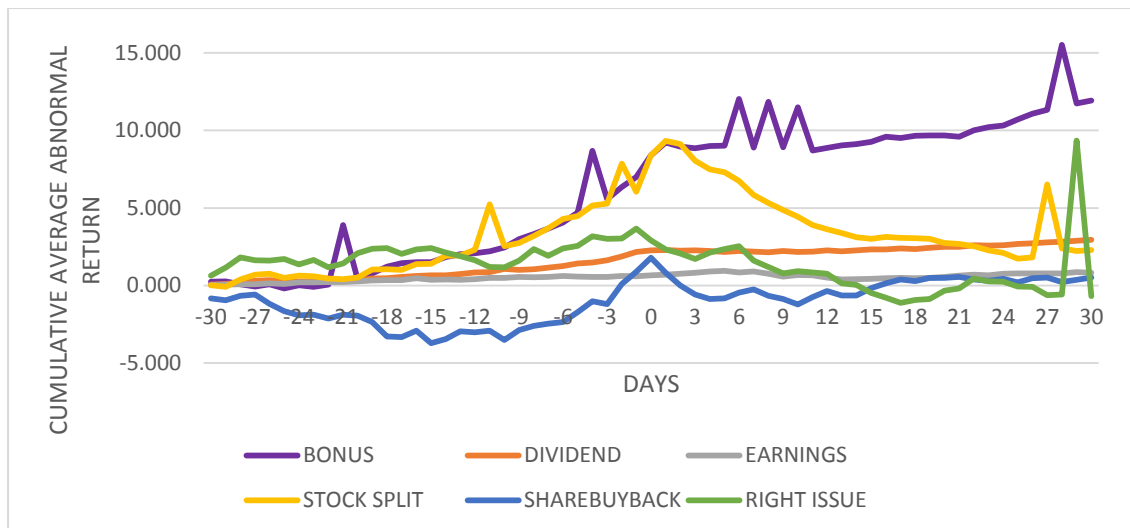
Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-12	0.373	1.900	2.309	18	-0.021	-0.101	3.045
-11	2.933	1.047	5.242	19	-0.034	-0.172	3.011
-10	-2.696	-0.970	2.546	20	-0.271	-1.605	2.740
-9	0.191	1.305	2.737	21	-0.049	-0.233	2.690
-8	0.457	2.731*	3.195	22	-0.163	-0.780	2.527
-7	0.504	2.564*	3.698	23	-0.269	-1.454	2.259
-6	0.598	3.015*	4.296	24	-0.153	-0.823	2.106
-5	0.184	1.037	4.480	25	-0.370	-1.960**	1.736
-4	0.668	3.782*	5.148	26	0.082	0.424	1.818
-3	0.136	0.636	5.284	27	4.700	1.048	6.518
-2	2.585	1.113	7.869	28	-4.135	-0.911	2.383
-1	-1.815	-0.783	6.054	29	-0.151	-0.826	2.232
0	2.337	6.673*	8.391	30	0.051	0.269	2.283

\* 1 percent Significance  
\*\* 5 percent Significance



**Figure 5.1 : Average Abnormal Returns for Individual News Announcement**





**Figure 5.2 : Cumulative Average Abnormal Returns for Individual News Announcements**

Five days before the announcement, the abnormal returns started to increase and continued with the momentum till +1, only with a slight correction on -1 day. The return of 2.33 percent on the event day was significant and was statistically tested at 1 percent level of significance. Also, the returns on -4, 0, +1, +3, +4 days were significant and statistically tested at 1 percent level of significance. Post the announcement of stock split, the gains in returns were pocketed by investors and they turned towards south from +2 day incurring negative returns. Thus, it was evidenced that investors valued the stocks at a lower price post the announcement of stock split as a split creates more supply of the stocks which lead to a fall in the prices turning the abnormal returns negative. In the medium-term time period of 31 days, the investors earned positive abnormal returns on 15 days and negative abnormal returns for 16 days. The abnormal returns were significant on -12, -8, -7, -6, -4, 0, +1, +3, +4, +6, +7, +8, +9, +10, +11, +12 and +14. The magnitude of abnormal returns was highest on -11 day with a return of 2.93 percent on stocks. The cumulative abnormal returns peaked on +1 days at 9.32 percent and then started to decrease and dipped to 3.01 percent on +15 day. This attested to the fact that investors drove the market till the event day and then marked their gains after the announcement of stock split. All statistically significant abnormal returns earned on the days before the event were positive whereas, all the returns generated on the days after the event were negative

upto +15 days. Thus, highlighting that stock split announcement has a significant effect on the returns of the stocks in the medium time period. Further, there exists an information leakage in the medium term as investors are able to generate significant positive returns before the announcement and cashed out their investments post the event which is evident from the returns which turned negative post the day of announcement. Figure 5.1 and figure 5.2 portrays a graphical view of the average abnormal returns and cumulative average abnormal returns for all the individual news announcements

In the long-term time period, positive abnormal returns were earned for 28 days and negative abnormal returns were earned for 33 days. The returns were significant and positive on -28, -27, -25, -19 and -16 days. The significance of positive returns in the pre-event window implies the influence of stock split announcement on stock returns in the long term, however, post the announcement the returns fades and turn insignificant after +15 days highlighting towards only a short-term influence of stock split announcement on returns in the post event window and a diminishing effect of abnormal returns in the long-run time period.

#### **5.1.4 Stock Reaction to Announcement of Share Buyback**

Table 5.5 explains the abnormal returns, their t-statistics and cumulative abnormal returns earned in the pre announcement and post announcement period of share buyback news. In the immediate event window of 3 days (-1, 0, +1) the abnormal returns on the event day was positive estimating return of 10.61 percent but was insignificant. While, the returns earned one the day post the announcement of share buyback was negative estimating at -10.68 percent and was insignificant. However, the abnormal returns earned one day before the announcement was positive at 0.80 percent and significant at 1 percent level of significance. Thus, establishing that announcement of share buyback does not influence the stock returns on the event day (Rajagopalan and Shankar, 2013 and Gupta, 2016) and after the event in the immediate time period. Thereby, implying that investors might get hold on the information before the actual announcement date and were able to earn profits before the release of the information to the market.

The short-term analysis of 11 days event window (-5, 0, +5) revealed investors earned positive abnormal return for six days and negative abnormal returns for five days. Majority of the positive abnormal returns were earned prior to the announcement of share buyback news with negative returns earned only on day -3 while, all of the negative returns were earned post the announcement with positive returns on day +5. The cumulative abnormal returns started to increase with an increasing trend from -5 day (-1.71 percent) and turned positive at 0.09 percent on day -2 and the abnormal returns became positive and statistically significant. However, the cumulative abnormal returns started to decline post the announcement of share buyback and they slipped to -0.87 percent from a high of 11.50 percent. The abnormal returns earned on day -4, -2, -1, +2, +3 were statistically significant. The abnormal returns were positive for two days prior to the event date and immediately turned negative after the event date. The slide continued till +4 days as returns dipped to 0.30 percent from 0.82 percent.

**Table 5.5 : Analysis of Impact of Share buyback on Stock Returns**

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-30	-0.834	-2.451**	-0.834	0	10.616	1.018	11.508
-29	-0.110	-0.417	-0.944	1	-10.686	-1.038	0.822
-28	0.281	0.979	-0.663	2	-0.828	-2.623*	-0.006
-27	0.077	0.291	-0.586	3	-0.565	-2.252**	-0.571
-26	-0.601	-1.929	-1.188	4	-0.301	-1.161	-0.872
-25	-0.464	-1.687	-1.651	5	0.044	0.169	-0.828
-24	-0.268	-0.871	-1.919	6	0.362	1.648	-0.467
-23	0.039	0.155	-1.880	7	0.224	0.851	-0.243
-22	-0.245	-1.023	-2.125	8	-0.420	-1.735	-0.663
-21	0.245	0.875	-1.880	9	-0.211	-0.804	-0.874
-20	-0.063	-0.256	-1.943	10	-0.341	-1.470	-1.216
-19	-0.412	-1.254	-2.354	11	0.480	2.165**	-0.736

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-18	-0.925	-2.433**	-3.280	12	0.388	1.682	-0.348
-17	-0.040	-0.104	-3.320	13	-0.295	-1.328	-0.643
-16	0.407	1.308	-2.913	14	0.004	0.014	-0.640
-15	-0.814	-2.801*	-3.727	15	0.476	1.619	-0.164
-14	0.286	0.954	-3.441	16	0.312	0.929	0.148
-13	0.484	1.763	-2.957	17	0.246	1.038	0.394
-12	-0.065	-0.198	-3.022	18	-0.102	-0.453	0.292
-11	0.119	0.314	-2.903	19	0.207	1.000	0.499
-10	-0.612	-1.604	-3.515	20	-0.008	-0.035	0.490
-9	0.644	1.697	-2.871	21	0.074	0.361	0.565
-8	0.277	0.765	-2.595	22	-0.169	-0.889	0.396
-7	0.142	0.490	-2.453	23	-0.087	-0.374	0.308
-6	0.100	0.285	-2.353	24	0.115	0.529	0.424
-5	0.635	1.464	-1.718	25	-0.227	-0.872	0.197
-4	0.712	1.842	-1.006	26	0.269	1.035	0.466
-3	-0.196	-0.500	-1.201	27	0.053	0.194	0.519
-2	1.292	3.400*	0.091	28	-0.293	-1.278	0.225
-1	0.802	2.777*	0.893	29	0.151	0.536	0.376
0	10.616	1.018	11.508	30	0.140	0.416	0.516
* 1 percent Significance							
** 5 percent Significance							

The decline of stock returns indicates towards the fact that there existed a mismatch between the market's expectations on the price announced for buyback. It also pointed towards the fact that information leakage might have happened as returns were significantly positive in the event prior to the announcement, implying few investors who might be aware of the low quantum of the buyback price cashed their gains before the actual announcement. The study further conducts a medium-term analysis of abnormal and cumulative abnormal returns for 31 days event window (-

15, 0, +15). It was observed investors earned negative but significant abnormal returns of -0.81 percent on -15 day and positive but insignificant abnormal return of 0.47 percent on +15 day. Out of the total number of days in the event window, investors earned positive abnormal returns for 19 days and negative abnormal returns for 12 days. The returns for -15, -13, +8, +11 and +12 days were found to be significant. The cumulative returns continued to remain in the negative territory from -15 day to -3 day while they turned to positive for a small period of -2 to +1 day and again turned negative from +2 day to +15 days. The significance of abnormal return on -15 days suggested announcement of share buyback does not influence the returns on the event day and post the event day but it surely influences the returns 15 days prior to the announcement.

The study further, conducted a long-term overview of the abnormal and cumulative average abnormal returns for 61 days event window (-30, 0, +30). It was observed investors earned significant negative abnormal returns on day -30 implying lower actual returns than the returns expected by the investors. The negative cumulative average abnormal returns of -0.83 percent continued to slide to the lowest at -0.35 percent in before event period. The negative trend in cumulative average abnormal returns was broken only in the post event window after day +16 where the CAAR was estimated at 0.14 percent respectively. The abnormal returns were significant on day -30, -26, -25, -18, -13, -4, -1, +2, +3, +8, +11 and +12. There were no significant abnormal returns after +12 days, thus implying that the share buyback announcement in no way commands considerable influence on stock returns in the long-term period of post event window. While, share buyback announcement does influence stock returns in the long-term period of pre-event window. The largest magnitude of significant positive abnormal return was witnessed on -1 day at 0.80 percent. Out of the total event window days, investors earned abnormal returns which were positive for 33 days and negative abnormal returns for 28 days respectively. Therefore, the results concluded that investors might have access to information prior to the announcement but are unable to make positive gains in the long period and are able to earn positive gains only in the short-term to medium period (Pandya and Patel, 2014).

### 5.1.5 Stock Reaction to Announcement of Dividend

Table 5.6 highlights the average abnormal returns, their t-statistics and cumulative average abnormal returns earned from the announcement of dividend in the pre announcement and post announcement window. The results revealed investors earned positive abnormal returns of 0.09 percent on the event day 0. In the immediate event window of 3 days (-1, 0, +1) investors earned positive abnormal returns of 0.28 percent and 0.09 percent on -1 and 0 day respectively, while they earned negative abnormal returns of -0.04 one day post announcement of dividend. The return earned on one day before the dividend announcement was positive and its significance was tested at 1 percent. Thus, signalling towards a significance of dividend announcement on returns of stocks (Pani, 2008; Taneem and Yuce, 2011). The cumulative abnormal returns fluctuated from 2.27 percent to 2.17 percent in the immediate event window. The short-term window of 11 days (-5, 0, +5) suggested investors earned positive abnormal returns which were positive on days prior to the dividend announcement and earned negative abnormal returns on days post the dividend announcement.

**Table 5.6 : Analysis of Impact of Dividend on Stock Returns**

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-30	0.056	0.993	0.056	0	0.098	1.710	2.268
-29	0.039	0.996	0.095	1	0.011	0.178	2.279
-28	0.095	1.841	0.190	2	-0.042	-0.993	2.237
-27	0.125	2.451**	0.315	3	0.039	0.949	2.277
-26	0.027	0.714	0.342	4	-0.043	-1.007	2.233
-25	-0.089	-0.997	0.253	5	-0.061	-1.290	2.172
-24	0.021	0.579	0.275	6	0.044	1.026	2.216
-23	-0.009	-0.241	0.266	7	-0.040	-0.965	2.176
-22	-0.017	-0.401	0.249	8	-0.032	-0.742	2.144
-21	0.044	1.143	0.293	9	0.082	1.854	2.227
-20	0.036	0.774	0.328	10	-0.053	-1.251	2.174

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-19	0.115	2.493**	0.443	11	0.011	0.288	2.185
-18	0.035	0.844	0.478	12	0.074	1.632	2.259
-17	0.076	1.649	0.555	13	-0.052	-1.306	2.207
-16	0.055	1.270	0.610	14	0.060	1.605	2.267
-15	0.041	0.983	0.651	15	0.067	1.728	2.334
-14	0.005	0.146	0.656	16	0.006	0.137	2.339
-13	0.075	1.914	0.731	17	0.059	1.533	2.398
-12	0.106	2.252**	0.837	18	-0.044	-1.089	2.354
-11	0.036	0.921	0.873	19	0.081	2.041**	2.435
-10	0.201	4.670*	1.074	20	0.064	1.600	2.499
-9	-0.056	-1.124	1.018	21	-0.012	-0.271	2.487
-8	0.025	0.474	1.043	22	0.107	2.377**	2.594
-7	0.111	2.482**	1.155	23	-0.018	-0.417	2.576
-6	0.109	2.522**	1.263	24	0.013	0.296	2.589
-5	0.167	3.773*	1.430	25	0.081	1.883	2.670
-4	0.055	1.070	1.485	26	0.056	1.208	2.727
-3	0.144	3.191*	1.630	27	0.066	1.533	2.793
-2	0.254	5.561*	1.884	28	0.023	0.561	2.815
-1	0.286	6.046*	2.170	29	0.080	0.962	2.895
0	0.098	1.710	2.268	30	0.049	0.913	2.944
* 1 percent Significance							
** 5 percent Significance							

Significant positive abnormal returns were earned on -5, -3, -2, and -1 days while no significant returns were observed post the announcement of dividends in the short-term period. The highest magnitude of positive abnormal returns was witnessed on day -1 at 0.28 percent, this was significant at 1 percent. The magnitude of cumulative average abnormal returns was largest on day 0 at 2.279 percent, implying investors earned highest cumulative return on the day of the dividend announcement. The cumulative average abnormal returns increased only at a diminishing rate and abnormal returns peaked one day prior to the announcement. The study also conducts

analysis for medium-term time period from day -15 to +15. It was observed investors earned significant positive returns on day -12, -10, -7, -6, -5, -3, -2 and -1. All the significant abnormal returns earned during the medium time period were positive, indicating at the markets ability to factor in the information of dividend announcement and make gains from that. The cumulative abnormal returns remained positive with lowest returns estimating at 0.651 percent on -15 day and highest at 2.339 percent on day +15. The abnormal returns on +15 days post the dividend announcement was positive. The investors earned negative abnormal returns only on day -9 in the pre-event window, however, it was short lived as the returns were reversed to positive and continued to remain positive till day 0. The abnormal returns experienced a see-saw post the dividend announcement as positive returns were followed by negative returns the next day and vice versa. There were more positive returns on the days before the event and more negative returns on the days post the event, which highlighted at investors ability to capture gains before occurrence of the event.

The study further conducted an investigation into the abnormal and cumulative abnormal returns generated during the long-term time period. The results indicated, investors earned significant positive abnormal returns on -27, -19 -12, -10, -7, -6, -5, -3, -2, -1, +19 and +22 days. The quantum of significant returns earned were more in the pre-event window than those earned in the post event window. In the total event window positive abnormal returns were generated during 46 days and negative returns were generated during 14 days in total. Thus, stating that announcement of dividends is celebrated by the markets and investors (Dasilas et al., 2008 and Kaur, 2018). The significance of abnormal returns on day -27 and +22 indicated that dividend announcement does have a long-term influence on stock returns (Anwar et al., 2015). It was also understood that investors booked larger part of their profits before the announcement of dividend, which pointed that there exists information leakage in the markets. The results also rebuffed the hypothesis of efficient markets as positive and significant abnormal returns were accrued on the pre- and post-announcement days. However, the dividend signalling hypothesis implying significant influence of dividend on stock returns was visible.



### 5.1.6 Stock Reaction to Announcement of Earnings

Table 5.7 explains the abnormal returns, t-statistics and cumulative abnormal returns earned during the period of pre- and post-announcement of earnings by companies. The analysis of the abnormal returns in the immediate window of 3 days (-1,0, +1) revealed stocks generate positive abnormal returns on event day (Sharma and Chander, 2009 and Mallikarjunappa and Dsouza, 2014) and one day post the announcement of earnings (Sharma and Chander, 2009) but negative abnormal returns one day prior to the announcement. However, the returns earned were statistically insignificant which implied that earnings announcements do not have much influence on stock returns in the immediate time period. Further, analysis of short-term period revealed investors earn negative returns on day -5 and -4, after that returns change sign and turn positive on day-3 and -2 earning abnormal return of 0.08 percent and 0.92 percent respectively. Following the day of announcement of earnings, abnormal returns turned positive and continue to remain positive till day +5. However, the returns earned were not found to be statistically significant indicating earnings announcement does not influence stock returns in the short-term period.

**Table 5.7 : Analysis of Impact of Earnings on Stock Returns**

Before Announcement				After Announcement			
Days	AAR	t-statistic	CAAR	Days	AAR	t-statistic	CAAR
-30	0.033	1.208	0.033	0	0.066	0.521	0.656
-29	0.028	1.071	0.061	1	0.038	0.265	0.694
-28	0.020	0.688	0.082	2	0.061	0.401	0.755
-27	0.000	-0.001	0.082	3	0.074	0.416	0.830
-26	0.067	2.421**	0.148	4	0.071	0.358	0.901
-25	-0.058	-1.612	0.091	5	0.041	0.203	0.942
-24	0.110	3.089	0.201	6	-0.108	-0.608	0.834
-23	0.009	0.352	0.210	7	0.076	0.448	0.910

<b>Before Announcement</b>				<b>After Announcement</b>			
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
-22	0.007	0.288	0.217	8	-0.142	-0.831	0.768
-21	0.013	0.481	0.231	9	-0.196	-1.707	0.572
-20	0.041	1.423	0.271	10	0.112	0.909	0.684
-19	0.060	2.101**	0.331	11	-0.025	-0.149	0.659
-18	0.023	0.840	0.354	12	-0.141	-0.915	0.518
-17	0.003	0.098	0.357	13	-0.120	-1.379	0.397
-16	0.109	1.235	0.466	14	0.011	0.398	0.409
-15	-0.096	-1.088	0.370	15	0.023	0.789	0.432
-14	0.009	0.336	0.379	16	0.044	1.658	0.476
-13	-0.005	-0.176	0.374	17	0.019	0.677	0.495
-12	0.044	1.587	0.419	18	-0.027	-0.963	0.468
-11	0.068	0.963	0.486	19	0.025	0.799	0.492
-10	0.010	0.139	0.496	20	0.071	2.389**	0.564
-9	0.057	2.164**	0.553	21	0.065	2.323**	0.629
-8	-0.010	-0.339	0.543	22	0.061	2.155**	0.690
-7	0.019	0.743	0.562	23	-0.025	-0.674	0.665
-6	0.050	1.704	0.612	24	0.103	1.873	0.768
-5	-0.041	-1.540	0.570	25	0.015	0.298	0.783
-4	-0.024	-0.861	0.546	26	0.000	0.011	0.784
-3	0.002	0.080	0.548	27	-0.006	-0.230	0.778
-2	0.065	0.922	0.614	28	0.005	0.192	0.783
-1	-0.024	-0.243	0.590	29	0.078	2.787*	0.861
0	0.066	0.521	0.656	30	-0.040	-1.147	0.821

\* 1 percent Significance  
\*\* 5 percent Significance

The research further conducted a medium-term analysis during the 31 days event window (-15, 0, +15) and found significant positive abnormal returns of 0.057 percent on -9 day. Negative abnormal returns were earned on 12 days and positive abnormal returns were earned on 19 days during the total 31 days event window. The return earned on day -15 was negative at -0.09 percent followed by positive returns of 0.004 on day -14, the returns again turned sign and became negative on -13 day, after that returns turned positive and continued with the trend till -9 day. There was a slight reversal in trend on day -8 but it lasted short as positive abnormal returns were earned on -7 and -6 days. The returns post the announcement of earnings remained largely positive upto +5 days, followed by negative returns on +6 day and again positive returns on day +7. Following the positive returns on +7 day the returns changed trend and turned negative on -8 and -9 day. Analysis of abnormal returns in the medium-term time period revealed that earnings announcement has a small impact on the stock returns of companies.

Further, the study conducted analysis of abnormal returns in the long-term time period of 61 days (-30, 0, +30). The results revealed investors earned significant positive abnormal return on -26, -19, -9, +20, +21, +22 and +29 days. The cumulative average abnormal returns remained positive throughout the event period of 61 days generating a low of 0.03 percent and a high of 0.94 percent. The long-run analysis revealed earnings announcement had a significant impact on stock returns in the long-term period and not much impact was seen on the immediate and short-term time period. Thus, stating that the information revealed from earnings was not fully incorporated by the market and its influence was visible in the long term.

## **5.2 SECTION-II ANALYSIS OF INDUSTRY REACTION TO INDIVIDUAL NEWS ANNOUNCEMENTS**

### **5.2.1 Industry Reaction to Announcement of Bonus**

Table 5.8 explains the average abnormal returns (AAR) and their calculated t-statistic for each industry during the event window of bonus announcement by different firms. Out of the total 18 industries 11 industries have been selected for analysis of

average abnormal returns earned upon the announcement of bonus by different firms in different industries. The results of AAR in the immediate term revealed that investors investing in automobile, consumer goods and financial services earned significantly positive abnormal returns of 2.79 percent, 2.43 percent and 2.72 percent respectively on the event day.

Though, construction, industrial manufacturing, information and technology, media and entertainment, metals, pharma and services industry earned positive abnormal returns of 0.51 percent, 0.67 percent, 3.39 percent, 1.58 percent, 5.16 percent, 0.26 percent and 0.22 percent respectively and energy earned negative abnormal returns of 0.04 percent on day 0, the returns were insignificant at 1 and 5 percent level of significance. It was also evidenced that the services industry had a strong reaction to the announcement of bonus issue compared to other industries. Further, significant positive abnormal returns of 1.11 percent and 1.10 percent were also earned on day - 1 for automobile and consumer goods industry and significant abnormal returns of 1.73 percent, 1.07 percent and 2.81 percent were earned on day +1 for automobile, information technology and services industry. Thus, highlighting at a significant impact of bonus issue on automobile, consumer goods, financial services and information technology industries in the immediate time period. Further, the analysis of AARs in the short-term time period of 11 days (-5, 0, +5) reveal investors investing in automobile industry earned positive abnormal returns for all 11 days. Thus, implying investors should prefer to hold stocks of automobile industry during the bonus issue announcement in the short-term period. The AARs were also found positive in construction, consumer goods and media and entertainment industry, positive abnormal returns were earned for six days and negative abnormal returns were earned for five days during the event window. The energy industry generated positive AARs for five days and negative AARs for six days. Further, investors investing in financial services, information technology and services industry earned abnormal returns which were positive for seven days and negative abnormal returns for four days. Additionally, the industrial manufacturing, metals and pharma industry investors earned abnormal returns which were positive for eight days and negative

abnormal returns for three days. The returns in the construction industry fluctuated between 1.54 percent and -0.76 percent and had the highest magnitude on day +2 with 1.54 percent. The returns in the consumer goods industry had the largest magnitude on day -4 at 22.30 percent, however the same were corrected the next day as negative abnormal returns of -21.64 percent were generated.

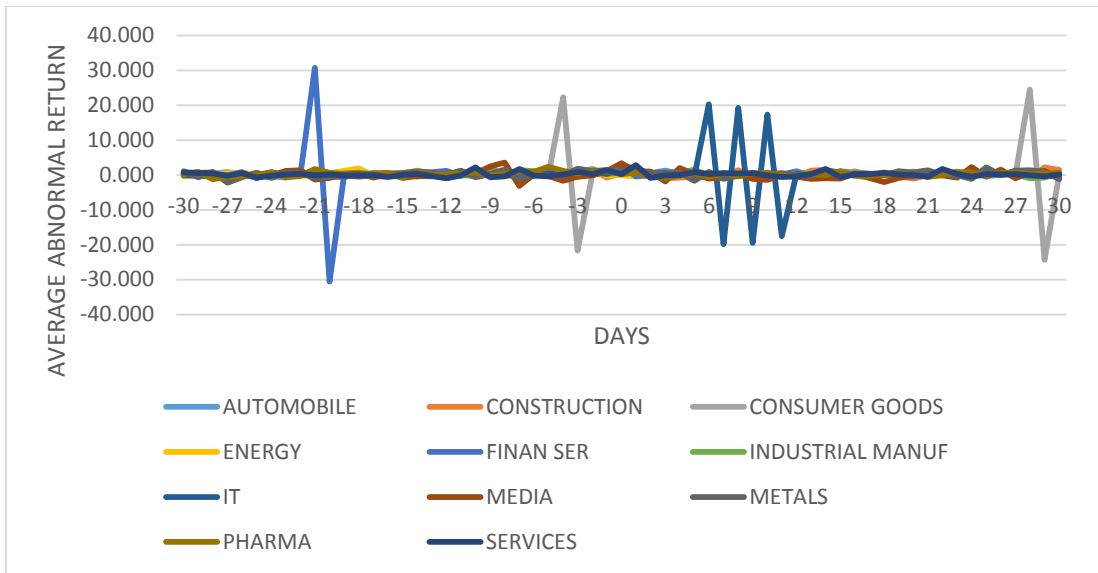
The returns in the energy sector were positive from day -5 and continued till day -2, the returns on day -2 peaked and were statistically significant, following this the returns became negative and continued to decrease from day -1 to +2. In the financial services industry, returns were positive and significant on day -3, -2 and 0 and turned negative immediately post the event day. In the industrial manufacturing industry returns were negative on day -4 and positive on day -2 and +5. The information and technology industry, the abnormal returns gained momentum from days -5 and peaked on event day followed by a decline in the returns from day +1. Further, the abnormal returns in media and entertainment remained negative from day -5 to day -2 and turned positive from day -1 and continued the trend till day +2. The metals industry saw negative returns on day -5 and -4, however, this trend lasted for a short period as returns turned positive from day -3 and continued to remain so till day +4. The abnormal returns earned on day -5 in pharma industry were significantly positive and the momentum of positive abnormal continued till day +1, after that the returns changed trend and became negative. Further, the return on +3 days was significantly negative. The abnormal return earned in services industry was negative on day-5, however, the trend was dismissed as returns turned positive on day -4 and continued to remain positive till day +1. After that the positive returns were pocketed by the market participants as they turned negative from day +2. Thus, it is suggested that investors holding stocks of consumer goods, energy, pharma and services industry in the post announcement period are likely to earn negative returns due to negative AARs in the post-event period, while investing in stocks of metals and media and entertainment might prove favorable in the post announcement period due to positive AARs after the announcement.

Further, the research conducted a medium-term analysis of abnormal returns generated during the event window of 31 days (-15, 0, +15). The automobile industry generated abnormal returns which were positive for 19 days and abnormal returns which were negative for 12 days in total. Positive abnormal returns were generated in construction and services industry for 16 days and negative abnormal returns were generated for 15 days during the event window. In the consumer goods industry, investors earned abnormal returns which were positive for 17 days and abnormal returns which were negative for 14 days. Positive abnormal returns were generated in the energy and information technology industry for 18 days and negative abnormal returns were generated for 13 days. The financial services and industrial manufacturing industry generated abnormal positive returns for 20 days and negative abnormal returns for 11 days in total. The returns generated on +12 day for energy and financial services industry were significantly positive thus, signalling towards an information leakage and investors earnings profits before the announcement of bonus issue. The media and entertainment industry garnered abnormal returns which were positive for 13 days and abnormal returns which were negative for 18 days. In the metals industry positive abnormal returns were generated for 23 days and negative abnormal returns were generated for 8 days. The returns were significant on +14 and +15 days indicating that bonus announcement news has significant impact on returns of metals industry in the medium-term period. The abnormal returns generated in the pharma industry were positive for 21 days and negative for 10 days.

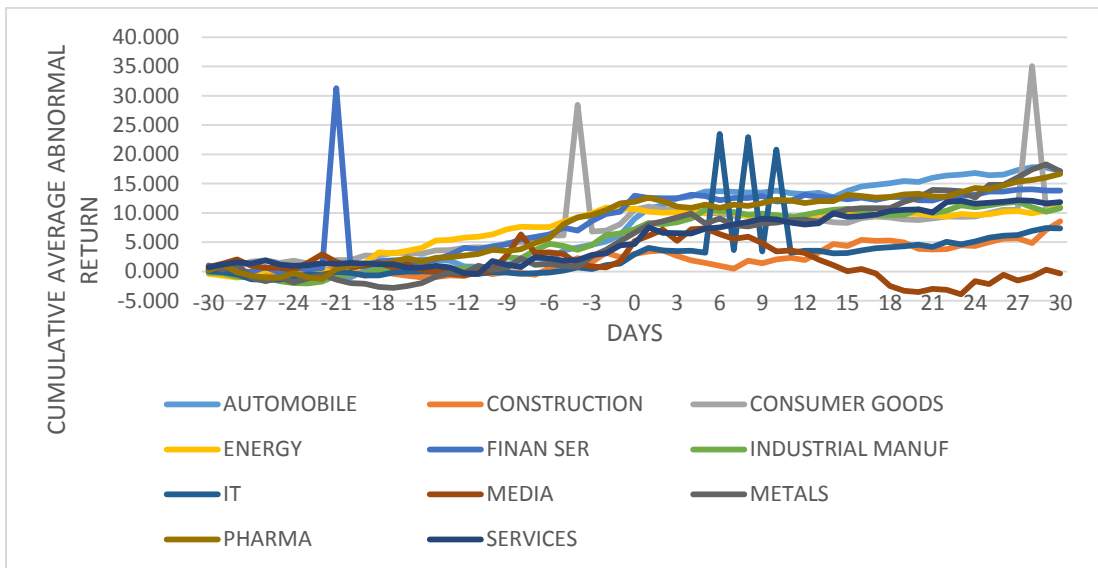
Further, analysis of abnormal returns was also conducted for long-term period of 61 days (-30, 0, +31). The significant returns generated in the construction industry on -19 and +13 day and industrial manufacturing industry on -25 and +17 day indicated towards an impact of bonus announcement on returns generated. Significant returns were generated on -27 day in the consumer goods industry and significant returns were generated on -18, -9, -2 and +12 days for energy industry signalling towards the strong expectation of positive impact of bonus announcement on stock returns in the pre-announcement window than the post announcement window. In the financial industry significant returns were generated on -26, -25, -24, -13 and +12 day

indicating towards the fact that investors earned more significant returns in the pre-announcement window in the long-run than the post announcement period. Furthermore, the returns generated in information and technology industry were statistically significant on -27, -21 and +25 day and signaled towards a long-term impact of bonus issue on stock returns. The returns generated in media and entertainment industry were statistically significant on -21 and +24 days signalling towards an impact on bonus announcement on stock returns, but the impact seemed to fade and does not sustain for long, in the event window of 61 days. The statistically significant returns on -28, -27, -11, -10 and +28 days implied towards a long-term influence of bonus announcement on the metals industry. The returns generated on -29 and -28 day indicated towards a greater impact of bonus issue announcement on stock returns in the pre-event window than the post event window for pharma industry.

While, the returns generated in the services industry were statistically significant only on -12 directing towards a medium-term influence of bonus announcement in the pre-event window but no significant influence on stocks return in the post event window during the long-term period. Also, the CAAR of automobile industry was estimated at 17.17 percent, construction industry, 8.57 percent, consumer goods industry 10.96 percent, energy 10.99 percent, financial services 13.82 percent, industrial manufacturing 10.81 percent, IT 7.38 percent, media and entertainment -0.33 percent, metals 17.08 percent, pharma 16.66 percent and services 11.85 percent. It was thus evidenced that CAAR of automobile and metals industry outperformed the CAAR of other industries. Figure 5.3 and figure 5.4 demonstrated the average abnormal returns and cumulative average abnormal returns earned in different industries upon the announcement of bonus issue. Therefore, it can be concluded that industries such as automobile, consumer goods, financial services and information technology experience an information leakage in the immediate term as investors make abnormal profit one days prior to the event.



**Figure 5.3 : Interindustry Average Abnormal Returns for Bonus Issue**



**Figure 5.4 : Interindustry Cumulative Average Abnormal Returns for Bonus Issue**

Thus, highlighting towards the inefficient form of the Indian stock market. Further, stock returns in industries such as pharma, metals and industrial manufacturing are affected by the announcement of bonus issue in the short-term time period. It was also observed that majority of the significant abnormal returns occurred in the pre-event window, implying a greater impact of bonus announcement on returns before



the announcement period. In addition, it was observed that only a few industries like automobile, consumer goods and financial services could manage to earn significant abnormal returns on the day of announcement of bonus issue.

**Table 5.8 : Analysis of Industry Reaction to Announcement of Bonus**

Days	Automobile			Construction			Consumer Goods		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.182	0.558	0.182	0.328	0.362	0.328	0.553	1.634	0.553
-29	0.081	0.150	0.262	0.059	0.123	0.387	-0.114	-0.383	0.440
-28	-0.223	-0.421	0.039	-0.119	-0.343	0.268	0.397	0.677	0.836
-27	-0.218	-0.398	-0.179	-0.465	-1.005	-0.197	0.872	2.083**	1.708
-26	-0.032	-0.063	-0.212	-0.149	-0.468	-0.346	0.184	0.567	1.892
-25	-0.167	-0.400	-0.379	0.533	1.088	0.187	-0.420	-1.164	1.473
-24	-0.441	-1.658	-0.820	-0.100	-0.329	0.087	0.371	1.010	1.844
-23	-0.729	-1.474	-1.550	0.042	0.077	0.129	-0.487	-2.221**	1.357
-22	0.755	1.794	-0.795	-0.039	-0.109	0.090	-0.135	-0.302	1.222
-21	0.308	0.678	-0.487	0.463	0.829	0.552	0.754	1.701	1.976
-20	-0.503	-1.130	-0.990	-0.495	-1.465	0.057	-0.030	-0.069	1.946
-19	1.149	1.727	0.158	-0.774	-3.872*	-0.717	0.785	1.790	2.732
-18	0.640	1.250	0.799	0.804	1.533	0.088	-0.057	-0.177	2.674
-17	0.313	0.774	1.112	-0.464	-1.101	-0.376	0.536	1.804	3.210
-16	0.456	0.754	1.568	-0.352	-0.640	-0.728	-0.047	-0.158	3.164
-15	0.527	1.326	2.096	-0.246	-0.668	-0.974	-0.117	-0.330	3.047
-14	-0.133	-0.363	1.963	0.049	0.069	-0.925	0.550	1.664	3.597
-13	-0.090	-0.206	1.873	0.240	0.388	-0.686	0.074	0.195	3.671
-12	-0.982	-2.280**	0.892	-0.072	-0.171	-0.758	0.373	0.968	4.044
-11	-0.100	-0.271	0.792	0.886	0.867	0.128	0.099	0.346	4.142

Days	Automobile			Construction			Consumer Goods		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-10	-0.023	-0.050	0.769	-0.556	-1.664	-0.428	-0.080	-0.226	4.062
-9	0.405	0.814	1.174	0.356	0.839	-0.071	0.781	2.198**	4.844
-8	0.600	1.300	1.773	-0.134	-0.281	-0.205	0.123	0.394	4.966
-7	0.526	1.107	2.299	-0.358	-0.531	-0.563	0.520	1.012	5.486
-6	-0.205	-0.539	2.094	1.084	1.769	0.521	0.661	1.286	6.147
-5	1.520	1.537	3.615	0.795	0.978	1.316	0.025	0.058	6.172
-4	0.472	1.161	4.086	0.968	1.460	2.284	22.308	1.004	28.480
-3	0.502	0.456	4.588	-0.630	-1.262	1.654	-21.640	-0.977	6.840
-2	0.515	0.783	5.104	1.540	1.682	3.194	0.144	0.374	6.985
-1	1.109	1.973**	6.213	-0.726	-1.127	2.468	1.104	3.598*	8.088
0	2.799	3.323*	9.012	0.515	0.482	2.983	2.439	3.120*	10.527
1	1.732	2.963*	10.744	0.457	0.530	3.440	0.541	1.080	11.068
2	0.548	0.742	11.292	0.170	0.192	3.610	-0.479	-0.844	10.589
3	1.217	1.605	12.509	-0.926	-1.289	2.684	-0.014	-0.034	10.575
4	0.342	0.624	12.851	-0.766	-1.176	1.919	-0.043	-0.141	10.532
5	0.779	1.439	13.630	-0.461	-0.992	1.458	-0.582	-2.097*	9.950
6	0.086	0.171	13.715	-0.474	-0.502	0.984	0.039	0.122	9.989
7	-0.129	-0.407	13.587	-0.500	-1.048	0.484	-0.567	-1.177	9.422
8	-0.108	-0.259	13.478	1.351	1.157	1.835	0.239	0.658	9.661
9	-0.011	-0.026	13.468	-0.428	-0.609	1.406	-0.179	-0.735	9.482
10	0.328	0.907	13.796	0.681	1.356	2.087	0.110	0.361	9.592
11	-0.412	-1.075	13.384	0.270	0.230	2.357	-0.172	-0.634	9.420
12	-0.153	-0.497	13.231	-0.392	-0.668	1.965	-0.642	-0.955	8.779
13	0.207	0.520	13.437	1.294	1.970**	3.259	-0.002	-0.008	8.776
14	-0.757	-1.778	12.680	1.453	1.424	4.713	-0.384	-1.030	8.392

	<b>Automobile</b>			<b>Construction</b>			<b>Consumer Goods</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
15	1.093	2.670*	13.773	-0.361	-0.589	4.351	-0.113	-0.320	8.279
16	0.740	1.327	14.513	1.030	2.456	5.381	0.819	1.968**	9.098
17	0.303	0.598	14.817	-0.152	-0.233	5.229	0.295	0.574	9.393
18	0.244	0.375	15.061	0.069	0.103	5.298	-0.142	-0.411	9.251
19	0.387	1.052	15.448	-0.352	-1.028	4.946	-0.330	-0.798	8.921
20	-0.153	-0.500	15.295	-1.051	-2.088	3.895	-0.125	-0.293	8.796
21	0.718	1.817	16.013	-0.110	-0.364	3.784	0.254	0.733	9.050
22	0.346	0.598	16.358	0.058	0.176	3.842	0.336	0.805	9.386
23	0.190	0.298	16.549	0.651	1.270	4.493	-0.061	-0.185	9.324
24	0.267	0.597	16.816	-0.135	-0.309	4.358	0.080	0.207	9.404
25	-0.362	-0.980	16.454	0.639	1.427	4.998	0.568	1.513	9.972
26	0.104	0.230	16.558	0.613	1.156	5.611	0.561	1.444	10.533
27	0.775	1.752	17.333	0.067	0.173	5.678	0.017	0.065	10.550
28	0.453	0.958	17.786	-0.800	-1.155	4.878	24.496	0.988	35.046
29	-0.025	-0.046	17.761	2.219	1.253	7.097	-24.314	-0.985	10.732
30	-0.588	-1.284	17.173	1.476	1.476	8.573	0.232	0.623	10.964

	<b>Energy</b>			<b>Financial Services</b>			<b>Industrial Manufacturing</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
-30	-0.399	-1.449	-0.399	0.277	0.982	0.277	-0.191	-0.388	-0.191
-29	-0.331	-0.957	-0.729	-0.188	-0.676	0.089	-0.153	-0.307	-0.344
-28	-0.334	-0.820	-1.064	-0.061	-0.153	0.028	-0.537	-1.296	-0.881
-27	0.468	1.201	-0.596	-0.075	-0.173	-0.047	-0.126	-0.216	-1.007
-26	0.795	1.201	0.199	0.781	2.452**	0.734	0.059	0.103	-0.948
-25	-0.129	-0.542	0.070	-0.909	-1.838	-0.175	-0.716	-1.984**	-1.664

	Energy			Financial Services			Industrial Manufacturing		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-24	0.135	0.391	0.205	0.767	2.707*	0.591	-0.309	-0.637	-1.972
-23	0.267	0.913	0.473	-0.233	-0.882	0.358	-0.060	-0.198	-2.032
-22	-0.139	-0.545	0.333	0.228	0.603	0.586	0.357	0.900	-1.676
-21	-0.615	-1.726	-0.282	30.705	0.978	31.291	1.012	1.174	-0.664
-20	0.494	1.704	0.213	-30.611	-0.971	0.681	0.169	0.404	-0.495
-19	1.195	1.894	1.408	0.395	1.238	1.075	0.153	0.380	-0.342
-18	1.879	2.607*	3.287	0.648	1.120	1.723	0.750	1.090	0.408
-17	-0.168	-0.391	3.119	0.164	0.429	1.887	0.061	0.119	0.469
-16	0.401	0.687	3.520	0.051	0.066	1.938	-0.305	-0.764	0.164
-15	0.532	1.077	4.052	-0.499	-1.012	1.439	0.566	1.106	0.730
-14	1.234	1.378	5.286	0.608	0.988	2.047	-0.453	-1.208	0.277
-13	0.116	0.354	5.402	0.775	1.789	2.822	0.222	0.461	0.499
-12	0.396	0.873	5.798	1.207	1.672	4.029	0.043	0.149	0.542
-11	0.133	0.369	5.931	-0.187	-0.466	3.841	0.028	0.041	0.570
-10	0.424	1.302	6.355	0.486	1.174	4.327	-0.367	-0.562	0.203
-9	0.848	2.239**	7.203	0.310	0.646	4.637	2.248	3.207*	2.451
-8	0.449	1.217	7.651	0.856	1.349	5.493	-0.204	-0.443	2.247
-7	-0.078	-0.210	7.573	0.417	1.160	5.910	1.418	2.591*	3.665
-6	0.032	0.127	7.605	0.403	0.824	6.313	1.087	1.726	4.752
-5	0.910	1.523	8.515	1.145	1.390	7.457	-0.380	-0.785	4.372
-4	0.696	1.175	9.211	-0.451	-0.872	7.007	-0.643	-1.839	3.729
-3	0.725	1.572	9.936	1.645	2.080**	8.652	0.823	1.147	4.552
-2	0.958	2.228**	10.894	1.156	1.746	9.808	1.694	2.789*	6.246
-1	-0.172	-0.471	10.722	0.408	1.191	10.216	0.269	0.569	6.515
0	-0.046	-0.065	10.676	2.723	2.682*	12.939	0.675	0.849	7.190

Days	Energy			Financial Services			Industrial Manufacturing		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
1	-0.469	-0.851	10.207	-0.377	-0.580	12.562	1.099	0.971	8.288
2	-0.150	-0.290	10.057	-0.038	-0.062	12.524	-0.209	-0.178	8.079
3	0.059	0.119	10.116	0.004	0.008	12.528	0.312	0.345	8.391
4	-0.056	-0.168	10.059	0.564	0.912	13.092	0.649	0.947	9.041
5	-0.079	-0.224	9.981	-0.212	-0.587	12.880	1.495	2.053**	10.535
6	0.283	0.901	10.264	-0.692	-1.301	12.188	-0.240	-0.637	10.295
7	-0.377	-1.062	9.887	0.345	0.991	12.533	-0.138	-0.741	10.157
8	-0.440	-1.168	9.447	0.034	0.103	12.567	-0.424	-0.670	9.733
9	-0.343	-0.935	9.105	0.293	0.822	12.860	0.176	0.246	9.910
10	-0.115	-0.330	8.990	-0.887	-2.437**	11.973	-0.284	-0.637	9.626
11	-0.318	-0.904	8.673	0.096	0.258	12.069	-0.404	-0.910	9.222
12	0.695	1.982**	9.367	1.047	1.811	13.116	0.431	0.646	9.653
13	0.468	1.300	9.836	-0.413	-0.938	12.703	0.480	0.957	10.133
14	-0.015	-0.040	9.820	-0.071	-0.200	12.632	0.430	0.978	10.563
15	0.126	0.348	9.946	-0.281	-1.107	12.352	0.113	0.182	10.676
16	-0.067	-0.183	9.879	0.257	0.585	12.609	-0.255	-0.457	10.421
17	-0.312	-0.793	9.567	-0.355	-1.070	12.254	-0.750	-2.286**	9.671
18	0.770	1.876	10.337	0.476	1.595	12.729	-0.047	-0.114	9.623
19	-0.472	-1.380	9.864	-0.020	-0.084	12.709	0.055	0.153	9.678
20	-0.038	-0.107	9.826	-0.512	-1.652	12.197	0.974	1.279	10.652
21	-0.230	-0.652	9.596	-0.097	-0.317	12.100	-0.640	-0.984	10.012
22	-0.182	-0.393	9.414	0.724	1.521	12.824	0.363	0.600	10.375
23	0.407	1.049	9.822	0.056	0.121	12.880	0.948	1.639	11.323
24	-0.136	-0.445	9.686	0.206	0.565	13.086	-0.370	-0.793	10.953
25	0.072	0.254	9.758	0.580	1.481	13.665	0.365	0.899	11.317

	Energy			Financial Services			Industrial Manufacturing		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
26	0.455	1.453	10.213	0.002	0.006	13.668	0.391	0.933	11.709
27	0.081	0.446	10.293	0.305	0.750	13.973	0.206	0.463	11.914
28	-0.338	-1.187	9.956	0.048	0.102	14.021	-0.944	-1.411	10.970
29	0.426	0.914	10.382	-0.207	-0.535	13.814	-0.769	-1.399	10.201
30	0.614	1.358	10.996	0.015	0.054	13.829	0.618	1.253	10.819

	IT			Media & Entertainment			Metals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.063	0.235	0.063	0.739	0.718	0.739	1.037	1.790	1.037
-29	-0.201	-0.688	-0.138	0.605	0.381	1.344	-0.695	-0.769	0.342
-28	-0.381	-1.427	-0.519	0.725	0.721	2.068	0.903	3.098*	1.246
-27	-0.810	-2.016**	-1.329	-1.102	-0.954	0.966	-2.259	-3.015*	-1.014
-26	-0.078	-0.215	-1.407	-0.330	-0.561	0.637	-0.644	-1.207	-1.658
-25	0.027	0.072	-1.380	-0.007	-0.014	0.630	0.614	0.495	-1.044
-24	0.526	1.064	-0.853	-0.252	-0.476	0.378	-0.835	-1.272	-1.879
-23	0.368	1.188	-0.486	1.171	1.597	1.549	0.707	1.294	-1.172
-22	-0.040	-0.119	-0.525	1.377	1.544	2.925	0.649	0.812	-0.523
-21	0.451	1.974**	-0.074	-1.294	-1.714	1.631	-0.827	-1.203	-1.351
-20	-0.171	-0.564	-0.246	-0.888	-1.289	0.744	-0.632	-0.896	-1.982
-19	-0.414	-1.362	-0.660	0.257	0.281	1.001	-0.121	-0.146	-2.103
-18	0.019	0.059	-0.641	0.453	0.760	1.454	-0.520	-0.537	-2.624
-17	0.463	0.844	-0.178	-0.760	-0.827	0.694	-0.147	-0.271	-2.771
-16	0.169	0.484	-0.009	0.479	0.486	1.172	0.318	0.904	-2.453
-15	-0.013	-0.030	-0.022	-0.887	-1.377	0.286	0.508	0.684	-1.944
-14	-0.065	-0.148	-0.087	-0.267	-0.312	0.019	1.043	1.588	-0.901
-13	0.023	0.074	-0.064	-0.402	-0.789	-0.384	0.612	0.874	-0.289

	IT			Media & Entertainment			Metals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-12	-0.417	-1.572	-0.480	-0.240	-0.306	-0.623	0.029	0.031	-0.259
-11	0.116	0.302	-0.364	0.456	0.364	-0.167	1.215	1.973**	0.956
-10	0.246	0.692	-0.119	0.449	0.532	0.282	-0.659	-2.323**	0.297
-9	-0.036	-0.093	-0.155	2.473	2.071**	2.755	0.372	0.315	0.669
-8	-0.231	-0.629	-0.386	3.560	1.091	6.315	1.574	1.179	2.243
-7	0.086	0.250	-0.299	-3.170	-2.343*	3.146	-1.109	-1.707	1.134
-6	0.113	0.240	-0.186	0.139	0.214	3.285	0.147	0.141	1.281
-5	0.332	0.576	0.146	-0.289	-0.679	2.996	-0.322	-0.476	0.959
-4	0.574	1.548	0.720	-1.698	-3.122*	1.298	-0.124	-0.123	0.835
-3	-0.285	-0.752	0.435	-0.445	-0.718	0.853	1.799	2.285**	2.635
-2	0.630	1.081	1.065	-0.149	-0.177	0.704	1.057	1.010	3.692
-1	0.313	0.822	1.378	1.060	1.102	1.765	1.467	1.328	5.159
0	1.582	2.259**	2.960	3.395	0.947	5.160	1.424	0.923	6.583
1	1.079	2.095**	4.039	0.948	0.987	6.109	1.445	1.046	8.028
2	-0.459	-1.158	3.580	1.018	0.794	7.127	0.549	0.712	8.577
3	-0.080	-0.231	3.500	-1.900	-0.808	5.227	0.669	1.597	9.246
4	0.051	0.178	3.551	2.000	0.898	7.226	0.624	1.039	9.870
5	-0.342	-0.973	3.209	0.127	0.131	7.353	-1.695	-2.289**	8.174
6	20.257	1.006	23.466	-0.992	-0.999	6.360	0.885	1.279	9.059
7	-19.801	-0.981	3.664	-0.786	-1.416	5.574	-1.168	-1.846	7.891
8	19.252	1.008	22.916	0.357	0.691	5.932	-0.207	-0.531	7.684
9	-19.454	-1.018	3.462	-1.100	-1.071	4.832	0.494	0.387	8.178
10	17.322	0.979	20.784	-1.406	-2.064**	3.426	0.148	0.161	8.326
11	-17.574	-0.997	3.209	0.191	0.175	3.617	0.480	0.972	8.806
12	0.328	1.220	3.538	-0.457	-0.247	3.160	0.036	0.083	8.842

	IT			Media & Entertainment			Metals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
13	0.000	-0.001	3.537	-1.124	-0.889	2.035	-0.359	-0.421	8.483
14	-0.408	-1.620	3.130	-0.947	-1.454	1.089	1.461	1.840	9.944
15	0.045	0.127	3.175	-1.043	-2.329*	0.045	0.630	1.659	10.574
16	0.436	1.014	3.611	0.413	0.438	0.458	0.250	0.560	10.824
17	0.348	1.405	3.959	-0.815	-0.784	-0.357	-0.014	-0.036	10.810
18	0.196	0.890	4.155	-2.084	-1.173	-2.442	-0.004	-0.004	10.806
19	0.166	0.308	4.321	-0.831	-0.926	-3.272	1.114	2.639*	11.919
20	0.252	0.617	4.573	-0.207	-0.159	-3.479	0.669	0.571	12.588
21	-0.362	-0.788	4.211	0.499	0.422	-2.980	1.320	1.041	13.908
22	0.882	1.431	5.093	-0.142	-0.219	-3.123	-0.032	-0.030	13.877
23	-0.450	-1.092	4.642	-0.768	-1.563	-3.890	-0.148	-0.160	13.728
24	0.480	1.254	5.122	2.251	1.719	-1.639	-1.141	-1.081	12.588
25	0.651	2.423**	5.773	-0.480	-0.555	-2.119	2.202	1.484	14.790
26	0.325	0.953	6.098	1.551	1.462	-0.568	-0.008	-0.009	14.782
27	0.132	0.387	6.229	-0.968	-1.350	-1.536	1.293	0.875	16.075
28	0.716	1.458	6.945	0.665	1.097	-0.871	1.336	1.975**	17.412
29	0.456	1.175	7.402	1.197	0.779	0.326	0.874	1.882	18.285
30	-0.018	-0.039	7.383	-0.657	-1.431	-0.331	-1.198	-0.939	17.088

	Pharma			Services		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.215	0.458	0.215	0.690	1.308	0.690
-29	0.920	2.226**	1.136	0.481	1.050	1.171
-28	-1.259	-3.398*	-0.123	0.415	0.731	1.585
-27	-0.582	-1.380	-0.705	-0.208	-0.483	1.377
-26	-0.337	-0.725	-1.042	0.535	0.729	1.912



	Pharma			Services		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-25	-0.016	-0.028	-1.057	-0.718	-1.892	1.194
-24	0.776	1.404	-0.282	-0.224	-0.710	0.970
-23	-0.686	-1.751	-0.968	0.124	0.188	1.094
-22	-0.285	-0.625	-1.253	0.324	0.554	1.418
-21	1.669	1.920	0.416	-0.125	-0.286	1.293
-20	0.591	0.875	1.007	0.152	0.310	1.445
-19	0.324	0.911	1.331	-0.075	-0.215	1.369
-18	-0.100	-0.289	1.231	-0.092	-0.206	1.277
-17	0.439	0.905	1.671	-0.023	-0.062	1.254
-16	0.630	0.958	2.300	-0.578	-1.179	0.676
-15	-0.639	-1.875	1.662	-0.031	-0.069	0.645
-14	0.693	1.593	2.354	0.347	0.770	0.993
-13	0.100	0.215	2.454	-0.311	-0.546	0.682
-12	0.247	0.493	2.701	-0.956	-2.644*	-0.274
-11	0.301	0.628	3.002	-0.090	-0.200	-0.364
-10	0.723	1.659	3.725	2.153	1.389	1.789
-9	-0.255	-0.557	3.470	-0.674	-1.440	1.115
-8	0.338	0.918	3.808	-0.377	-1.240	0.738
-7	1.024	2.435**	4.833	1.722	1.481	2.460
-6	0.910	1.090	5.743	-0.240	-0.374	2.221
-5	2.329	2.628*	8.071	-0.382	-0.522	1.838
-4	1.159	1.813	9.230	0.136	0.238	1.974
-3	0.443	0.752	9.673	0.855	1.198	2.829
-2	0.834	1.214	10.507	0.258	0.522	3.087
-1	1.109	1.590	11.616	1.381	1.460	4.468

	Pharma			Services		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
0	0.264	0.293	11.880	0.227	0.384	4.695
1	0.712	0.737	12.592	2.816	1.713	7.511
2	-0.598	-0.943	11.994	-0.892	-1.484	6.620
3	-0.893	-2.112**	11.101	-0.080	-0.260	6.539
4	-0.231	-0.553	10.870	-0.060	-0.099	6.480
5	0.565	1.527	11.435	0.833	1.511	7.313
6	-0.554	-1.319	10.881	0.247	0.354	7.560
7	0.526	1.016	11.406	0.490	0.960	8.050
8	-0.188	-0.476	11.219	0.415	0.685	8.465
9	0.482	1.753	11.700	0.558	1.066	9.022
10	0.512	1.262	12.212	-0.119	-0.332	8.903
11	-0.097	-0.257	12.115	-0.542	-0.676	8.362
12	-0.432	-1.025	11.683	-0.359	-0.711	8.002
13	0.337	0.839	12.021	0.259	0.825	8.261
14	-0.001	-0.003	12.019	1.675	3.470*	9.936
15	1.085	1.883	13.104	-0.602	-1.044	9.334
16	-0.217	-0.276	12.887	0.128	0.291	9.461
17	-0.295	-0.426	12.592	0.255	0.617	9.717
18	0.131	0.293	12.723	0.608	1.115	10.325
19	0.433	1.088	13.156	0.200	0.440	10.525
20	0.116	0.243	13.272	0.048	0.173	10.573
21	-0.457	-1.217	12.815	-0.454	-0.768	10.119
22	-0.052	-0.116	12.763	1.713	1.071	11.831
23	0.767	1.202	13.530	0.226	0.330	12.057
24	0.745	1.468	14.275	-0.503	-0.828	11.554

	Pharma			Services		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
25	-0.172	-0.413	14.103	0.210	0.328	11.764
26	0.614	1.276	14.716	0.132	0.194	11.896
27	0.632	1.169	15.348	0.285	0.659	12.181
28	0.271	0.724	15.619	-0.113	-0.207	12.068
29	0.441	0.933	16.060	-0.413	-1.052	11.655
30	0.603	1.357	16.663	0.200	0.241	11.855
* 1 percent Significance						
** 5 percent Significance						

### 5.2.2 Industry Reaction to Announcement of Right Issue

Table 5.9 presents the analysis of abnormal stock returns generated during, before and after the announcement of right issue by different companies belonging to different industries. The calculated t-statistics are also given in the table which helps to identify whether the announcement of right issue has any significant impact on the abnormal returns generated in different industries. Seven industries have been selected for the purpose of estimation of impact of right issue announcement on returns generated. The industries are namely- automobile, consumer goods, construction, financial services, media and entertainment, metals and services. Further analysis in the long-run (-30, 0, +30), medium-term (-15, 0, +15), short-term (-5, 0, +5) and immediate term (-1, 0, +1) is explained. In the immediate term, there exists no significant impact of right issue announcement on stock returns generated in the pre-event and post event window for automobile, financial services and services industries. While, negative significant returns were generated in the pre-event window in the construction and positive significant returns were generated in the pre-event window in the consumer goods industry. The positive and significant AAR in consumer goods industry on day -1 indicates towards a possible inside trading done by investors. Further, industries such as media and entertainment and metals generated negative returns on day +1. The negative returns peaked at -4.67 percent and -3.29 percent on +1 day for media and entertainment and metals industry

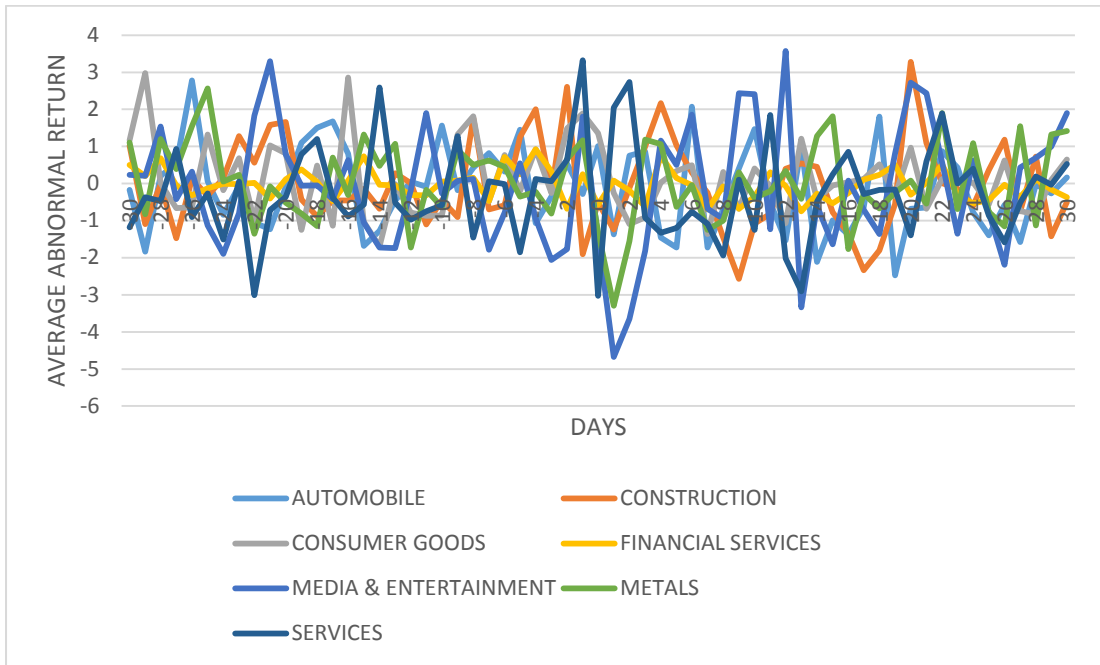
respectively. The returns for metals industry were negative generating -1.30 percent on event day, stating that announcement of right issue generated negative abnormal returns for investors, implying investors over-assumption of returns from the happening of the event.

Further, analysis of the short-term period of 11 days (-5, 0, +5) revealed positive abnormal returns of 1.00 percent were generated on the event day for automobile industries, these returns were preceded by negative returns of -0.28 percent on day -1. The returns in the pre-event window fluctuated every day from positive to negative as AAR on day -5 was estimated at 1.44 percent, followed by negative returns of -1.06 percent and -0.35 percent on -4 and -3 day. The negative returns were then succeeded by positive returns of 0.53 percent on day -2. However, the gains were short-lived as AAR turned trend and slipped into negative territory. None of the returns estimated in the pre-event window generated significant returns thereby, directing towards no significant impact of right issue announcement on automobile industry in the pre-event window. The returns generated in the construction industry on day -5 and -4 were positive at 1.25 percent and 2.00 percent, however, they turned negative on day -3 to -0.22 percent. This correction in return was only temporary as -2 day generated the largest magnitude of positive and significant returns of 2.60 percent. The returns then reversed and became negative and continued to remain so till +2 day. The returns once again switched their sign and became positive on day +3 and +4 and significant on day +4. A similar trend of AARs was seen in the consumer goods industry with the highest magnitude of returns on day -1 at 1.89 percent which were statistically tested at 5 percent of significance. The returns on day +1, +2, and +3 were negative and insignificant. Thus, implying no significant impact of right issue on stock returns in the post event window. The analysis of AAR for financial services industry revealed significant positive return on day -4 and +4. The magnitude of returns was highest on day -4 and they started to decrease from that day. The significance of returns implies a short-term impact of right issue announcement on financial services industry or a possibility of investors trading on insider information which may lead to manipulation of the outcome of the news. Further, the returns in the media and entertainment were statistically negative on day

-3, -2, +1, +2. The returns generated in the metals industry from day -5 to day +5 were negative for all days and statistically significant on day +1 and +2. Thereby, stating a negative impact of right issue announcement on returns of media and entertainment and metals industry. Further analysis of returns of the services industry signaled towards negative and statistically significant return on day +5 and positive returns on day +2. The results showcased a significant impact of right issue announcement on stock returns of services industry.

The study further conducts an analysis of abnormal returns generated in different industries during the medium-term. In the medium-term window, investors earned negative abnormal returns for 17 days and positive abnormal returns for 14 days. While the returns on -15, -14 +7, +12, +14 days were statistically negative, the returns on -7, +3, +6 days were statistically positive. The significance of returns on -15, -14 and +14 days indicate a medium-term influence of right issue announcement on AARs of automobile industry. The construction and consumer goods industry generated negative abnormal returns for 18 days and positive abnormal returns for 13 days. The only significant returns in the construction industry were earned on day +8 and +9 days. Thus, signifying towards a small impact of right issue on stock returns of construction industry in the post event time. While, the AARs for consumer goods industry was significant only on -14 day. The significance of returns on -14 day indicate towards a negative influence of right issue announcement on AARs of consumer goods industry in the pre-announcement period. Further, the AARs of financial services industry were positive for 18 days and negative for 13 days and positively significant on -15 and -6 days and negatively significant on +7 and +13 days. More positive than negative returns implied a greater positive influence of right issue announcement on ARR of financial services industry. The returns on -14, -11, -7 and +13 days were statistically significant for media and entertainment industry. Positive abnormal returns were generated for 20 days and negative abnormal returns were generated for 11 days. The metals industry earned abnormal returns which were positive for 15 days and abnormal returns which were negative for 16 days, out of which returns on day -13, -12, +1, +2, +7 and +10 were statistically negative. Thus, inferring at a negative influence of right issue on stocks of metals industry. The

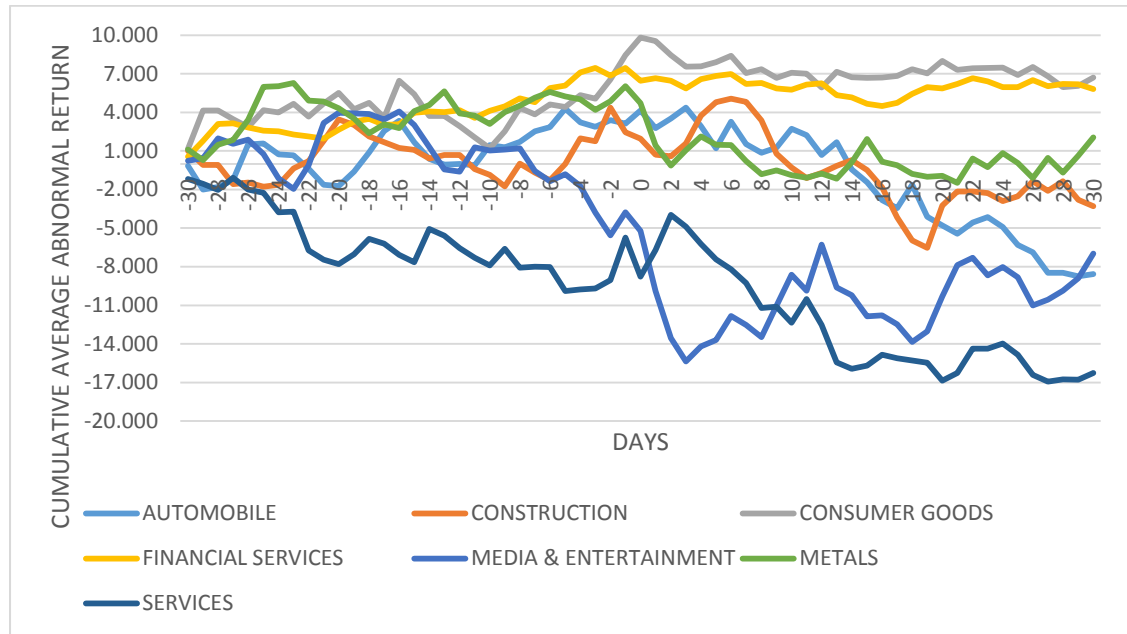
returns in services industry were negative for 19 days and positive for 12 days and negatively significant on +8 and +13 days and positively significant on +2 day. Figure 5.5 and figure 5.6 showcases the average abnormal returns and cumulative average abnormal returns earned by different industries upon the announcement of right issue.



**Figure 5.5 : Interindustry Average Abnormal Returns for Right Issue**

The research further conducted an analysis of AARs in the long-term window. The returns were statistically significant on day -29 and +27, -27 and +29, -25, -22 and +28 days for automobile, construction and consumer goods industry respectively. Implying a long-term influence of right issue on the stock returns of the above-mentioned industries. The ARR for financial services industry were significant on -28 day, media and entertainment industry on days -23, -22, -21 and +29, metals industry on days -30, -25, -22 +22 and +29 and services industry on days -30, -28, -27, -26, -22, -19, +21, +25 and +27. The statistical significance of returns in the long-term window signals towards a strong influence of right issue announcement on services, automobile, construction, consumer goods, media and entertainment and metals industry while a small influence of right issue announcement on stock returns in financial services industry that too only in the pre-event window. The highest

AAR of 2.77 percent was generated on day -26 for automobile industry, 3.27 percent was earned on day +20 for construction industry, 2.97 percent for consumer goods industry on day -29, 1.30 percent on day -28 for financial services industry, 3.57 percent for media and entertainment industry on day +12, 2.56 on day -25 for metals industry and 3.32 percent was earned on day -1 for services industry.



**Figure 5.6 : Interindustry Cumulative Average Abnormal Returns for Right Issue**

Automobile industry earned a CAAR of -8.57 percent, construction industry -3.29 percent, consumer goods industry 6.70 percent, financial services 5.80 percent, media and entertainment 0.58 percent, metals 2.06 percent and services -16.25 percent. The CAAR values reported for industries represented the average abnormal rate of return generated by different industries over a 61-day event window. Moreover, it was found CAAR of financial services industry was the highest during the event window, implying investors investing in financial services industry in the long-period were more likely to earn greater returns than investing in other industries. Also, those investors holding stocks of services industry in the long period were most likely to suffer losses as the CAAR of services industry underperformed the CAARs of other industries.

**Table 5.9 : Analysis of Industry Reaction to Announcement of Right Issue**

Days	Automobile			Construction			Consumer Goods		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	-0.167	-0.169	-0.167	1.017	0.634	1.017	1.168	0.804	1.168
-29	-1.835	-2.455**	-2.002	-1.092	-1.013	-0.075	2.975	1.605	4.143
-28	0.206	0.450	-1.796	-0.023	-0.023	-0.098	0.007	0.009	4.149
-27	0.531	0.631	-1.265	-1.478	-2.032**	-1.576	-0.666	-0.441	3.483
-26	2.776	0.933	1.511	0.125	0.195	-1.450	-0.634	-0.557	2.850
-25	0.058	0.071	1.569	-0.326	-0.620	-1.776	1.322	1.700	4.171
-24	-0.841	-0.600	0.728	0.140	0.191	-1.636	-0.182	-0.296	3.990
-23	-0.068	-0.110	0.660	1.280	1.380	-0.356	0.680	0.974	4.670
-22	-1.054	-1.002	-0.394	0.565	0.853	0.209	-1.009	-2.010**	3.660
-21	-1.233	-1.299	-1.626	1.580	0.765	1.790	1.025	0.494	4.685
-20	-0.092	-0.148	-1.719	1.662	1.297	3.452	0.815	0.932	5.501
-19	1.098	3.703*	-0.621	-0.428	-0.418	3.024	-1.247	-1.216	4.254
-18	1.499	1.340	0.877	-0.888	-1.062	2.137	0.487	0.510	4.741
-17	1.673	1.536	2.551	-0.453	-0.338	1.684	-1.140	-1.898	3.601
-16	0.802	0.696	3.353	-0.455	-0.591	1.229	2.854	1.627	6.454
-15	-1.679	-2.218**	1.673	-0.144	-0.145	1.085	-1.035	-1.753	5.420
-14	-1.278	-2.319**	0.395	-0.678	-1.591	0.407	-1.699	-3.107*	3.721
-13	-0.456	-1.347	-0.061	0.281	0.230	0.687	-0.012	-0.016	3.709
-12	0.045	0.085	-0.016	0.010	0.021	0.697	-0.786	-0.918	2.923
-11	-0.083	-0.283	-0.099	-1.101	-0.543	-0.404	-0.869	-0.984	2.054
-10	1.564	1.618	1.465	-0.451	-0.432	-0.855	-0.858	-0.923	1.196
-9	-0.180	-0.220	1.285	-0.903	-0.862	-1.758	1.324	1.490	2.520
-8	0.421	0.307	1.706	1.767	1.066	0.009	1.817	0.904	4.337
-7	0.822	2.337**	2.528	-0.698	-0.764	-0.689	-0.484	-0.461	3.853



	Automobile			Construction			Consumer Goods		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-6	0.317	1.041	2.846	-0.585	-1.823	-1.274	0.769	1.112	4.622
-5	1.447	1.463	4.293	1.254	0.534	-0.020	-0.210	-0.139	4.412
-4	-1.068	-1.347	3.224	2.003	1.209	1.983	0.925	1.567	5.337
-3	-0.352	-0.399	2.872	-0.224	-0.190	1.759	-0.261	-0.358	5.076
-2	0.536	0.911	3.408	2.607	2.342**	4.367	1.485	1.524	6.561
-1	-0.281	-0.123	3.127	-1.905	-2.371**	2.461	1.895	2.003**	8.455
0	1.008	0.446	4.135	-0.513	-0.362	1.949	1.354	1.445	9.810
1	-1.370	-1.295	2.765	-1.244	-1.377	0.705	-0.258	-0.401	9.551
2	0.753	0.874	3.518	-0.124	-0.210	0.581	-1.097	-1.286	8.454
3	0.862	1.883	4.380	0.998	0.822	1.579	-0.913	-1.382	7.541
4	-1.457	-1.616	2.923	2.169	1.732	3.748	0.026	0.053	7.567
5	-1.724	-1.540	1.199	1.031	0.822	4.779	0.342	0.437	7.909
6	2.069	2.273**	3.267	0.296	0.352	5.074	0.493	0.368	8.401
7	-1.724	-3.717**	1.543	-0.253	-0.269	4.821	-1.358	-1.670	7.043
8	-0.687	-0.620	0.856	-1.456	-2.359**	3.365	0.312	0.253	7.356
9	0.411	0.568	1.267	-2.570	-3.883*	0.796	-0.680	-0.983	6.676
10	1.469	0.844	2.736	-1.078	-0.831	-0.282	0.404	0.563	7.080
11	-0.513	-0.760	2.223	-0.821	-1.772	-1.103	-0.072	-0.112	7.008
12	-1.533	-2.142**	0.690	0.402	0.308	-0.701	-1.066	-0.664	5.941
13	0.982	0.914	1.671	0.544	0.435	-0.157	1.212	1.661	7.153
14	-2.113	-2.606*	-0.441	0.452	0.585	0.295	-0.422	-0.643	6.731
15	-0.987	-1.190	-1.429	-0.777	-0.566	-0.482	-0.046	-0.072	6.685
16	-1.382	-2.047**	-2.811	-1.342	-2.123**	-1.824	0.032	0.039	6.717
17	-0.633	-1.101	-3.445	-2.342	-1.456	-4.166	0.124	0.201	6.841
18	1.807	1.126	-1.638	-1.805	-0.982	-5.971	0.517	0.972	7.358

	<b>Automobile</b>			<b>Construction</b>			<b>Consumer Goods</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
19	-2.480	-1.631	-4.117	-0.551	-0.500	-6.522	-0.333	-0.669	7.024
20	-0.678	-1.126	-4.796	3.278	1.769	-3.244	0.967	1.714	7.992
21	-0.647	-1.437	-5.443	1.091	0.654	-2.152	-0.677	-0.940	7.314
22	0.874	0.756	-4.569	0.006	0.005	-2.147	0.122	0.255	7.436
23	0.429	1.513	-4.140	-0.134	-0.095	-2.281	0.010	0.019	7.446
24	-0.773	-0.449	-4.913	-0.606	-0.561	-2.887	0.027	0.069	7.473
25	-1.397	-0.805	-6.309	0.361	0.157	-2.527	-0.560	-1.312	6.913
26	-0.574	-0.495	-6.884	1.182	0.805	-1.344	0.624	1.023	7.537
27	-1.578	-1.874	-8.462	-0.750	-0.824	-2.094	-0.741	-1.258	6.795
28	-0.022	-0.026	-8.484	0.727	0.701	-1.366	-0.837	-1.846	5.958
29	-0.263	-0.093	-8.747	-1.427	-1.714	-2.793	0.098	0.080	6.056
30	0.168	0.109	-8.579	-0.499	-0.412	-3.292	0.647	0.638	6.703

	<b>Financial Services</b>			<b>Media &amp; Entertainment</b>			<b>Metals</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
-30	0.569	1.341	0.569	0.235	0.265	0.235	1.103	2.597*	1.103
-29	1.215	1.532	1.784	0.210	0.638	0.445	-0.827	-1.603	0.276
-28	1.308	1.972**	3.092	1.537	0.981	1.982	1.202	0.848	1.478
-27	0.050	0.170	3.143	-0.418	-1.057	1.564	0.387	0.362	1.865
-26	-0.328	-0.982	2.814	0.320	0.403	1.884	1.548	1.128	3.413
-25	-0.243	-0.560	2.571	-1.133	-0.866	0.751	2.567	4.980*	5.980
-24	-0.038	-0.095	2.533	-1.895	-1.574	-1.144	0.057	0.115	6.037
-23	-0.245	-0.634	2.288	-0.799	-1.726	-1.943	0.238	0.397	6.275
-22	-0.172	-0.459	2.116	1.830	2.205**	-0.113	-1.355	-2.993*	4.919
-21	-0.154	-0.299	1.962	3.296	2.337**	3.183	-0.079	-0.096	4.840

	Financial Services			Media & Entertainment			Metals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-20	0.691	1.056	2.653	0.787	0.346	3.969	-0.514	-1.126	4.326
-19	0.614	1.143	3.267	-0.055	-0.046	3.914	-0.810	-1.474	3.517
-18	0.221	0.502	3.488	-0.048	-0.073	3.866	-1.143	-1.422	2.374
-17	-0.465	-1.568	3.024	-0.423	-1.218	3.443	0.701	0.518	3.075
-16	0.062	0.182	3.086	0.628	0.924	4.071	-0.309	-0.240	2.766
-15	0.878	2.967*	3.963	-1.048	-1.051	3.023	1.325	1.782	4.090
-14	0.101	0.333	4.064	-1.723	-3.868*	1.299	0.476	0.462	4.566
-13	-0.052	-0.172	4.012	-1.743	-0.847	-0.444	1.075	2.788*	5.641
-12	0.158	0.243	4.170	-0.168	-0.683	-0.611	-1.723	-1.999**	3.918
-11	-0.595	-1.587	3.575	1.903	2.178**	1.292	-0.174	-0.236	3.744
-10	0.543	0.939	4.117	-0.263	-0.326	1.029	-0.638	-0.556	3.106
-9	0.338	0.885	4.455	0.069	0.085	1.098	0.905	1.128	4.010
-8	0.628	1.232	5.083	0.118	0.192	1.216	0.500	0.966	4.510
-7	-0.286	-0.454	4.797	-1.787	-2.505**	-0.571	0.627	0.372	5.137
-6	1.080	1.992**	5.877	-0.780	-1.009	-1.351	0.451	0.410	5.588
-5	0.198	0.429	6.075	0.549	0.461	-0.802	-0.352	-1.423	5.236
-4	1.030	1.984**	7.104	-0.938	-1.651	-1.740	-0.222	-0.115	5.014
-3	0.337	0.728	7.441	-2.064	-2.261**	-3.804	-0.814	-1.218	4.200
-2	-0.574	-1.724	6.867	-1.765	-2.108**	-5.569	0.659	0.925	4.859
-1	0.585	1.136	7.452	1.805	0.819	-3.764	1.165	1.364	6.023
0	-0.994	-1.165	6.458	-1.454	-1.435	-5.218	-1.309	-1.681	4.714
1	0.208	0.374	6.666	-4.678	-7.664*	-9.896	-3.294	-3.558*	1.421
2	-0.219	-0.701	6.447	-3.648	-4.022*	-13.544	-1.548	-2.989*	-0.128
3	-0.584	-1.674	5.863	-1.815	-1.010	-15.360	1.185	1.380	1.058
4	0.712	1.865	6.575	1.154	1.749	-14.206	1.063	0.601	2.120

	Financial Services			Media & Entertainment			Metals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
5	0.251	0.670	6.826	0.502	0.320	-13.704	-0.628	-0.419	1.492
6	0.154	0.413	6.980	1.860	2.361**	-11.843	-0.043	-0.026	1.450
7	-0.761	-2.088**	6.219	-0.677	-0.434	-12.521	-1.248	-2.913*	0.202
8	0.053	0.151	6.272	-0.946	-0.850	-13.467	-1.003	-1.120	-0.801
9	-0.423	-0.796	5.849	2.434	1.361	-11.033	0.303	0.335	-0.498
10	-0.094	-0.176	5.755	2.409	0.688	-8.624	-0.385	-4.311*	-0.883
11	0.393	1.046	6.149	-1.236	-0.563	-9.860	-0.203	-0.269	-1.086
12	0.112	0.328	6.261	3.577	1.326	-6.283	0.339	0.390	-0.746
13	-0.934	-2.616*	5.327	-3.340	-3.581*	-9.623	-0.417	-0.353	-1.163
14	-0.159	-0.458	5.168	-0.601	-0.352	-10.224	1.283	0.855	0.120
15	-0.501	-1.146	4.667	-1.636	-0.774	-11.861	1.815	1.502	1.935
16	-0.168	-0.546	4.499	0.080	0.057	-11.780	-1.767	-3.926*	0.168
17	0.253	0.729	4.752	-0.704	-7.107*	-12.484	-0.272	-0.184	-0.104
18	0.682	1.291	5.434	-1.360	-1.434	-13.844	-0.675	-1.265	-0.779
19	0.525	1.179	5.959	0.809	1.163	-13.035	-0.241	-0.292	-1.020
20	-0.090	-0.265	5.869	2.718	1.099	-10.317	0.080	0.140	-0.939
21	0.343	0.872	6.212	2.439	2.961*	-7.878	-0.541	-0.565	-1.480
22	0.451	1.240	6.663	0.574	0.381	-7.304	1.904	1.798	0.423
23	-0.253	-0.928	6.410	-1.356	-2.716*	-8.660	-0.688	-0.869	-0.265
24	-0.444	-1.398	5.966	0.624	0.302	-8.036	1.090	0.663	0.825
25	-0.001	-0.002	5.965	-0.775	-0.454	-8.811	-0.770	-0.776	0.055
26	0.542	0.816	6.507	-2.191	-7.027*	-11.002	-1.153	-1.570	-1.098
27	-0.483	-1.369	6.024	0.434	0.235	-10.569	1.548	0.839	0.450
28	0.188	0.469	6.212	0.691	0.680	-9.878	-1.132	-0.655	-0.683
29	-0.029	-0.064	6.183	0.992	1.672	-8.886	1.324	2.565*	0.642
30	-0.383	-0.995	5.800	1.901	0.588	-6.985	1.420	0.834	2.062

	<b>Services</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
-30	-1.182	-2.300*	-1.182
-29	-0.367	-0.655	-1.550
-28	-0.469	-1.713	-2.019
-27	0.933	2.204**	-1.086
-26	-0.906	-2.080**	-1.993
-25	-0.270	-0.849	-2.262
-24	-1.509	-0.870	-3.771
-23	0.055	0.044	-3.716
-22	-3.011	-1.967**	-6.727
-21	-0.719	-1.085	-7.446
-20	-0.365	-0.351	-7.811
-19	0.786	2.923*	-7.025
-18	1.200	1.117	-5.824
-17	-0.375	-0.766	-6.200
-16	-0.891	-0.417	-7.090
-15	-0.566	-0.428	-7.656
-14	2.587	0.897	-5.070
-13	-0.515	-0.309	-5.585
-12	-0.974	-0.694	-6.560
-11	-0.746	-0.986	-7.306
-10	-0.587	-0.848	-7.893
-9	1.280	0.857	-6.613
-8	-1.457	-1.106	-8.069
-7	0.058	0.063	-8.012
-6	-0.016	-0.028	-8.027

	<b>Services</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
-5	-1.853	-1.715	-9.880
-4	0.125	0.130	-9.754
-3	0.059	0.091	-9.696
-2	0.644	1.086	-9.052
-1	3.325	0.821	-5.727
0	-3.032	-0.804	-8.759
1	2.043	1.118	-6.716
2	2.739	1.866	-3.977
3	-0.923	-0.730	-4.901
4	-1.332	-1.492	-6.232
5	-1.202	-2.924*	-7.434
6	-0.755	-0.352	-8.190
7	-1.087	-1.146	-9.277
8	-1.939	-2.060**	-11.216
9	0.104	0.183	-11.112
10	-1.253	-1.270	-12.365
11	1.846	0.609	-10.518
12	-2.014	-1.551	-12.533
13	-2.909	-2.278**	-15.442
14	-0.491	-0.470	-15.933
15	0.246	0.307	-15.687
16	0.852	1.245	-14.835
17	-0.286	-0.242	-15.121
18	-0.172	-0.374	-15.293
19	-0.165	-0.232	-15.458

	<b>Services</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
20	-1.399	-3.398*	-16.858
21	0.593	1.993**	-16.265
22	1.887	1.183	-14.377
23	0.003	0.008	-14.375
24	0.396	0.517	-13.979
25	-0.860	-2.491**	-14.839
26	-1.583	-1.613	-16.421
27	-0.519	-2.365**	-16.941
28	0.193	0.394	-16.747
29	-0.033	-0.022	-16.780
30	0.524	0.542	-16.256
* 1 percent Significance			
** 5 percent Significance			

### 5.2.3 Industry Reaction to Announcement of Share Buyback

Table 5.10 highlights the AAR generated and their calculated t-statistics for eight industries during the immediate term (-1, 0, +1) short term (-5, 0, +5), medium term (-15, 0, +15) and long term (-30, 0, +30). The average abnormal returns generated in the immediate time for consumer goods industry were positive at 0.475 percent on 0-day, 0.78 percent on -1 day and -0.459 percent on +1 day. However, the AARs were not statistically significant implying no significant influence of share buyback announcement on returns of consumer goods industry in the immediate period. The AAR of energy on -1 day was 0.56 percent and -0.006 percent for financial services industry, while the returns on day 0 and day +1 were estimated at -1.05 percent and -0.60 percent for energy and 1.40 percent and 1.99 percent for financial services industry were statistically insignificant.

The AARs on day -1 for industrial manufacturing and IT industry were positive 1.83 percent and 1.90 percent and statistically significant implying investors factoring in the news of share buyback before the actual announcement day. The AARs generated on day 0 for industrial manufacturing and IT were -1.65 percent and -1.92 percent and were not statistically significant. Whereas, the return earned by stocks of media and entertainment were -1.55 percent and were statistically significant. The AARs on day +1 were negative for all the three industries at -2.16 percent (industrial manufacturing), -2.14 percent (IT) and -2.24 percent (media and entertainment). Additionally, the returns for IT and media and entertainment industry on day +1 were significant and negative. Thus, implying towards a negative influence of share buyback announcement on returns of IT and media and entertainment industry. Furthermore, the returns for pharma industry were statistically significant and positive on day 0 earning 2.86 percent returns and positive on day +1 generating 0.43 percent returns implying that the markets did not react completely to the information of share buyback and a possibility to earn positive return existed upto day +1. The AARs for consumer goods, energy, industrial manufacturing, IT, media and entertainment and services industry were positive on day -1, and negative on day +1, implying investors were more likely to earn positive returns in industry before the announcement of share buyback and negative returns post the announcement. Thus, hinting at a possible information leakage in the market as investors capture the gains before the actual announcement day.

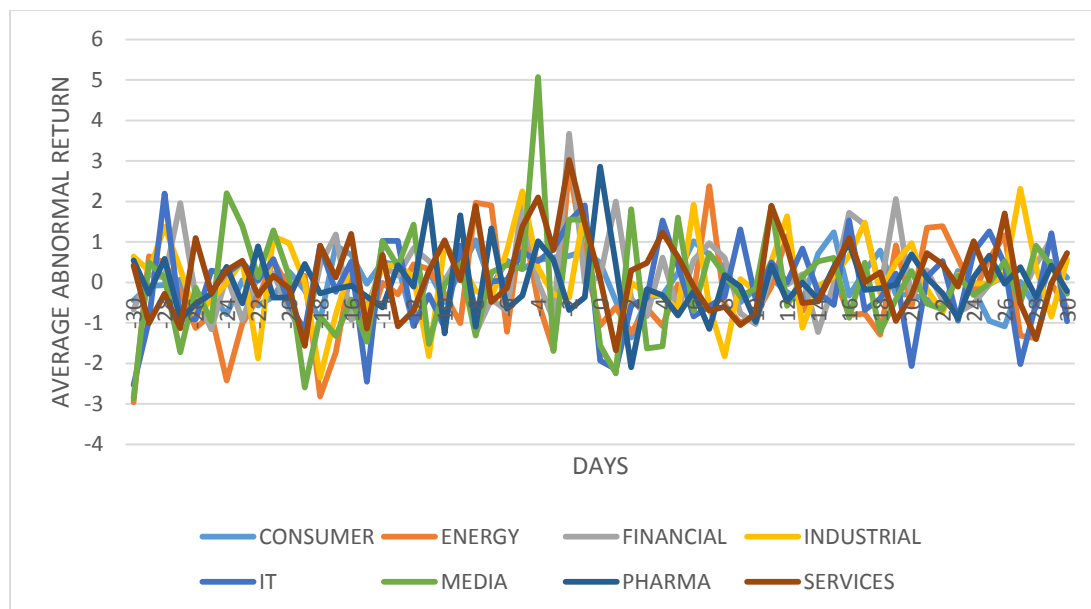
The short-term analysis of AARs for consumer goods industry revealed, returns were positive for all days before the announcement and negative from day +1 to +4 post the announcement. Thus, signalling that in the short-term period, investors investing in stocks of consumer goods industry have a likely chance to earn positive returns only in the pre announcement period and if they continue to hold the investment in the post announcement period, they will incur losses as AARs continue to fall. The AARs for energy and industrial manufacturing industry fluctuated between positive and negative in the pre-event window and were statistically significant on day -2 and -1 respectively, however, the returns turned negative at the announcement of share



buyback and continued to remain so till day +5. The AARs for financial services were statistically positive and negative on day -2 and +3 respectively. On day -5, the AAR was positive at 2.03 percent, followed by negative return of -0.003 percent and -0.91 percent on day -4 and -3. The return on day -1 was negative at -0.006 percent and positive on day 0 and +1 at 0.14 percent and 1.99 percent, following day +1 the trend of positive returns was reversed as they turned negative to -0.39 percent on +2 day and -0.83 percent on +3 day. Further analysis of IT industry revealed, the AARs gained momentum from day -5 and peaked on day -1 at 1.90 percent which were statistically tested at 5 percent significance level. The returns then turned negative on day 0 and continued to slide till day +3. Following this day, the returns became significantly positive on day +4 indicating towards a significant influence of announcement of share buyback on the returns in the post event window and no impact in the pre-event window. Similarly, the returns for media and entertainment industry fluctuated between positive and negative on days before the event, with significant returns only on day -2. However, the returns on day 0, +1, +3, +4 and +5 were statistically significant at 1 and 5 percent significance level. Thereby, stating a stronger impact of share buyback news on stock returns of media and entertainment industry in the post event than the pre-event window. It also implied that the markets continued to react to the news of share buyback by firms in the media and entertainment industry. The AARs for pharma industry were only significant on day 0 and +2, while the returns post +1 day remained negative, implying negative influence of news on stock returns. However, this influence was not statistically significant. The AARs for services industry were statistically positive on day -4, -2 and -1 and negative on day +1, stating a more significant influence of share buyback news on returns of pre-event window.

The medium-term analysis of AARs for consumer goods industry revealed, significant returns on day -12, +2 and +6 and positive returns during 19 days and negative during 12 days in total. The results revealed share buyback announcement had a more significant impact in the post announcement than the pre-announcement during the medium term. Further, the AARs for energy industry were negative during

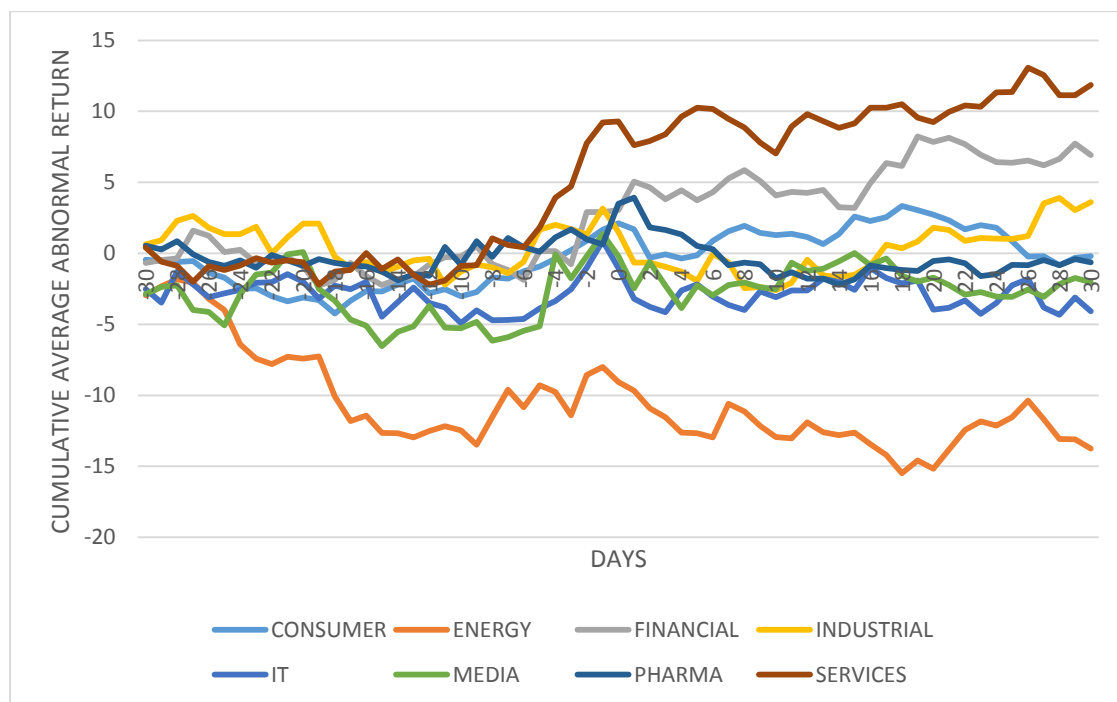
21 days and positive during 10 days, with significant and positive returns on day -7, -2 and +7. The medium-term analysis revealed the influence of share buyback on stock returns start to fade from day +7 and -7. Figure 5.7 and 5.8 represents the average abnormal returns and cumulative average abnormal returns generated in different industries during the announcement of share buyback.



**Figure 5.7 : Interindustry Average Abnormal Returns for Share Buyback**

The AARs of financial services industry were positive during 16 days and negative during 15 days having significant returns on -2 and +3 days. Industrial manufacturing industry saw positive AARs for 14 days and negative AARs for 17 days, with significant returns only on day -1, +6 and +8 days. Thereby, implying not a strong influence of share buyback announcement on returns of stocks in industrial manufacturing industry. The continuous decline in the CAAR of stocks of industrial manufacturing industry signaled that on average the amount of share buyback announced was below the expectations of the market. The ARR for IT industry were positive during 15 days and negative during 16 days, having significant returns on -15, -12, -1, +4, +6 and +13 days, thereby, signalling towards a major influence of announcement of share buyback on stock returns on days before and after the happening of the event. The AARs for media and entertainment industry, were positive during 18 days and negative during 13 days and significant on -15, -11, -6, -

2, 0, +1, +4, +5 and +6 days, implying an influence on stock returns in the media and entertainment industry.



**Figure 5.8 : Interindustry Cumulative Average Abnormal Returns for Share Buyback**

The returns for pharma industry were positive during 11 days and services industry for 18 days and negative for 20 days and 13 days for pharma and services industry respectively. AARs accrued in pharma industry on day -7, 0, +2, +7 and +10 and services industry on day -8, -4, -2, -1, +1 and +11 were statistically significant at 5 percent level of significance. It was also inferred that investors who continued to invest in stocks of pharma industry post the announcement of share buyback announcement were more likely to incur losses in the medium-term due to the occurrence of negative abnormal returns post the announcement. It was also observed that investors should refrain from investing in stocks of energy industry during the announcement of share buyback as a greater number of negative returns were earned in the 31-day event period. The analysis of AARs in the long-term period for consumer goods and pharma industry revealed absence of a significant influence on the stock returns. While, the AARs for energy were significant on -24, -7, -2, +7,

+18, +21 and +27 days, AARs for financial services were significant on -30, -27, -23, -2, +6 and +19 days, AARs for industrial manufacturing were significant on -22, -1, +6, +17 and +27 days, AARs for IT industry were significant on -30, -28, -18, -15, -14, -12, -10, -1, +1, +4, +6, +13, +20, +27 and +30 days, the AARs for media and entertainment industry were significant on -30, -29, -27, -15, -11, -6, -2, 0, +1, +3, +4, +5, +6, +11, +18 and +21 days, the AARs of pharma industry were significant on -7, 0, +7, +10 and +16 days, AARs for services industry were significant on -8, -4, -2, -1, +1, +11 and +28 days. Thereby, implying a long and significant impact of share buyback announcement on stock returns of financial services, IT, industrial manufacturing and media and entertainment industries.

During the event window of 61 days highest AAR was estimated of 47.59 percent on day 0 for consumer goods industry, 2.85 percent for energy industry on day -2, 3.67 percent on -2 day for financial services, 2.25 percent on -5 day for industrial manufacturing industry, 2.19 percent on -28 day for IT industry, 5.07 percent on -4 day for media and entertainment industry, 2.86 percent for pharma industry on 0 day and 3.02 percent for services industry on -2. The CAAR is estimated to examine the compounded effect of AARs during the announcement period. The CAAR of services industry outperformed all the other industries and CAAR of energy industry underperformed amongst the other industries during the event window. Moreover, the CAAR in the pre-event window for energy, financial services, industrial manufacturing, IT and media and entertainment was -13.48 percent, 2.91 percent, 3.15 percent, -4.90 percent and -6.54 percent respectively and the CAAR in the post event window for financial services, industrial manufacturing, IT and media and entertainment was -15.17 percent, 8.21 percent, 3.89 percent, -4.33 percent and -3.85 percent. The results pointed that in the post event window the stocks for all industries had a strong market reaction than those in the pre-event window. Thus, signalling towards a continued reaction from the markets even post the announcement of share buyback as their existed possibility to generate returns post the event.

**Table 5.10 : Analysis of Industry Reaction to Announcement of Share Buyback**

Days	Consumer Goods			Energy			Financial Services		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	-0.443	-0.566	-0.443	-2.957	-1.864	-2.957	-0.666	-1.886	-0.666
-29	-0.092	-0.192	-0.535	0.646	0.903	-2.311	0.192	0.322	-0.474
-28	-0.066	-0.118	-0.601	0.484	0.442	-1.827	0.119	0.086	-0.354
-27	0.070	0.206	-0.531	-0.240	-0.358	-2.067	1.957	1.801	1.603
-26	-0.851	-1.004	-1.382	-1.127	-1.283	-3.194	-0.352	-0.502	1.251
-25	-0.327	-0.909	-1.709	-0.797	-0.665	-3.991	-1.155	-1.605	0.096
-24	-0.789	-1.192	-2.498	-2.422	-2.775*	-6.414	0.156	0.169	0.252
-23	0.049	0.114	-2.448	-1.013	-1.099	-7.427	-0.935	-1.718	-0.683
-22	-0.569	-1.377	-3.017	-0.383	-0.576	-7.810	0.195	0.721	-0.489
-21	-0.354	-0.728	-3.371	0.539	0.448	-7.271	0.229	0.419	-0.260
-20	0.265	0.434	-3.106	-0.156	-0.502	-7.427	-0.691	-1.065	-0.951
-19	-0.192	-0.262	-3.298	0.166	0.137	-7.261	-1.335	-1.000	-2.286
-18	-0.948	-1.505	-4.245	-2.814	-1.643	-10.075	0.424	0.669	-1.862
-17	0.906	1.065	-3.340	-1.729	-0.804	-11.804	1.182	1.340	-0.680
-16	0.687	0.943	-2.653	0.376	0.267	-11.428	-0.926	-0.745	-1.606
-15	-0.033	-0.050	-2.686	-1.226	-0.898	-12.654	-0.616	-0.699	-2.222
-14	0.503	0.673	-2.183	-0.011	-0.008	-12.666	0.418	0.892	-1.804
-13	0.426	0.849	-1.757	-0.294	-0.278	-12.959	0.170	0.227	-1.634
-12	-1.064	-2.389**	-2.820	0.449	0.381	-12.510	0.840	1.507	-0.794
-11	0.285	0.774	-2.536	0.331	0.355	-12.179	0.530	0.471	-0.264
-10	-0.485	-1.119	-3.021	-0.294	-0.331	-12.473	0.040	0.134	-0.224
-9	0.293	0.307	-2.728	-1.008	-0.813	-13.481	0.711	1.084	0.487
-8	1.040	1.462	-1.688	1.967	1.348	-11.514	-1.253	-1.419	-0.766

	Consumer Goods			Energy			Financial Services		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-7	-0.104	-0.183	-1.791	1.900	1.859	-9.615	-0.418	-0.257	-1.183
-6	0.532	0.936	-1.259	-1.224	-1.394	-10.838	-0.696	-1.439	-1.879
-5	0.327	0.374	-0.932	1.557	0.850	-9.281	2.035	0.974	0.156
-4	0.547	0.596	-0.385	-0.474	-0.493	-9.755	-0.003	-0.003	0.153
-3	0.610	1.420	0.225	-1.663	-0.707	-11.418	-0.913	-1.314	-0.760
-2	0.657	0.787	0.882	2.857	1.828	-8.560	3.672	3.501*	2.912
-1	0.782	1.480	1.663	0.562	0.648	-7.998	-0.006	-0.007	2.905
0	0.475	1.023	2.13	-1.059	-0.778	-9.058	0.140	0.123	3.046
1	-0.458	-0.998	1.680	-0.609	-0.580	-9.667	1.998	1.287	5.044
2	-1.362	-2.875*	-0.319	-1.239	-1.608	-10.906	-0.395	-0.728	4.649
3	-0.380	-0.622	-0.061	-0.645	-0.667	-11.551	-0.831	-2.875*	3.818
4	-0.310	-0.643	-.371	-1.079	-1.300	-12.629	0.615	0.923	4.433
5	0.237	0.456	-0.134	-0.048	-0.056	-12.677	-0.688	-1.071	3.745
6	1.017	3.281*	0.883	-0.292	-0.403	-12.969	0.551	0.625	4.296
7	0.681	1.710	1.564	2.377	1.756	-10.593	0.971	1.698	5.267
8	0.365	0.553	1.929	-0.547	-1.649	-11.139	0.602	0.664	5.869
9	-0.493	-0.847	1.435	-1.007	-0.998	-12.146	-0.765	-1.084	5.104
10	-0.155	-0.414	1.281	-0.797	-0.610	-12.944	-1.029	-1.321	4.075
11	0.100	0.193	1.380	-0.098	-0.231	-13.041	0.253	0.471	4.328
12	-0.238	-0.674	1.142	1.146	1.399	-11.895	-0.059	-0.085	4.269
13	-0.488	-0.901	0.655	-0.704	-1.250	-12.599	0.203	0.234	4.471
14	0.705	0.929	1.360	-0.213	-0.330	-12.813	-1.228	-1.582	3.243
15	1.236	1.273	2.596	0.186	0.258	-12.626	-0.038	-0.041	3.205
16	-0.325	-0.414	2.271	-0.810	-1.266	-13.437	1.723	0.695	4.928
17	0.282	0.572	2.553	-0.767	-1.093	-14.204	1.424	1.395	6.351

	Consumer Goods			Energy			Financial Services		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
18	0.785	2.194**	3.338	-1.293	-2.344**	-15.496	-0.198	-0.505	6.154
19	-0.293	-0.735	3.045	0.916	1.383	-14.580	2.064	2.087**	8.218
20	-0.307	-0.590	2.738	-0.595	-0.638	-15.175	-0.381	-0.513	7.838
21	-0.423	-0.951	2.315	1.346	2.196**	-13.829	0.298	0.488	8.136
22	-0.615	-1.740	1.700	1.389	1.494	-12.440	-0.445	-0.617	7.691
23	0.280	0.510	1.980	0.595	0.703	-11.845	-0.744	-0.940	6.947
24	-0.169	-0.575	1.811	-0.283	-0.387	-12.129	-0.526	-0.955	6.421
25	-0.949	-1.676	0.862	0.590	0.892	-11.539	-0.050	-0.116	6.372
26	-1.083	-2.260**	-0.222	1.167	1.133	-10.371	0.160	0.401	6.531
27	0.016	0.051	-0.206	-1.316	-2.441**	-11.688	-0.328	-0.553	6.203
28	-0.626	-1.431	-0.832	-1.380	-1.364	-13.068	0.446	0.447	6.650
29	0.515	1.198	-0.317	-0.038	-0.062	-13.106	1.074	0.918	7.723
30	0.116	0.228	-0.201	-0.638	-0.693	-13.744	-0.801	-1.227	6.922

	Industrial Manufacturing			IT			Media & Entertainment		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.637	0.591	0.637	-2.529	-4.634*	-2.529	-2.868	-2.197**	-2.868
-29	0.292	0.220	0.929	-0.947	-1.491	-3.476	0.494	1.767	-2.373
-28	1.371	1.653	2.300	2.195	4.024*	-1.281	0.117	0.057	-2.256
-27	0.337	0.392	2.637	-0.902	-0.796	-2.183	-1.728	-3.531*	-3.984
-26	-0.841	-0.602	1.796	-0.912	-2.172**	-3.095	-0.132	-0.262	-4.116
-25	-0.439	-0.377	1.357	0.287	0.446	-2.808	-0.959	-1.473	-5.075
-24	-0.010	-0.007	1.347	0.228	0.793	-2.579	2.200	1.465	-2.875
-23	0.525	0.686	1.872	0.501	0.973	-2.078	1.394	1.109	-1.481
-22	-1.875	-1.821	-0.003	0.044	0.045	-2.034	0.124	0.139	-1.357

	Industrial Manufacturing			IT			Media & Entertainment		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-21	1.138	1.192	1.135	0.572	0.681	-1.462	1.289	0.763	-0.067
-20	0.971	1.204	2.106	-0.543	-0.716	-2.005	0.155	0.238	0.087
-19	0.000	0.000	2.106	-1.180	-1.096	-3.185	-2.595	-1.241	-2.508
-18	-2.348	-1.344	-0.243	0.903	2.754*	-2.283	-0.831	-0.614	-3.339
-17	-0.784	-1.151	-1.027	-0.235	-0.407	-2.517	-1.323	-0.478	-4.662
-16	0.422	0.770	-0.605	0.508	1.408	-2.009	-0.423	-0.237	-5.084
-15	-0.732	-0.930	-1.337	-2.451	-3.720*	-4.460	-1.463	-2.290**	-6.548
-14	0.396	0.420	-0.941	1.024	1.888	-3.436	1.015	0.937	-5.533
-13	0.436	0.638	-0.505	1.026	0.848	-2.410	0.398	0.200	-5.135
-12	0.124	0.069	-0.382	-1.075	-2.446**	-3.485	1.429	1.632	-3.707
-11	-1.820	-1.172	-2.202	-0.314	-0.350	-3.799	-1.518	-2.848*	-5.225
-10	0.913	0.688	-1.289	-1.108	-1.900	-4.907	-0.050	-0.115	-5.274
-9	0.509	0.735	-0.780	0.904	0.671	-4.003	0.446	0.525	-4.828
-8	-0.207	-0.201	-0.987	-0.699	-0.483	-4.702	-1.315	-0.923	-6.143
-7	-0.400	-0.656	-1.387	0.018	0.031	-4.683	0.247	0.819	-5.897
-6	0.796	1.043	-0.591	0.058	0.126	-4.626	0.433	2.061**	-5.464
-5	2.250	1.424	1.659	0.752	1.332	-3.873	0.326	0.301	-5.138
-4	0.351	0.273	2.009	0.525	1.011	-3.348	5.076	1.478	-0.062
-3	-0.305	-0.217	1.705	0.822	0.527	-2.527	-1.693	-1.443	-1.754
-2	-0.375	-0.314	1.329	1.507	1.128	-1.020	1.556	3.812*	-0.198
-1	1.830	2.138**	3.159	1.902	2.120**	0.882	1.550	1.407	1.352
0	-1.650	-0.999	1.509	-1.929	-1.006	-1.047	-1.552	-4.136*	-0.200
1	-2.162	-1.164	-0.652	-2.148	-2.078**	-3.195	-2.249	-1.713	-2.448
2	-0.012	-0.007	-0.664	-0.565	-0.528	-3.760	1.807	0.813	-0.641
3	-0.280	-0.377	-0.944	-0.387	-0.540	-4.147	-1.631	-1.745	-2.272
4	-0.338	-0.526	-1.282	1.530	2.403**	-2.617	-1.579	-2.911*	-3.851



	Industrial Manufacturing			IT			Media & Entertainment		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
5	-0.668	-0.655	-1.950	0.419	0.508	-2.198	1.606	3.303*	-2.246
6	1.916	2.347**	-0.034	-0.844	-2.710*	-3.041	-0.705	-3.524*	-2.950
7	-0.600	-0.896	-0.634	-0.589	-1.651	-3.630	0.720	1.205	-2.231
8	-1.829	-2.708*	-2.463	-0.354	-0.425	-3.984	0.185	0.233	-2.046
9	0.088	0.132	-2.375	1.309	1.230	-2.676	-0.339	-0.348	-2.385
10	-0.224	-0.370	-2.599	-0.421	-0.967	-3.097	-0.149	-0.347	-2.534
11	0.521	0.754	-2.078	0.493	0.640	-2.604	1.877	1.771	-0.656
12	1.636	1.742	-0.443	-0.007	-0.005	-2.611	-0.581	-0.720	-1.237
13	-1.119	-1.243	-1.562	0.831	2.256**	-1.779	0.146	0.439	-1.092
14	-0.100	-0.148	-1.662	-0.242	-0.980	-2.021	0.519	1.073	-0.572
15	0.147	0.211	-1.515	-0.558	-1.367	-2.579	0.604	0.710	0.032
16	0.660	0.941	-0.855	1.533	1.239	-1.046	-0.874	-1.511	-0.843
17	1.472	1.993**	0.616	-0.680	-0.570	-1.726	0.486	0.698	-0.356
18	-0.263	-0.404	0.354	-0.402	-0.690	-2.128	-1.216	-2.033**	-1.572
19	0.484	0.875	0.838	0.220	0.374	-1.908	-0.421	-0.868	-1.993
20	0.970	1.422	1.808	-2.066	-2.854*	-3.975	0.285	0.345	-1.709
21	-0.173	-0.191	1.635	0.132	0.273	-3.843	-0.523	-0.732	-2.231
22	-0.747	-1.487	0.889	0.527	1.324	-3.316	-0.670	-2.318**	-2.901
23	0.184	0.202	1.073	-0.947	-1.513	-4.262	0.165	0.696	-2.736
24	-0.025	-0.037	1.048	0.759	1.086	-3.503	-0.315	-0.668	-3.050
25	-0.030	-0.035	1.017	1.260	1.942	-2.244	-0.019	-0.036	-3.069
26	0.194	0.215	1.211	0.448	0.695	-1.796	0.520	1.041	-2.550
27	2.310	2.903*	3.521	-2.015	-2.250**	-3.811	-0.513	-0.605	-3.063
28	0.369	0.490	3.890	-0.523	-0.664	-4.335	0.907	0.853	-2.155
29	-0.850	-1.144	3.040	1.216	1.012	-3.119	0.415	0.811	-1.741
30	0.569	0.973	3.609	-0.962	-2.047**	-4.081	-0.280	-0.290	-2.020

	Pharma			Services		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.544	1.012	0.544	0.413	0.400	0.413
-29	-0.277	-0.519	0.267	-1.005	-1.248	-0.592
-28	0.581	1.037	0.848	-0.279	-0.814	-0.871
-27	-0.915	-1.146	-0.067	-1.132	-1.442	-2.002
-26	-0.533	-0.718	-0.600	1.097	0.897	-0.906
-25	-0.278	-0.812	-0.878	-0.256	-0.195	-1.162
-24	0.388	0.609	-0.490	0.295	0.500	-0.867
-23	-0.517	-1.412	-1.007	0.533	0.974	-0.334
-22	0.893	1.539	-0.113	-0.316	-0.383	-0.650
-21	-0.378	-0.478	-0.491	0.162	0.270	-0.487
-20	-0.377	-0.360	-0.868	-0.143	-0.325	-0.630
-19	0.454	0.828	-0.415	-1.569	-1.008	-2.199
-18	-0.268	-0.293	-0.683	0.904	1.217	-1.296
-17	-0.158	-0.357	-0.841	0.121	0.163	-1.174
-16	-0.079	-0.117	-0.920	1.202	0.930	0.028
-15	-0.354	-0.520	-1.274	-1.141	-1.509	-1.113
-14	-0.616	-1.019	-1.890	0.679	1.502	-0.434
-13	0.425	0.899	-1.465	-1.085	-1.063	-1.519
-12	-0.102	-0.189	-1.567	-0.692	-1.203	-2.210
-11	2.018	1.090	0.451	0.284	0.384	-1.926
-10	-1.262	-1.000	-0.811	1.044	1.378	-0.882
-9	1.657	1.026	0.846	0.056	0.125	-0.826
-8	-1.096	-1.264	-0.250	1.884	2.358**	1.058
-7	1.336	2.069**	1.087	-0.482	-0.576	0.576

	Pharma			Services		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-6	-0.653	-0.601	0.434	-0.140	-0.263	0.436
-5	-0.329	-0.486	0.105	1.380	1.281	1.816
-4	1.018	1.366	1.123	2.100	2.070**	3.916
-3	0.558	0.679	1.681	0.807	1.025	4.723
-2	-0.683	-1.141	0.997	3.027	2.407**	7.749
-1	-0.370	-0.369	0.627	1.466	1.966**	9.215
0	2.860	1.813	3.487	0.083	0.143	9.299
1	0.434	0.472	3.921	-1.679	-1.800	7.620
2	-2.097	-4.965*	1.825	0.296	0.603	7.916
3	-0.170	-0.239	1.654	0.480	0.542	8.396
4	-0.315	-0.654	1.339	1.234	1.322	9.630
5	-0.816	-1.166	0.524	0.631	0.806	10.261
6	-0.221	-0.437	0.303	-0.096	-0.118	10.165
7	-1.148	-2.067**	-0.845	-0.698	-0.490	9.467
8	0.181	0.352	-0.664	-0.607	-1.069	8.861
9	-0.109	-0.148	-0.773	-1.051	-0.812	7.809
10	-0.975	-1.894	-1.748	-0.771	-1.340	7.038
11	0.424	0.549	-1.324	1.897	2.001**	8.935
12	-0.461	-1.073	-1.785	0.876	1.127	9.811
13	-0.001	-0.001	-1.786	-0.506	-0.724	9.306
14	-0.426	-0.912	-2.212	-0.467	-0.534	8.838
15	0.381	0.661	-1.831	0.324	0.781	9.162
16	0.975	2.375**	-0.856	1.099	1.104	10.261
17	-0.182	-0.407	-1.038	0.003	0.004	10.264
18	-0.141	-0.199	-1.180	0.252	0.444	10.516

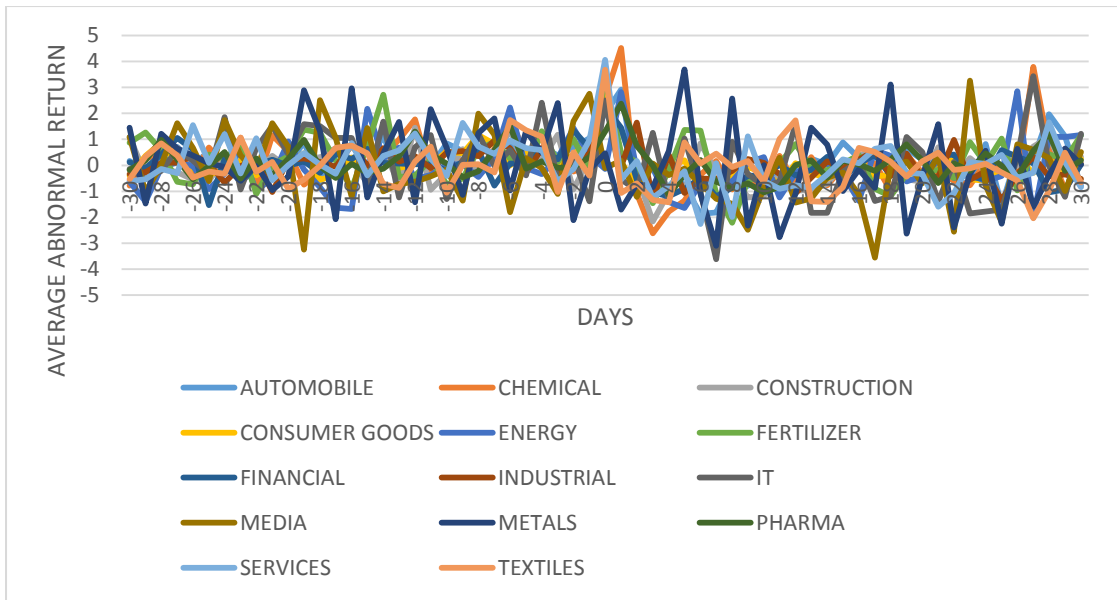
	Pharma			Services		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
19	-0.058	-0.138	-1.237	-0.950	-0.812	9.566
20	0.691	1.417	-0.546	-0.311	-0.625	9.254
21	0.113	0.372	-0.433	0.722	1.330	9.976
22	-0.271	-0.863	-0.704	0.444	0.903	10.420
23	-0.886	-1.544	-1.590	-0.105	-0.100	10.316
24	0.126	0.255	-1.464	1.014	1.385	11.330
25	0.658	0.792	-0.806	0.043	0.061	11.372
26	-0.035	-0.052	-0.840	1.703	1.225	13.075
27	0.376	0.665	-0.464	-0.524	-0.374	12.551
28	-0.369	-1.205	-0.833	-1.403	-1.714	11.148
29	0.417	0.477	-0.416	-0.017	-0.025	11.131
30	-0.217	-0.387	-0.633	0.727	1.626	11.858
* 1 percent Significance						
** 5 percent Significance						

#### 5.2.4 Industry Reaction to Announcement of Stock Split

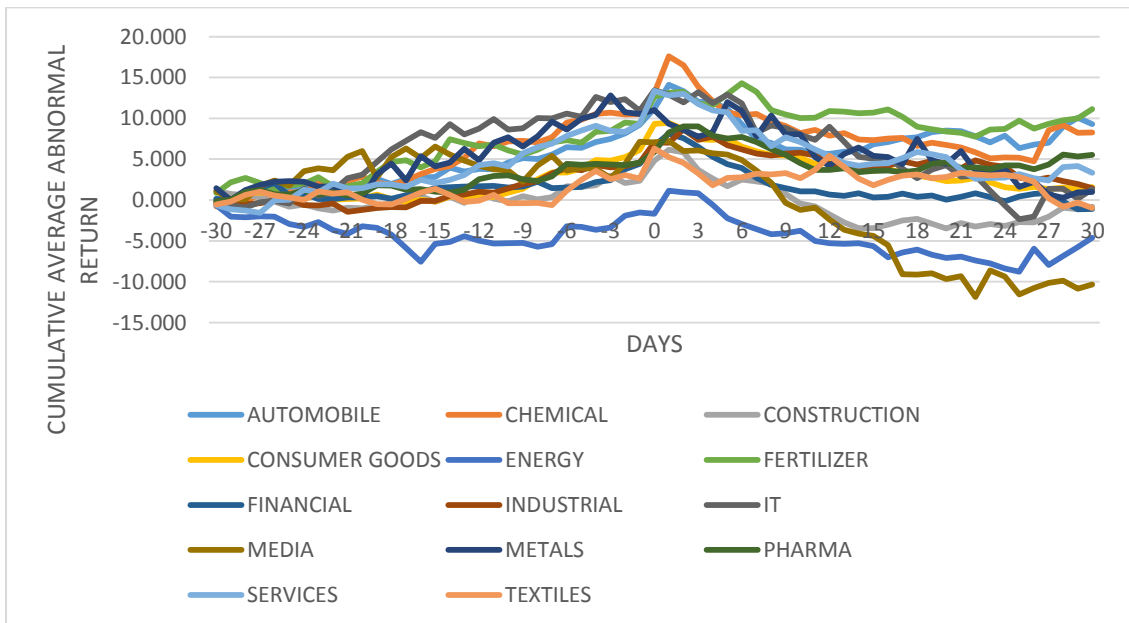
Table 5.11 presents the average abnormal returns and their calculated t-statistics for announcement of stock split by different companies listed in 14 different industries. The AARs in the immediate period for automobile and chemicals industry were statistically significant and positive on day +1 and insignificant on day 0 and day -1, for construction, financial services and pharma industry AAR was statistically significant and positive on day 0 and +1 and insignificant on day -1, for consumer goods and services industry AAR was statistically significant and positive on day -1 and 0 and insignificant on day +1, for energy, media and entertainment and metals industry AAR was insignificant on day -1, 0 and +1, for fertilizer and pesticides, industrial manufacturing and textiles industry AAR was statistically positive and

significant on day 0 and insignificant on day -1 and day +1 and for IT industry AAR was statistically negative and significant on day -1 and insignificant on day 0 and +1. Therefore, stating a positive and significant influence of stock split announcement on the event day on the stock returns of companies listed with construction, financial services, pharma, consumer goods, fertilizer and pesticides, industrial manufacturing, textiles and services industry. The results also suggested that majority of the market reaction to stock split announcement happened on day 0 for financial services, industrial manufacturing, pharma, services and textile industry. Thus, reaffirming the theory of information effect of the announcement and rejecting the theory of zero AAR on the announcement day.

The research further, conducted a short-term analysis of AARs accrued throughout the event window of 11 days (-5, 0, +5). The AARs in the automobile industry gained momentum from day -4 and peaked on day +1 at 1.04 percent where they were statistically significant and positive, after day +1 the positive returns turned negative as investors pocketed their profit. The AARs in the chemical industry remained positive on day -5 and continued to remain in the positive territory till day +1, with a small correction on day -2. The returns turned negative from day +2 and continued to slide till +5 days with significant negative returns on day +3 and +4. The significance of returns in the post event window highlighted towards a stronger market reaction in chemicals industry post the announcement of stock split. The AARs in the construction industry were positive and significant on day -3 at 1.17 percent, day 0 at 2.46 percent, day +1 at 1.36 percent and negative and significant on day +3 at 2.16 percent and +4 at 1.03 percent and had the highest magnitude of return on day 0 generating significant AAR of 2.46 percent. Also, the AAR and CAAR for automobile and chemical industry peaked on day +1 generating returns of 2.91 and 14.10 percent 4.51 percent and 17.59 percent respectively. While, the AAR of 2.46 percent for construction industry peaked on event day and CAAR of 6.17 percent peaked on +1 day. Thus, signalling that the window of opportunity to make gains from the event existed till +1 day in the post event period for investors investing in stocks of automobile, chemicals and construction industry.



**Figure 5.9 : Interindustry Average Abnormal Returns for Stock Split Announcement**



**Figure 5.10 : Interindustry Cumulative Average Abnormal Returns for Stock Split**

However, those investors who would hold the stocks beyond +1 day in the short-term period would end up losing their gains as the AARs started to fall from day +2 post the announcement of stock split. The AARs for the consumer goods industry were

significant and positive on day -4, -1, 0 and negative on day +3. In the pre-event window, it was observed returns continued to remain positive from day -5 to day +1, with a slight correction on day -3.

However, the returns slipped into negative territory from day +2 to day +4, implying possibility of information leakage as investors drive up the market price upto day of announcement and then pocket the gains from the announcement. This was further attested by the buildup visible in the CAAR till day 0. The returns in the energy industry were statistically significant and negative on day +4 at -1.41 percent and on day +5 at -1.64 percent, signalling towards a negative influence of stock split announcement on returns of post event window. This also implied that the response of the market was stronger in the period post the announcement of stock split. Figure 5.9 and 5.10 above graphically represents the average abnormal returns and cumulative average abnormal returns of different industries.

The returns of fertilizer and pesticides industry were positive and significant on day -4 and 0 and negative on day +3. The returns had the highest magnitude on the day of announcement implying a positive influence of stock split on stocks of fertilizer and pesticides industry. The AARs accrued in financial services industry were positive for days before the announcement, having the largest magnitude of returns on day 0 at 2.23 percent. The returns turned negative from day +2 and remained so till day +5 with significant negative returns on day +3 and +4 at -1.05 percent and -1.19 percent respectively. The AARs for industrial manufacturing industry were positive and significant on day 0 at 2.46 percent and day +2 at 1.64 percent and negative and significant on day +3 at -1.29 percent. The returns for pharma and services industry were significant on day -1 at 1.29 percent and 0.96 percent and 0 at 2.37 percent 4.06 percent respectively. The largest magnitude of returns earned for industrial manufacturing, pharma industry and services were on the event day directing towards the investors ability to generate and earn abnormal profits from announcement of stock split. The AARs estimated for IT industry were positive and significant on day -4 and +3 and negative and significant on day -1. Further, the returns for media and entertainment industry were statistically negative only on day -3 at -1.10 percent and for metals industry were positive and significant only on day -5 at 1.32 percent.

The AARs of textile industry were positive on day -5 at 1.09 percent and 0 at 3.67 percent and negative on day -3 at 1.02 percent. It is inferred that in the short-term stocks of automobile, construction, chemicals, consumer goods, industry react more strongly to the announcement of stock split in the pre-event window than the post event window and thus investors holding the stocks of automobile, consumer goods, chemicals and financial services were more likely to gain in the pre-event window and should reduce their holdings in the post event period as returns turn negative. Also, investors should refrain from investing in stocks of energy as the returns remained negative for large number of days of short-term window. The study has also conducted a medium-term analysis of AARs generated in the event window of 31 days (-15, 0, +15). The AARs generated for automobile, metals, pharma and services industry revealed positive abnormal returns for 16 days and negative abnormal returns for 15 days, while chemical, financial services, industrial manufacturing, fertilizer and pesticides industry generated positive abnormal returns for 17 days and negative abnormal returns for 14 days. Similarly, the AARs in construction industry were found to be positive during 12 days and negative during 19 days, with significant returns on -14, -12, -6, -3, 0, +1, +3, +4, +9 and +12 days. Therefore, implying a significant impact of stock split news announcement on stock returns of companies listed in the construction industry. Further, the AARs generated in consumer goods industry were positive during 15 days and negative during 16 days, having significant returns on -8, -7, -4, +3, +6 and +11 days. The significant returns in the pre-event window were positive while the significant returns in the post-event window were negative, implying a positive influence of stock split announcement on stock returns before the announcement and negative influence of stock split announcement on stock returns after the announcement. The AARs accrued in the energy industry were positive during 14 days and negative during 17 days, with significant and positive returns on -15 and -6 days and negative and significant returns on +4 and +5 days. Thus, entailing a significant impact of stock split announcement on stock returns in pre-event days. The AARs earned by stocks of IT industry revealed, positive abnormal returns were earned for 13 days and negative abnormal returns were earned for 18 days, with significant returns on day -13, -11, -5, -2, +3, +6, +13 and +14. Further, media and entertainment industry



generated abnormal returns which were positive during 9 days and abnormal returns which were negative during 22 days, having significant abnormal returns on day -9, -8, -6, -3, +7, +9 and +13. Thereby, suggesting a greater impact of stock split news announcement on returns of post-announcement days. The returns for textiles industry were positive during 16 days and negative during 15 days, with significant returns on day -14, -5, -3, 0, +10, +11, +12, +13 and +14 days. The results highlighted towards an impact of stock split news announcements on stock returns of textile industry in the medium-term period.

The research further conducted analysis of AARs in the long-term period of 61 days (-30, 0, +30). The AARs earned for automobile industry were significant on +24, +25, +29 and +30 and for chemical industry were significant on +23 and +27 days, implying an influence of stock split announcement on the returns of automobile and chemical industry in the post announcement period. The returns for construction industry were statistically positive on -30 day and of consumer goods industry were significant on -28, +17 and +24 days. Further, the returns earned by stocks of energy industry were significant on -29, -25, -22, -18, +16 and +27 days and of fertilizer and pesticides industry were significant on -29 and -18 days, implying a long-term influence of stock splits on returns of companies. The AARs accrued upon announcement of stock split for financial services were significant on -25, +28 and 29 days and for industrial manufacturing were significant on -21 and +25 days. Moreover, the AARs earned by stocks of IT industries were significant on -24, -19, +21, +23 and +29 days. The analysis of the AARs revealed long-term influence of stock split announcement on returns of financial services and IT industries. The AARs earned by stocks of media and entertainment industry were significant on -27, -24, -19, -18 and +22 days, AARs of metals industry were significant on -18 and +27 days, AARs of pharma industry were significant on -28, -19 and +28 days, AARs of textiles industry were significant on -20, +26 and +30 days. The results therefore concluded stock split announcement has a more significant impact on the returns of stocks in the immediate and short-term period than the medium and long-term period of time, however, no significant impact of stock split announcement was seen on the returns of services industry in the long-term period.

Also, the CAARs reported during the 61day event period for automobile is 9.29 percent, chemicals is 8.28 percent, construction is -0.82 percent, consumer goods is 1.55 percent, energy is -4.60 percent, fertilizer and pesticides is 11.14 percent, financial services is -0.52 percent, industrial manufacturing is 1.44 percent, IT is 1.34 percent, media and entertainment is -10.35 percent, metals is 0.96 percent, pharma is 5.53 percent, services is 3.32 percent and textiles is -0.97 percent. The CAAR values above show the total rate of abnormal returns earned by stocks of different industries announcing stock split.

**Table 5.11 : Analysis of Industry Reaction to Announcement of Stock Split**

Days	Automobile			Chemicals			Construction		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.161	0.228	0.161	-0.777	-0.761	-0.777	1.094	3.201*	1.094
-29	-0.216	-0.520	-0.055	0.250	0.649	-0.527	-0.366	-1.020	0.728
-28	0.390	0.423	0.335	0.481	1.070	-0.046	-0.121	-0.288	0.607
-27	0.703	1.192	1.038	0.657	0.568	0.611	-0.267	-0.404	0.340
-26	0.047	0.117	1.085	-0.374	-0.589	0.237	-0.543	-1.319	-0.203
-25	0.506	1.334	1.591	0.686	1.119	0.922	-0.601	-1.158	-0.804
-24	-0.006	-0.010	1.585	-0.008	-0.008	0.914	0.267	0.391	-0.537
-23	0.562	1.251	2.147	1.071	1.250	1.985	-0.482	-1.120	-1.019
-22	-0.718	-1.482	1.429	-0.832	-0.679	1.153	-0.273	-0.533	-1.292
-21	0.261	0.475	1.689	1.153	0.752	2.306	0.367	0.807	-0.925
-20	0.002	0.002	1.691	0.541	0.653	2.847	-0.101	-0.273	-1.026
-19	0.892	1.367	2.583	-0.741	-1.859	2.106	0.320	0.602	-0.706
-18	-0.628	-0.944	1.954	-0.265	-0.556	1.841	0.306	0.461	-0.401
-17	0.651	1.340	2.605	0.533	0.727	2.374	0.656	1.514	0.255
-16	0.148	0.296	2.753	0.781	1.426	3.156	0.216	0.417	0.471
-15	0.068	0.103	2.821	0.636	1.406	3.792	-0.705	-1.117	-0.234
-14	1.137	1.454	3.958	0.382	0.854	4.173	0.631	1.698	0.396

	Automobile			Chemicals			Construction		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-13	-0.453	-0.718	3.506	0.996	1.114	5.169	-0.738	-1.405	-0.342
-12	0.278	0.453	3.784	1.765	1.299	6.934	1.445	1.557	1.104
-11	-0.037	-0.093	3.747	-0.353	-0.332	6.581	-0.938	-1.970**	0.166
-10	0.848	1.404	4.594	0.588	0.460	7.169	-0.312	-0.747	-0.146
-9	0.550	1.010	5.144	0.100	0.148	7.269	0.623	1.316	0.478
-8	-0.143	-0.265	5.001	-0.226	-0.671	7.043	-0.413	-1.250	0.065
-7	0.565	0.759	5.567	0.627	0.554	7.670	0.269	0.435	0.334
-6	0.892	1.123	6.459	1.808	2.488**	9.478	1.344	3.452*	1.679
-5	-0.053	-0.098	6.405	0.374	0.639	9.852	-0.079	-0.221	1.600
-4	0.675	1.009	7.080	0.691	1.290	10.543	0.216	0.424	1.815
-3	0.390	0.507	7.470	0.166	0.331	10.709	1.176	1.752	2.992
-2	0.689	1.162	8.159	-0.235	-0.434	10.474	-0.931	-1.511	2.060
-1	1.044	1.241	9.203	0.017	0.021	10.491	0.277	0.571	2.337
0	1.994	1.439	11.197	2.593	1.516	13.083	2.467	2.166**	4.804
1	2.911	2.697*	14.108	4.514	2.639*	17.598	1.367	1.777	6.171
2	-0.767	-1.032	13.340	-1.089	-0.495	16.509	-0.344	-0.429	5.828
3	-1.316	-1.973**	12.024	-2.618	-2.576*	13.891	-2.161	-3.037*	3.667
4	-0.052	-0.074	11.972	-1.780	-1.893	12.111	-1.037	-2.033**	2.629
5	-0.809	-1.166	11.163	-1.364	-1.117	10.747	-0.963	-1.377	1.666
6	-1.864	-2.858*	9.299	-0.365	-0.425	10.381	0.842	0.972	2.508
7	-1.814	-2.365**	7.484	0.161	0.187	10.543	-0.237	-0.376	2.271
8	-0.521	-0.694	6.963	-0.935	-1.189	9.608	-0.285	-0.465	1.986
9	-0.788	-1.459	6.175	-0.559	-0.532	9.049	-1.236	-5.571*	0.750
10	-0.030	-0.072	6.145	-0.850	-1.076	8.199	-1.177	-1.520	-0.428
11	-0.408	-0.860	5.737	0.370	0.297	8.569	-0.358	-0.353	-0.786

	Automobile			Chemicals			Construction		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
12	-0.092	-0.166	5.645	-0.705	-0.918	7.863	-0.970	-2.745*	-1.756
13	0.254	0.505	5.899	0.318	0.394	8.181	-0.969	-1.619	-2.725
14	0.030	0.049	5.929	-0.764	-1.583	7.418	-0.710	-1.644	-3.435
15	0.883	1.572	6.812	-0.080	-0.085	7.338	0.004	0.010	-3.430
16	0.278	0.583	7.090	0.196	0.139	7.534	0.411	0.735	-3.019
17	0.420	0.772	7.510	0.063	0.064	7.597	0.505	0.767	-2.514
18	0.167	0.220	7.677	-0.982	-1.372	6.616	0.183	0.258	-2.331
19	0.633	1.461	8.310	0.418	0.599	7.034	-0.552	-1.568	-2.882
20	0.213	0.373	8.523	-0.292	-0.459	6.742	-0.622	-1.074	-3.504
21	-0.114	-0.216	8.409	-0.312	-0.587	6.430	0.692	1.137	-2.813
22	-0.612	-1.306	7.797	-0.584	-0.970	5.846	-0.426	-0.826	-3.239
23	-0.725	-1.162	7.073	-0.765	-2.090**	5.081	0.280	0.601	-2.958
24	0.816	1.683	7.889	0.121	0.195	5.202	-0.216	-0.224	-3.174
25	-1.539	-2.275**	6.350	-0.016	-0.033	5.187	0.463	0.689	-2.711
26	0.432	0.582	6.781	-0.428	-1.128	4.759	-0.030	-0.046	-2.741
27	0.224	0.288	7.006	3.787	1.848	8.546	0.716	0.721	-2.025
28	1.967	1.361	8.973	0.609	0.599	9.155	1.088	0.893	-0.937
29	1.116	1.810	10.089	-0.944	-1.069	8.211	-0.215	-0.306	-1.152
30	-0.799	-1.713	9.290	0.073	0.168	8.284	0.331	0.667	-0.821

	Consumer Goods			Energy			Fertilizer & Pesticides		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	-0.395	-1.169	-0.395	-0.634	-0.927	-0.634	0.872	1.206	0.872
-29	0.361	1.163	-0.033	-1.400	-2.387**	-2.034	1.264	1.761	2.136
-28	0.864	2.555*	0.830	-0.097	-0.121	-2.131	0.569	1.246	2.706
-27	0.081	0.193	0.911	0.116	0.207	-2.015	-0.638	-1.381	2.067

	Consumer Goods			Energy			Fertilizer & Pesticides		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-26	-0.128	-0.380	0.783	-0.030	-0.033	-2.045	-0.737	-1.589	1.330
-25	-0.361	-0.860	0.422	-0.911	-3.210*	-2.956	0.416	0.586	1.747
-24	-0.177	-0.458	0.246	-0.328	-0.496	-3.284	0.251	0.687	1.998
-23	0.197	0.516	0.443	0.593	1.269	-2.691	0.794	0.988	2.792
-22	-0.389	-1.379	0.053	-0.990	-2.180**	-3.681	-1.098	-1.271	1.694
-21	0.068	0.182	0.121	-0.470	-0.569	-4.152	0.007	0.014	1.702
-20	0.090	0.139	0.211	0.920	1.305	-3.231	0.352	0.644	2.053
-19	0.467	1.426	0.677	-0.168	-0.385	-3.400	1.380	1.106	3.433
-18	-0.565	-1.765	0.113	-0.849	-2.327**	-4.248	1.248	3.240*	4.682
-17	-0.379	-1.063	-0.266	-1.631	-1.321	-5.879	0.186	0.240	4.867
-16	0.303	0.709	0.037	-1.679	-1.611	-7.558	-0.886	-0.930	3.981
-15	-0.237	-0.730	-0.200	2.172	1.968**	-5.385	0.744	1.172	4.725
-14	0.618	1.825	0.418	0.263	0.311	-5.122	2.714	1.335	7.439
-13	-0.110	-0.289	0.309	0.683	0.970	-4.439	-0.454	-1.186	6.984
-12	0.044	0.212	0.352	-0.527	-0.445	-4.965	-0.402	-1.195	6.582
-11	0.037	0.093	0.390	-0.380	-0.498	-5.345	0.215	0.255	6.797
-10	0.527	1.543	0.917	0.043	0.061	-5.302	-0.736	-1.161	6.061
-9	0.466	1.442	1.383	0.034	0.094	-5.269	-0.512	-1.583	5.550
-8	1.164	2.242**	2.547	-0.453	-0.673	-5.721	0.612	1.147	6.161
-7	0.824	2.414**	3.371	0.300	0.336	-5.421	0.902	1.473	7.064
-6	-0.001	-0.003	3.370	2.219	2.044**	-3.202	0.266	0.558	7.329
-5	0.474	0.862	3.844	-0.105	-0.238	-3.308	-0.309	-0.758	7.020
-4	1.072	1.968**	4.916	-0.341	-0.975	-3.648	1.317	2.448**	8.337
-3	-0.114	-0.268	4.802	0.281	0.476	-3.367	0.126	0.178	8.462
-2	0.439	1.252	5.241	1.431	1.603	-1.936	1.019	0.781	9.481

	Consumer Goods			Energy			Fertilizer & Pesticides		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-1	0.856	1.835	6.097	0.394	0.633	-1.542	-0.162	-0.344	9.319
0	3.240	4.304*	9.337	-0.135	-0.106	-1.678	3.342	3.367*	12.661
1	0.118	0.233	9.455	2.812	1.222	1.134	0.476	0.419	13.137
2	-0.789	-1.280	8.666	-0.183	-0.315	0.951	0.123	0.081	13.260
3	-1.219	-1.996**	7.448	-0.119	-0.181	0.831	-1.457	-2.274**	11.803
4	-0.095	-0.191	7.353	-1.411	-2.754*	-0.580	-0.186	-0.329	11.617
5	0.187	0.261	7.540	-1.641	-3.232*	-2.221	1.357	0.997	12.974
6	-0.984	-2.204**	6.556	-0.712	-0.937	-2.933	1.343	1.578	14.317
7	-0.584	-1.401	5.972	-0.631	-0.926	-3.564	-1.080	-1.457	13.236
8	-0.453	-1.061	5.519	-0.626	-0.884	-4.190	-2.208	-2.351**	11.028
9	-0.068	-0.196	5.451	0.102	0.115	-4.087	-0.579	-0.680	10.449
10	-0.284	-0.710	5.167	0.312	0.369	-3.775	-0.422	-0.732	10.027
11	-0.719	-2.282**	4.448	-1.243	-1.440	-5.018	0.064	0.124	10.091
12	0.083	0.238	4.531	-0.287	-0.558	-5.305	0.816	1.436	10.907
13	-0.290	-0.656	4.241	-0.046	-0.045	-5.351	-0.090	-0.136	10.817
14	-0.511	-1.925	3.731	0.062	0.085	-5.289	-0.196	-0.212	10.621
15	-0.179	-0.655	3.551	-0.354	-0.476	-5.643	0.068	0.135	10.689
16	0.223	0.612	3.775	-1.374	-3.642*	-7.017	0.393	0.636	11.082
17	-0.424	-1.795	3.351	0.586	0.639	-6.430	-0.901	-1.329	10.181
18	-0.371	-1.167	2.980	0.364	0.273	-6.066	-1.188	-1.983**	8.993
19	-0.276	-0.687	2.704	-0.622	-0.836	-6.688	-0.337	-0.566	8.656
20	-0.374	-0.943	2.330	-0.406	-0.487	-7.094	-0.254	-0.345	8.402
21	0.073	0.165	2.403	0.173	0.219	-6.921	-0.171	-0.334	8.231
22	0.297	0.888	2.700	-0.484	-0.657	-7.405	-0.489	-0.783	7.741
23	-0.529	-1.064	2.171	-0.365	-0.589	-7.770	0.893	1.245	8.634

	<b>Consumer Goods</b>			<b>Energy</b>			<b>Fertilizer &amp; Pesticides</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
24	-0.597	-1.778	1.574	-0.614	-0.884	-8.384	0.055	0.137	8.690
25	-0.213	-0.589	1.361	-0.414	-0.760	-8.798	1.028	1.293	9.718
26	0.263	0.620	1.625	2.855	1.467	-5.943	-0.967	-1.109	8.752
27	-0.295	-0.741	1.330	-2.017	-1.655	-7.960	0.591	0.443	9.342
28	0.215	0.393	1.546	1.098	0.815	-6.862	0.426	0.446	9.768
29	-0.226	-0.584	1.320	1.092	1.628	-5.770	0.219	0.238	9.987
30	0.235	0.504	1.555	1.165	1.034	-4.605	1.158	0.968	11.146

	<b>Financial Services</b>			<b>Industrial Manufacturing</b>			<b>IT</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
-30	0.113	0.209	0.113	-0.342	-0.961	-0.342	-0.138	-0.107	-0.138
-29	-0.103	-0.204	0.010	-0.264	-0.634	-0.607	-0.537	-0.669	-0.674
-28	0.413	1.176	0.423	0.097	0.171	-0.510	-0.219	-0.192	-0.893
-27	1.052	1.263	1.475	0.108	0.246	-0.402	0.612	0.586	-0.281
-26	0.613	1.535	2.088	0.370	0.757	-0.032	0.182	0.129	-0.099
-25	-1.537	-2.147**	0.551	0.065	0.148	0.033	-0.343	-0.248	-0.442
-24	0.244	0.470	0.795	-0.671	-1.551	-0.638	1.860	2.134**	1.418
-23	-0.686	-1.382	0.109	-0.027	-0.056	-0.665	-0.923	-1.533	0.495
-22	-0.004	-0.010	0.105	0.239	0.667	-0.426	0.655	0.621	1.150
-21	0.219	0.536	0.323	-1.024	-2.737*	-1.450	1.519	1.221	2.669
-20	-0.016	-0.043	0.307	0.219	0.443	-1.231	0.420	0.389	3.089
-19	0.149	0.516	0.457	0.262	0.624	-0.968	1.583	0.913	4.672
-18	-0.292	-0.803	0.165	0.125	0.247	-0.844	1.514	2.265**	6.186
-17	0.443	1.050	0.607	-0.052	-0.091	-0.896	1.052	0.728	7.238

	Financial Services			Industrial Manufacturing			IT		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-16	0.237	0.444	0.845	0.774	1.385	-0.122	1.052	1.198	8.290
-15	0.634	1.502	1.479	-0.014	-0.022	-0.136	-0.693	-0.952	7.597
-14	0.097	0.174	1.576	0.657	1.154	0.521	1.683	1.135	9.280
-13	0.074	0.201	1.650	0.147	0.196	0.669	-1.232	-1.664	8.048
-12	0.042	0.106	1.692	0.352	0.729	1.021	0.699	1.071	8.747
-11	0.032	0.106	1.724	-0.109	-0.287	0.912	1.161	1.793	9.907
-10	-0.204	-0.730	1.520	0.491	0.967	1.403	-1.300	-3.008*	8.607
-9	0.136	0.340	1.656	0.554	1.095	1.957	0.190	0.425	8.797
-8	0.572	1.382	2.228	0.353	0.533	2.310	1.219	1.272	10.016
-7	-0.777	-2.730*	1.451	0.960	1.263	3.270	-0.021	-0.024	9.995
-6	0.070	0.215	1.521	0.663	0.966	3.933	0.581	0.436	10.576
-5	0.071	0.206	1.592	-0.272	-0.381	3.661	-0.390	-0.420	10.186
-4	0.597	1.506	2.189	0.619	1.022	4.280	2.415	2.885*	12.601
-3	0.223	0.543	2.412	-0.263	-0.479	4.017	-0.604	-0.661	11.997
-2	1.352	2.321**	3.764	0.151	0.385	4.168	0.331	0.676	12.328
-1	0.663	1.581	4.427	0.436	0.838	4.603	-1.388	-1.818	10.940
0	2.237	3.128*	6.664	2.461	3.077*	7.064	2.493	1.016	13.434
1	1.453	2.104**	8.117	-0.043	-0.051	7.021	-0.543	-0.353	12.890
2	-0.563	-0.936	7.554	1.643	1.765	8.664	-0.955	-1.034	11.936
3	-1.057	-2.342**	6.497	-1.290	-1.810	7.374	1.257	1.663	13.192
4	-1.191	-2.542**	5.307	0.399	0.681	7.773	-1.329	-1.084	11.863
5	-0.904	-1.243	4.403	-1.069	-1.408	6.704	1.029	1.371	12.892
6	-0.493	-0.974	3.910	-0.506	-0.600	6.198	-1.042	-1.627	11.850
7	-1.197	-2.729*	2.714	-0.523	-0.780	5.675	-3.613	-2.763*	8.236
8	-0.856	-1.882	1.857	-0.218	-0.343	5.457	0.902	0.904	9.138



Days	Financial Services			Industrial Manufacturing			IT		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
9	-0.405	-0.857	1.452	0.239	0.235	5.696	-0.338	-0.894	8.800
10	-0.396	-0.744	1.056	0.099	0.141	5.796	-0.791	-0.462	8.010
11	0.017	0.040	1.072	-0.339	-0.708	5.457	-0.638	-0.855	7.372
12	-0.392	-1.283	0.680	-1.075	-1.437	4.382	1.592	1.337	8.964
13	-0.183	-0.385	0.497	-0.469	-0.583	3.913	-1.829	-4.162*	7.135
14	0.331	0.561	0.827	0.156	0.315	4.069	-1.828	-1.900	5.306
15	-0.508	-0.976	0.319	-0.105	-0.198	3.964	-0.251	-0.720	5.056
16	0.072	0.137	0.392	0.228	0.333	4.192	0.166	0.239	5.222
17	0.396	0.893	0.787	0.560	0.977	4.752	-1.371	-0.414	3.851
18	-0.402	-1.064	0.385	-0.409	-0.582	4.342	-1.205	-0.722	2.645
19	0.168	0.443	0.553	0.450	0.580	4.792	1.097	1.637	3.742
20	-0.515	-1.035	0.038	-0.472	-0.817	4.320	0.513	0.377	4.255
21	0.362	0.692	0.400	-0.442	-0.626	3.878	-1.403	-2.052**	2.852
22	0.410	0.754	0.810	0.986	1.611	4.864	0.127	0.135	2.979
23	-0.438	-1.024	0.371	-0.556	-1.058	4.308	-1.854	-4.254*	1.125
24	-0.531	-1.033	-0.160	-0.225	-0.502	4.083	-1.777	-1.006	-0.653
25	0.583	1.367	0.423	-1.344	-3.249*	2.739	-1.708	-0.806	-2.361
26	0.330	0.673	0.753	-0.325	-0.464	2.413	0.323	0.495	-2.038
27	0.094	0.280	0.847	0.326	0.533	2.739	3.426	1.178	1.388
28	-1.038	-1.769	-0.190	-0.420	-0.794	2.319	-0.035	-0.028	1.353
29	-0.930	-2.301**	-1.120	-0.350	-0.590	1.969	-1.214	-1.973**	0.138
30	0.030	0.094	-1.090	-0.525	-0.726	1.444	1.210	0.869	1.348

	Media & Entertainment			Metals			Pharma		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	1.095	1.080	1.095	1.452	0.756	1.452	-0.174	-0.417	-0.174
-29	-1.030	-0.950	0.065	-1.467	-0.764	-0.015	0.194	0.368	0.020
-28	0.018	0.016	0.083	1.212	0.526	1.197	0.974	2.558*	0.994
-27	1.625	1.986**	1.708	0.646	1.072	1.843	0.230	0.681	1.225
-26	0.678	1.150	2.386	0.375	0.387	2.218	-0.530	-1.531	0.695
-25	-0.610	-0.762	1.776	0.086	0.134	2.304	-0.036	-0.114	0.660
-24	1.739	6.723*	3.515	-0.068	-0.130	2.237	0.518	1.074	1.177
-23	0.380	0.489	3.895	-0.594	-0.823	1.643	-0.506	-1.006	0.671
-22	-0.241	-0.272	3.654	0.014	0.016	1.657	0.268	1.030	0.939
-21	1.624	1.061	5.278	-0.949	-0.403	0.708	-0.392	-0.768	0.546
-20	0.705	0.489	5.983	-0.438	-0.673	0.269	0.257	0.394	0.803
-19	-3.243	-1.859	2.740	2.884	1.341	3.154	0.985	2.090**	1.788
-18	2.503	2.058**	5.244	1.309	2.127**	4.462	-0.037	-0.097	1.751
-17	1.069	0.491	6.313	-2.069	-0.906	2.393	-0.485	-1.134	1.266
-16	-1.197	-1.195	5.116	2.969	1.406	5.362	0.051	0.127	1.317
-15	1.438	1.524	6.554	-1.238	-0.730	4.125	-0.284	-0.635	1.033
-14	-1.007	-0.516	5.547	0.464	0.626	4.588	-0.126	-0.399	0.907
-13	-0.714	-0.585	4.833	1.673	1.015	6.261	0.334	0.897	1.241
-12	-0.633	-0.659	4.200	-1.418	-0.674	4.843	1.303	2.205**	2.544
-11	-0.426	-0.814	3.775	2.167	1.464	7.010	0.400	1.005	2.944
-10	-0.160	-0.352	3.614	0.675	0.726	7.685	0.070	0.142	3.015
-9	-1.363	-2.163**	2.252	-1.133	-1.157	6.552	-0.459	-1.202	2.555
-8	1.994	1.739	4.246	1.235	1.696	7.787	-0.227	-0.605	2.328
-7	1.174	1.332	5.420	1.804	0.859	9.590	0.589	1.680	2.917
-6	-1.802	-1.991**	3.618	-0.966	-0.437	8.624	1.508	3.347*	4.424

	Media & Entertainment			Metals			Pharma		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-5	0.284	0.143	3.901	1.323	2.182**	9.947	-0.131	-0.303	4.293
-4	-0.102	-0.207	3.799	0.491	1.169	10.439	0.155	0.341	4.448
-3	-1.101	-3.669*	2.698	2.391	0.865	12.830	-0.091	-0.250	4.357
-2	1.701	1.131	4.399	-2.108	-0.708	10.722	-0.078	-0.171	4.279
-1	2.749	0.954	7.148	-0.168	-0.196	10.554	0.311	0.378	4.590
0	-0.098	-0.070	7.049	0.463	0.125	11.018	1.299	2.039**	5.889
1	0.177	0.221	7.227	-1.702	-0.524	9.315	2.376	2.723*	8.265
2	-1.211	-1.234	6.015	-0.723	-1.246	8.592	0.749	0.888	9.014
3	0.064	0.060	6.079	-0.841	-0.740	7.751	0.001	0.002	9.015
4	-0.376	-0.851	5.703	0.544	0.385	8.294	-1.140	-2.087**	7.875
5	-0.128	-0.082	5.575	3.687	1.444	11.982	-0.349	-0.510	7.527
6	-0.690	-0.595	4.886	-1.100	-2.066**	10.881	0.206	0.278	7.733
7	-1.283	-1.864	3.602	-3.095	-1.092	7.786	-0.639	-1.076	7.094
8	-1.487	-0.922	2.116	2.565	0.929	10.352	-0.863	-1.561	6.230
9	-2.481	-2.049**	-0.365	-2.325	-3.693*	8.027	-0.692	-1.173	5.538
10	-0.861	-0.890	-1.226	0.002	0.004	8.029	-1.041	-1.358	4.497
11	0.287	0.241	-0.939	-2.764	-0.861	5.265	-0.829	-1.240	3.668
12	-1.436	-1.475	-2.375	-1.088	-1.974**	4.178	0.010	0.024	3.678
13	-1.278	-2.476**	-3.652	1.446	0.841	5.624	0.189	0.309	3.866
14	-0.474	-0.847	-4.126	0.797	1.336	6.421	-0.469	-0.910	3.398
15	-0.279	-0.307	-4.405	-0.994	-1.235	5.427	0.185	0.420	3.582
16	-1.127	-1.196	-5.533	-0.166	-0.174	5.261	0.026	0.082	3.609
17	-3.552	-1.553	-9.085	-0.869	-0.416	4.392	-0.210	-0.445	3.399
18	-0.048	-0.019	-9.133	3.107	1.444	7.499	0.216	0.533	3.614
19	0.144	0.190	-8.989	-2.631	-1.177	4.868	0.805	1.471	4.419

	Media & Entertainment			Metals			Pharma		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
20	-0.701	-0.317	-9.690	-0.445	-0.975	4.422	0.195	0.563	4.614
21	0.367	0.413	-9.323	1.580	0.661	6.002	-0.680	-1.327	3.934
22	-2.558	-2.371**	-11.881	-2.398	-0.918	3.605	0.074	0.145	4.008
23	3.261	0.901	-8.620	-0.316	-0.399	3.289	-0.216	-0.434	3.793
24	-0.766	-0.685	-9.386	0.565	0.331	3.854	0.458	0.920	4.250
25	-2.188	-0.872	-11.574	-2.246	-1.599	1.608	-0.012	-0.025	4.238
26	0.809	0.367	-10.765	0.635	0.511	2.243	-0.467	-1.129	3.771
27	0.598	0.257	-10.167	-1.591	-1.977**	0.653	0.567	1.133	4.338
28	0.284	0.169	-9.883	-0.371	-0.363	0.281	1.213	1.852	5.551
29	-0.992	-1.100	-10.875	0.650	0.519	0.931	-0.214	-0.343	5.337
30	0.517	0.564	-10.358	0.033	0.040	0.964	0.197	0.236	5.534

	Services			Textiles		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	-0.612	-1.819	-0.612	-0.536	-1.030	-0.536
-29	-0.534	-1.315	-1.146	0.341	0.382	-0.195
-28	-0.137	-0.224	-1.283	0.839	0.915	0.644
-27	-0.304	-0.688	-1.586	0.376	0.843	1.021
-26	1.551	0.934	-0.036	-0.478	-0.607	0.543
-25	0.094	0.255	0.058	-0.235	-0.198	0.307
-24	1.204	0.853	1.262	-0.326	-0.400	-0.019
-23	-0.307	-0.674	0.955	1.071	0.687	1.052
-22	1.037	1.349	1.992	-0.252	-0.277	0.800
-21	-0.571	-1.726	1.421	0.134	0.244	0.933
-20	0.013	0.036	1.434	-0.900	-4.178*	0.033

	Services			Textiles		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-19	0.474	0.544	1.908	-0.553	-0.944	-0.520
-18	0.028	0.067	1.936	-0.012	-0.026	-0.532
-17	-0.321	-0.446	1.615	0.676	0.878	0.144
-16	0.860	0.895	2.475	0.764	0.609	0.908
-15	-0.382	-0.940	2.094	0.458	0.527	1.366
-14	0.368	0.664	2.462	-0.720	-2.109**	0.647
-13	0.578	1.331	3.040	-0.864	-0.736	-0.218
-12	1.224	1.563	4.264	0.145	0.228	-0.073
-11	0.252	0.343	4.516	0.716	0.512	0.643
-10	-0.408	-0.595	4.108	-1.047	-1.065	-0.405
-9	1.633	1.890	5.740	0.019	0.075	-0.386
-8	0.717	1.411	6.457	0.050	0.072	-0.336
-7	0.433	0.467	6.890	-0.282	-0.255	-0.618
-6	0.952	1.264	7.842	1.740	1.378	1.122
-5	0.656	0.668	8.498	1.354	2.874*	2.475
-4	0.585	0.539	9.083	1.098	1.435	3.573
-3	-0.606	-0.951	8.477	-1.027	-2.963*	2.546
-2	-0.135	-0.140	8.342	0.495	0.852	3.041
-1	0.969	1.791*	9.311	-0.399	-1.092	2.643
0	4.060	2.094**	13.371	3.674	3.064*	6.316
1	-0.542	-0.427	12.829	-1.059	-1.562	5.257
2	0.169	0.155	12.998	-0.693	-0.293	4.564
3	-1.246	-1.230	11.753	-1.331	-1.205	3.234
4	-0.799	-1.085	10.954	-1.418	-1.462	1.815
5	-0.222	-0.475	10.732	0.884	1.366	2.699
6	-2.257	-1.788	8.475	0.065	0.116	2.765

	Services			Textiles		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
7	0.075	0.102	8.550	0.445	1.099	3.209
8	-1.985	-1.817	6.565	-0.073	-0.065	3.137
9	1.115	1.277	7.680	0.165	0.226	3.302
10	-0.595	-0.996	7.084	-0.629	-0.724	2.673
11	-0.905	-2.059**	6.180	1.015	1.739	3.688
12	-0.763	-1.498	5.417	1.735	1.983**	5.423
13	-0.873	-1.011	4.543	-1.380	-2.678*	4.043
14	-0.354	-0.482	4.189	-1.407	-1.724	2.636
15	0.230	0.365	4.419	-0.847	-1.182	1.789
16	0.079	0.095	4.498	0.678	0.928	2.467
17	0.641	1.088	5.139	0.507	0.583	2.974
18	0.752	0.843	5.891	0.141	0.347	3.116
19	-0.294	-1.297	5.597	-0.433	-0.699	2.683
20	-0.331	-0.357	5.265	0.157	0.124	2.840
21	-1.597	-2.189**	3.669	0.483	0.756	3.323
22	-1.083	-2.045**	2.586	-0.172	-0.169	3.151
23	0.118	0.271	2.704	-0.115	-0.159	3.037
24	0.058	0.092	2.762	0.051	0.132	3.088
25	0.404	0.494	3.166	-0.277	-1.096	2.811
26	-0.489	-0.708	2.677	-0.583	-1.596	2.228
27	-0.288	-0.561	2.388	-2.041	-3.055*	0.187
28	1.655	1.771	4.044	-0.994	-1.538	-0.807
29	0.117	0.128	4.161	0.490	1.291	-0.317
30	-0.840	-1.858	3.321	-0.662	-2.432**	-0.979

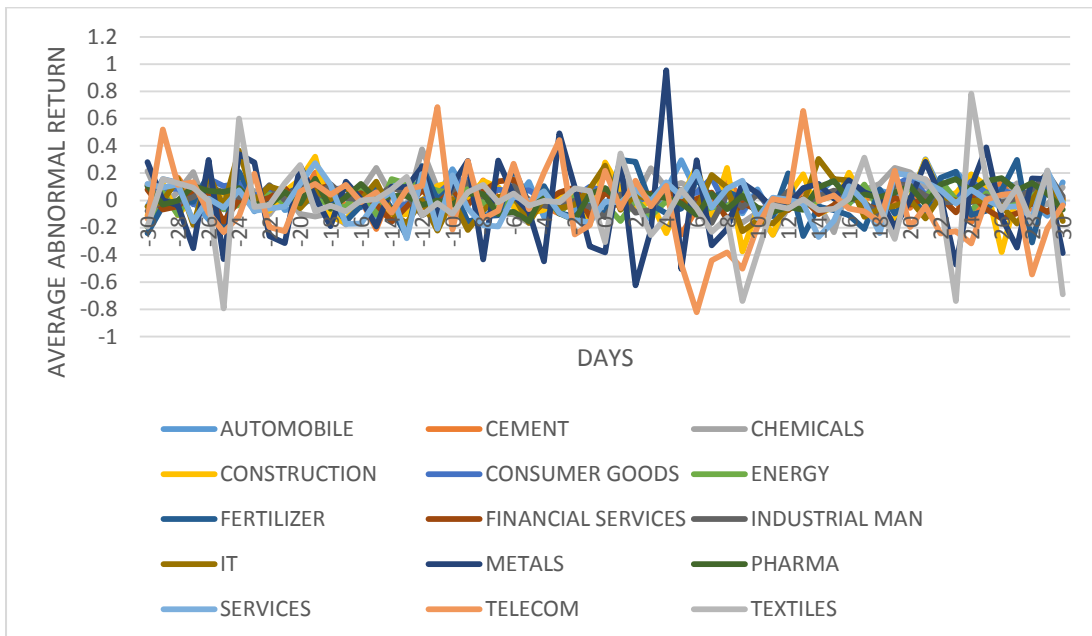
\* 1 percent Significance

\*\* 5 percent Significance

### 5.2.5 Industry Reaction to Announcement of Earnings

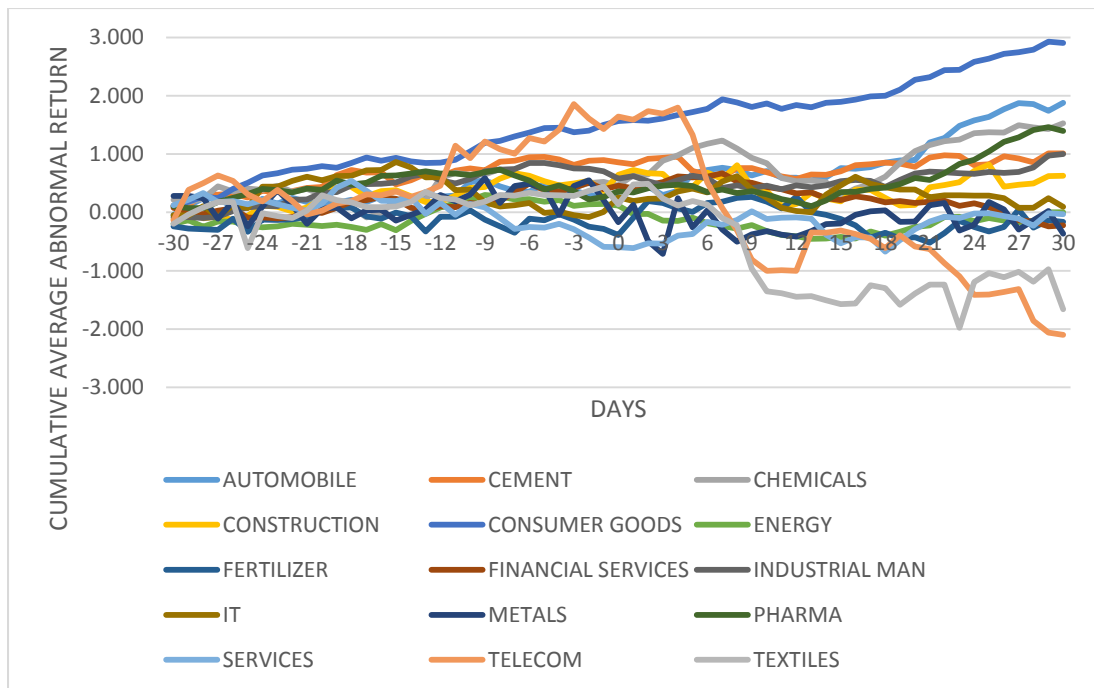
Table 5.12 presents the average abnormal returns, their calculated t-statistics and cumulative average abnormal returns of fifteen industries during the event window. Firstly, the study has conducted an immediate term (-1,0, +1) analysis of AARs and CAARs accrued upon the announcement of earnings by stocks listed with automobile industry. The AAR on the event day 0 and +1 was positive at 0.08 percent and 0.07 percent and on day -1 was negative at -0.02 percent. The AARs for cement industry was negative on day 0 and +1 at -0.03 percent and -0.03 percent and on day -1 was positive at 0.01 percent, the AAR for chemical industry was negative on event day at -0.06 percent and positive on day -1 at 0.02 percent. Similarly, the AAR for construction industry on day 0 was estimated positive at 0.28 percent. The AAR on day -1 was negative at -0.17 percent and positive on day +1 at 0.08 percent. The AAR for consumer goods industry was positive on day 0, -1 and +1 generating returns of 0.06 percent, 0.09 percent and 0.02 percent. Further, the AAR for energy industry was negative on day 0 and +1 generating return of -0.02 percent and -0.15 percent, whereas, positive returns of 0.009 percent were earned on day -1. Negative returns were accrued to investors investing in stocks of fertilizers and pesticides industries on day 0 at -0.10 percent and on day -1 at -0.04 percent, while, positive and significant returns of 0.29 percent were earned on day +1. The AARs for financial services industry were negative at -0.11 percent and significant on day -1 whereas the AARs on day +1 was negative at -0.04 and insignificant. The return on day 0 was positive and insignificant at 0.06 percent. The stocks of industrial manufacturing industry garnered negative returns of -0.12 percent on day 0 and -0.04 percent on day -1 and positive return of 0.04 percent were earned on day +1. The AARs for IT industry on day 0 was significantly positive at 0.25 percent and negative on day +1 at -0.07 percent. Moreover, the returns for metal industry on day 0 and day -1 were negative at -0.38 percent and -0.33 percent, while, the returns on day +1 were positive at 0.29 percent. The AARs for pharma industry were positive on day -1 and 0 generating returns of 0.04 percent and 0.09 percent, while, negative returns of -0.01 percent were earned on day +1. The AARs earned by stocks in services industry were negative on day 0, -1 and +1 at -0.007 percent, -0.16 percent and -0.01 percent. The returns on day -1, 0 and +1 were statistically insignificant.

The AARs of telecom industry were negative on day -1 and +1 at -0.18 percent and -0.05 percent and positive on day 0 at 0.21 percent. The AARs of textile industry was negative on day 0 generating returns of -0.30 percent and statistically positive on day +1 earning returns of 0.34 percent. However, the return of 0.07 percent earned on day -1 was not significant. The AARs for automobile, cement and cement products, metals, pharma and telecom industry were not significant in the immediate term implying stock returns were not immediately influenced by the announcement of earnings by the companies. Figure 5.11 and figure 5.12 graphically demonstrate the average abnormal returns for different industries during earnings announcements. The research further conducted an analysis of average abnormal returns accrued to investors in the short-term period of 11 days (-5, 0, +5). The AARs of automobile industry were positive and significant on day -5 and +5 generating 0.13 percent and 0.29 percent of returns while AAR on day +3 was negative at -0.14 percent and significant.



**Figure 5.11 : Interindustry Average Abnormal Returns of Earnings**





**Figure 5.12: Interindustry Cumulative Average Abnormal Returns for Earnings**

The AAR for cement industry was significant only on day +5, generating a negative return of -0.25 percent and insignificant for other days. The AAR for chemical industry were significant only in the post event period of +1 and +3 days accruing positive returns of 0.17 percent and 0.23 percent. Further, the AAR earned in construction industry was significant only on 0 and +4 days, generating returns of 0.28 percent and -0.24 percent. The AAR for consumer goods industry was positive for all of the days, except -3 and +2 days. The largest magnitude of returns was 0.09 percent which was earned on event day. The fertilizer and pesticides industries attracted significant positive abnormal returns on +1 and +2 day, while the returns generated on other days in the event window were not significant. The AARs of financial services industry were significant on days -5 and -1 days generating negative return of -0.11 percent and 0.11 percent on day -5 and -1. The industrial manufacturing and IT industry earned significant AAR of -0.12 percent and 0.25 percent on the event day and insignificant returns on rest of the days. The AARs earned in metals industry were significant on day +2 and +4 days generating negative returns of -0.62 percent and 0.95 percent respectively. Whereas, the AAR earned by stocks of pharma industry were negatively significant on -5 and -2 days garnering

negative returns of -0.15 percent and -0.14 percent and services industry earned negative return of -0.16 percent on -1 day.

The AAR earned in textile industry generated significant returns of -0.30 percent, 0.34 percent and -0.25 percent on day 0, +1 and +3 respectively. Thus, it was evidenced that the returns earned upon announcement of earnings were found to be more significant in the post-event than the pre-event period for cement, chemical, construction, energy, fertilizer and pesticides, metals and textile industry. Thus, it can be inferred that in the short-term period markets react strongly to the announcement of earnings news post the announcement implying a gradual response of the investors to the earnings announced. It was also found profitable to hold stocks of consumer goods during the earnings announcement. While investing in stocks of automobile, chemicals and IT industry was preferred post the earnings announcement. Also, investors should refrain from holding stocks of energy, fertilizer and pesticides, industrial manufacturing, metals and services industry in the post earnings period as returns remained negative for larger part of days.

The study also conducted analysis of AARs accrued during the medium-term of 31 days (-15, 0 +15) for stocks of different industries. The AAR for automobile industry was positive during 18 days and negative during 13 days, with significant returns on -10 and +5 days only, AAR for cement, chemical, industrial manufacturing and metals industry was positive during 17 days and negative during 14 days, with significant returns on -15, +5 days, -15, -12, +1, +3, +11, +15 days, 12, -8, 0 and +7 days and +2, +4, +5 days respectively. AARs for construction and IT industry were positive during 16 days and negative during 15 days, with significant return on 0, +4, +9 days and -13, -11, 0, +9 and +14 days. AAR for consumer goods industry was positive during 23 days and negative during 8 days, with significant returns on -10, -9, -1 and +7 days. The AAR of energy industry was positive during 15 days and negative during 16 days, with significant returns on -14 and +1 days. The AAR for fertilizer and pesticides industry was positive during 13 days and negative during 18 days, with significant returns on -13, -12, +1, +2 and +13 days. The AAR for financial services industry was positive during 14 days and negative during 17 days, with significant returns on -14, -7, -6, -5, -1, +4 and +8 days. The AAR for pharma industry was positive during 15 days and negative during 16 days, with significant

returns on -5, -3 and +15 days. The AAR for services industry was positive during 13 days and negative during 18 days, with significant returns on -11, -10, -8, -7, -1 and +14 days. The AAR for telecom industry was positive during 14 days and negative during 17 days, with significant returns on -11, +5, +9 and +13 days. The AAR for textile industry was positive during 12 days and negative during 19 days, with significant returns on 0, +1, +3 and +10 days.

The study has conducted a long-term period analysis of the average abnormal returns earned during the 61 days event window (-30, 0, +30). The AARs for automobile industry were significant on day -29, -26, -10, -5, +3, +5, +21 and +23, AARs for cement industry were significant on day -19, -15, and +5, AARs for chemical industry were significant on -30, -27, -17, -14, -12, +1, +3, +12, +15, +19, and 20 days, AARs for construction industry were significant on -19, 0, +4, +6, +9, +21, +26 days, AARs for consumer goods industry were significant on -26, -25, -24, -10, -9, -1, +7, +20, +22, +24 and +29 days, AARs for energy industry were significant on -30, -14, +1, +22 and +29 days, AARs for fertilizer and pesticides industry were significant on -30, -25, -13, -12, +1, +2, +13, +27 and +28 days, AARs for financial services industry were significant on -25, -18, -14, -7, -6, -5, -1, +4, +8, +26 and +27 days, AARs for industrial manufacturing industry were significant on -20, -18, -12, -9, 0, +7, +19, 20 and +29 days, AARs for IT industry were significant on -27, -26, -13, -11, -9, 0, +9, +14, +27 and +29 days, AARs for metals industry were significant on -25, +2, +4, +5 and +27 days, AARs for pharma industry were significant on -19, -16, -5, -2, +15, +22, +23, +25, +26 and +28 days, AARs for services industry were significant on -19, -16, -11, -10, -8, -7, -1 and +14 days, AARs for telecom industry were significant on -29, -11, +5, +6, +9, +13 and +28 days, AARs for textile industry were significant on 0, +1, +3, +10, +17 and +19 days. Thus, it is concluded that there is a significant long-term influence of earnings announcement on returns of stocks of automobile industry, while a significant long-term influence on stock returns of chemical industry was observed but only in the pre-event window. Moreover, returns of industrial manufacturing, financial services, construction, IT and pharma industry were also influenced by announcement of earnings but mostly in post-event window. While no significant influence was seen on returns of metals, telecom and textile industries in the long-run period.

**Table 5.12 : Analysis of Industry Reaction to Announcement of Earnings**

Days	Automobile			Cement & Cement Products			Chemicals		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	-0.043	-0.493	-0.043	0.116	1.081	0.116	0.216	1.847	0.216
-29	0.158	1.735	0.115	0.012	0.121	0.128	-0.039	-0.318	0.177
-28	0.132	1.473	0.246	0.168	1.510	0.296	0.062	0.517	0.239
-27	-0.011	-0.125	0.235	0.010	0.095	0.307	0.209	1.814	0.449
-26	-0.140	-1.686	0.095	0.015	0.141	0.322	-0.091	-0.803	0.358
-25	0.003	0.039	0.098	-0.067	-0.640	0.255	0.050	0.413	0.407
-24	0.133	1.502	0.232	0.116	1.010	0.370	-0.021	-0.179	0.386
-23	-0.082	-0.990	0.150	-0.020	-0.190	0.350	0.070	0.662	0.457
-22	0.100	1.212	0.249	0.017	0.158	0.367	-0.102	-0.969	0.355
-21	-0.072	-0.809	0.177	0.052	0.442	0.419	0.049	0.465	0.404
-20	-0.049	-0.584	0.129	0.014	0.139	0.433	-0.100	-0.872	0.303
-19	0.040	0.477	0.169	0.204	1.772	0.637	-0.118	-1.197	0.185
-18	0.049	0.605	0.217	0.087	0.795	0.725	-0.096	-0.954	0.089
-17	-0.040	-0.469	0.177	-0.044	-0.414	0.681	-0.176	-1.768	-0.087
-16	0.100	1.132	0.277	0.007	0.071	0.688	0.071	0.688	-0.015
-15	-0.158	-1.205	0.119	-0.209	-2.039**	0.479	0.240	2.212**	0.224
-14	0.131	1.470	0.249	0.075	0.576	0.554	0.032	0.304	0.256
-13	0.059	0.663	0.309	0.110	1.075	0.663	-0.043	-0.453	0.213
-12	-0.040	-0.485	0.269	-0.053	-0.428	0.610	0.375	3.185*	0.588
-11	0.019	0.248	0.288	0.107	0.902	0.718	0.089	0.815	0.676
-10	0.230	2.855*	0.518	0.038	0.364	0.756	-0.030	-0.288	0.646
-9	0.035	0.400	0.553	-0.036	-0.299	0.720	0.003	0.016	0.649
-8	-0.108	-1.292	0.445	0.147	1.306	0.867	0.094	0.510	0.744
-7	-0.078	-0.906	0.367	0.017	0.164	0.884	-0.096	-0.840	0.648
-6	-0.012	-0.148	0.355	0.060	0.579	0.944	-0.101	-0.956	0.546

	Automobile			Cement & Cement Products			Chemicals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-5	0.134	1.671	0.489	0.009	0.088	0.953	-0.165	-1.605	0.381
-4	-0.121	-1.457	0.369	-0.044	-0.386	0.909	0.060	0.613	0.441
-3	0.005	0.058	0.374	-0.096	-1.015	0.813	-0.010	-0.099	0.431
-2	-0.076	-0.910	0.297	0.071	0.629	0.884	0.072	0.643	0.503
-1	-0.026	-0.320	0.272	0.010	0.090	0.894	0.020	0.211	0.523
0	0.084	0.962	0.355	-0.038	-0.367	0.856	-0.065	-0.622	0.458
1	0.075	0.927	0.430	-0.031	-0.273	0.826	0.178	1.686	0.636
2	0.008	0.099	0.439	0.092	0.801	0.918	0.013	0.123	0.649
3	-0.141	-1.771	0.297	0.017	0.159	0.935	0.236	2.049**	0.885
4	0.073	0.829	0.370	0.023	0.216	0.958	0.092	0.864	0.977
5	0.294	3.167*	0.665	-0.250	-1.970**	0.708	0.129	1.173	1.105
6	0.063	0.669	0.727	-0.063	-0.541	0.645	0.071	0.591	1.177
7	0.037	0.355	0.764	-0.037	-0.276	0.607	0.053	0.439	1.230
8	-0.038	-0.352	0.726	0.151	1.140	0.758	-0.134	-1.033	1.096
9	-0.095	-0.907	0.631	0.003	0.022	0.761	-0.162	-1.297	0.934
10	0.082	0.734	0.713	-0.074	-0.598	0.687	-0.091	-0.690	0.843
11	-0.119	-1.215	0.594	-0.072	-0.612	0.616	-0.253	-1.973**	0.590
12	0.003	0.036	0.598	-0.043	-0.364	0.573	-0.053	-0.485	0.537
13	-0.044	-0.461	0.553	0.074	0.651	0.647	0.011	0.083	0.548
14	0.049	0.507	0.603	-0.004	-0.033	0.643	-0.030	-0.274	0.518
15	0.158	1.585	0.761	0.061	0.538	0.704	-0.234	-1.892	0.284
16	-0.013	-0.137	0.748	0.105	0.857	0.809	0.127	1.073	0.411
17	0.031	0.331	0.778	0.015	0.131	0.823	0.076	0.724	0.487
18	0.072	0.775	0.850	0.028	0.238	0.852	0.122	1.086	0.609
19	0.043	0.466	0.893	-0.015	-0.135	0.837	0.238	1.984**	0.847

	Automobile			Cement & Cement Products			Chemicals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
20	0.003	0.034	0.896	-0.054	-0.514	0.783	0.206	1.752	1.052
21	0.303	3.577*	1.199	0.155	1.467	0.938	0.102	0.970	1.154
22	0.075	0.805	1.273	0.040	0.376	0.978	0.064	0.617	1.218
23	0.210	2.323**	1.483	-0.011	-0.098	0.967	0.030	0.256	1.248
24	0.092	1.107	1.575	-0.160	-1.369	0.807	0.109	0.831	1.357
25	0.064	0.704	1.639	0.021	0.185	0.828	0.016	0.086	1.373
26	0.131	1.429	1.770	0.132	1.136	0.960	-0.005	-0.020	1.368
27	0.106	1.204	1.876	-0.037	-0.357	0.924	0.125	0.703	1.493
28	-0.019	-0.238	1.856	-0.064	-0.618	0.860	-0.035	-0.348	1.458
29	-0.113	-1.383	1.743	0.153	1.304	1.012	-0.029	-0.286	1.430
30	0.134	1.518	1.877	0.002	0.023	1.014	0.097	1.004	1.526

	Construction			Consumer Goods			Energy		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	-0.111	-0.785	-0.111	0.105	1.635	0.105	-0.196	-2.429**	-0.196
-29	0.121	0.880	0.010	0.078	1.227	0.183	0.059	0.692	-0.137
-28	-0.109	-0.818	-0.100	0.089	1.416	0.272	-0.107	-1.225	-0.244
-27	0.028	0.207	-0.072	-0.030	-0.482	0.242	0.089	1.177	-0.155
-26	-0.056	-0.467	-0.128	0.159	2.521**	0.400	-0.003	-0.039	-0.159
-25	0.068	0.456	-0.060	0.105	1.669	0.505	-0.063	-0.763	-0.222
-24	0.176	1.410	0.116	0.127	2.082**	0.632	-0.034	-0.434	-0.256
-23	-0.023	-0.176	0.093	0.037	0.608	0.670	0.018	0.225	-0.238
-22	-0.076	-0.502	0.017	0.062	0.997	0.732	0.045	0.516	-0.193
-21	0.065	0.406	0.083	0.017	0.292	0.749	-0.019	-0.241	-0.212
-20	0.153	0.931	0.236	0.044	0.755	0.793	-0.021	-0.275	-0.233

	Construction			Consumer Goods			Energy		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-19	0.321	2.205**	0.557	-0.026	-0.472	0.767	0.019	0.242	-0.214
-18	-0.120	-0.756	0.437	0.081	1.319	0.848	-0.036	-0.449	-0.250
-17	-0.162	-0.794	0.275	0.090	1.458	0.939	-0.049	-0.651	-0.299
-16	0.091	0.709	0.366	-0.051	-0.836	0.888	0.099	1.170	-0.200
-15	0.016	0.117	0.383	0.048	0.811	0.936	-0.105	-1.266	-0.305
-14	-0.104	-0.752	0.278	-0.059	-0.966	0.877	0.158	2.091**	-0.147
-13	-0.101	-0.745	0.177	-0.027	-0.472	0.850	0.123	1.634	-0.024
-12	0.002	0.016	0.179	0.003	0.047	0.853	0.107	1.214	0.083
-11	0.108	0.939	0.287	0.049	0.832	0.902	0.073	0.866	0.156
-10	0.134	0.927	0.421	0.141	2.324**	1.043	0.056	0.696	0.212
-9	0.013	0.102	0.434	0.153	2.532**	1.195	0.089	1.022	0.301
-8	0.143	0.884	0.577	0.030	0.512	1.226	-0.022	-0.282	0.279
-7	0.097	0.656	0.674	0.080	1.429	1.305	-0.058	-0.709	0.221
-6	-0.048	-0.314	0.626	0.064	1.042	1.369	0.005	0.059	0.226
-5	-0.094	-0.679	0.533	0.075	1.274	1.445	-0.044	-0.537	0.182
-4	-0.068	-0.444	0.465	0.005	0.086	1.450	0.027	0.357	0.209
-3	0.029	0.168	0.493	-0.075	-1.295	1.375	-0.095	-1.298	0.113
-2	0.047	0.351	0.540	0.024	0.393	1.399	0.024	0.299	0.137
-1	-0.176	-1.317	0.364	0.099	1.681	1.498	0.009	0.114	0.147
0	0.280	1.748	0.644	0.066	1.090	1.564	-0.027	-0.357	0.120
1	0.082	0.597	0.726	0.020	0.333	1.584	-0.151	-1.790	-0.032
2	-0.053	-0.406	0.672	-0.012	-0.207	1.572	0.006	0.078	-0.026
3	-0.011	-0.086	0.661	0.036	0.572	1.608	-0.114	-1.362	-0.140
4	-0.240	-1.705	0.421	0.065	0.991	1.673	-0.005	-0.059	-0.144
5	0.014	0.106	0.435	0.046	0.726	1.719	0.054	0.652	-0.090

	Construction			Consumer Goods			Energy		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
6	0.249	1.775	0.684	0.056	0.752	1.775	-0.094	-1.056	-0.185
7	-0.114	-0.681	0.571	0.165	2.286**	1.940	-0.049	-0.524	-0.234
8	0.238	1.276	0.809	-0.055	-0.734	1.885	-0.045	-0.436	-0.279
9	-0.373	-2.257**	0.435	-0.079	-1.154	1.806	0.062	0.639	-0.218
10	-0.069	-0.419	0.367	0.061	0.842	1.866	-0.106	-1.058	-0.324
11	-0.253	-1.536	0.114	-0.089	-1.378	1.777	-0.064	-0.647	-0.388
12	0.032	0.218	0.145	0.066	0.946	1.843	-0.024	-0.232	-0.412
13	0.191	1.273	0.336	-0.041	-0.630	1.802	-0.040	-0.440	-0.452
14	-0.099	-0.659	0.238	0.075	1.143	1.877	0.003	0.036	-0.449
15	-0.046	-0.322	0.191	0.017	0.270	1.894	0.031	0.356	-0.418
16	0.202	1.456	0.393	0.038	0.617	1.932	-0.027	-0.319	-0.445
17	-0.006	-0.040	0.388	0.058	0.897	1.990	0.116	1.472	-0.329
18	-0.138	-1.066	0.250	0.007	0.114	1.997	-0.072	-0.854	-0.401
19	-0.133	-1.164	0.117	0.107	1.631	2.104	0.068	0.800	-0.332
20	0.013	0.087	0.130	0.172	2.634*	2.276	0.080	0.893	-0.252
21	0.298	2.087**	0.428	0.043	0.720	2.318	0.027	0.311	-0.225
22	0.040	0.270	0.468	0.123	2.046**	2.441	0.145	1.690	-0.081
23	0.052	0.364	0.519	0.000	0.001	2.441	0.007	0.081	-0.074
24	0.191	1.269	0.711	0.140	2.300**	2.581	-0.077	-0.953	-0.150
25	0.108	0.796	0.818	0.054	0.911	2.636	0.054	0.634	-0.097
26	-0.378	-2.408**	0.440	0.085	1.443	2.720	-0.046	-0.543	-0.142
27	0.036	0.276	0.476	0.025	0.392	2.745	-0.026	-0.331	-0.168
28	0.022	0.156	0.498	0.047	0.743	2.791	0.024	0.293	-0.144
29	0.125	0.966	0.622	0.135	2.268**	2.926	0.146	1.707	0.003
30	0.006	0.049	0.628	-0.019	-0.328	2.907	-0.001	-0.009	0.002



	<b>Fertilizer &amp; Pesticides</b>			<b>Financial Services</b>			<b>Industrial Manufacturing</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
-30	-0.240	-2.024**	-0.240	0.080	1.312	0.080	-0.078	-1.160	-0.078
-29	-0.040	-0.311	-0.280	-0.066	-1.114	0.013	-0.003	-0.053	-0.082
-28	-0.008	-0.064	-0.288	-0.042	-0.739	-0.029	-0.017	-0.256	-0.098
-27	-0.010	-0.078	-0.298	0.059	0.994	0.030	0.025	0.367	-0.073
-26	0.190	1.428	-0.108	0.036	0.596	0.066	0.099	1.490	0.026
-25	-0.226	-1.975**	-0.334	-0.155	-2.109**	-0.089	0.060	0.909	0.085
-24	0.211	1.593	-0.123	0.003	0.047	-0.086	0.024	0.363	0.109
-23	-0.005	-0.037	-0.127	-0.017	-0.298	-0.103	-0.003	-0.047	0.106
-22	0.009	0.067	-0.119	0.020	0.339	-0.082	0.111	1.619	0.217
-21	0.044	0.334	-0.075	0.089	1.474	0.007	0.003	0.041	0.220
-20	0.097	0.753	0.022	-0.014	-0.243	-0.007	0.117	1.790	0.337
-19	0.058	0.421	0.080	0.085	1.100	0.078	0.011	0.175	0.348
-18	0.007	0.061	0.087	0.107	1.819	0.184	0.118	1.839	0.466
-17	-0.155	-1.120	-0.068	0.024	0.435	0.209	0.018	0.286	0.484
-16	-0.039	-0.310	-0.107	0.054	0.929	0.263	0.006	0.092	0.490
-15	0.104	0.762	-0.003	-0.030	-0.535	0.233	0.024	0.383	0.514
-14	-0.059	-0.378	-0.062	-0.156	-2.127**	0.077	0.102	1.567	0.616
-13	-0.265	-2.008**	-0.327	-0.045	-0.517	0.033	0.043	0.628	0.659
-12	0.253	1.860	-0.074	0.075	1.033	0.108	-0.109	-1.743	0.550
-11	0.001	0.010	-0.072	-0.020	-0.360	0.088	-0.052	-0.849	0.497
-10	0.107	0.760	0.034	0.075	1.356	0.162	0.078	1.174	0.575
-9	-0.159	-1.149	-0.124	-0.028	-0.502	0.134	0.132	1.992**	0.707
-8	-0.115	-0.870	-0.240	0.068	1.129	0.202	0.027	0.383	0.734
-7	-0.110	-0.851	-0.350	0.141	2.340**	0.343	0.008	0.122	0.742
-6	0.241	1.541	-0.109	0.151	2.572**	0.495	0.105	1.565	0.846

Days	Fertilizer & Pesticides			Financial Services			Industrial Manufacturing		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-5	-0.027	-0.179	-0.135	-0.116	-1.997**	0.378	0.002	0.028	0.848
-4	0.105	0.653	-0.031	-0.018	-0.290	0.360	-0.038	-0.576	0.811
-3	-0.095	-0.757	-0.126	0.058	1.024	0.418	-0.058	-0.862	0.752
-2	-0.116	-0.789	-0.242	0.096	1.568	0.515	-0.002	-0.024	0.751
-1	-0.040	-0.263	-0.282	-0.118	-2.106**	0.397	-0.049	-0.784	0.702
0	-0.106	-0.738	-0.388	0.063	1.132	0.460	-0.123	-1.850	0.579
1	0.297	1.991**	-0.091	-0.045	-0.822	0.416	0.044	0.651	0.623
2	0.284	2.062**	0.193	0.055	0.975	0.471	-0.090	-1.424	0.534
3	-0.029	-0.225	0.164	0.048	0.774	0.519	-0.070	-1.095	0.464
4	-0.095	-0.675	0.069	0.098	1.720	0.617	0.087	1.197	0.551
5	-0.060	-0.416	0.008	-0.016	-0.254	0.601	0.076	1.156	0.627
6	0.151	0.891	0.159	0.011	0.145	0.612	-0.042	-0.534	0.586
7	0.024	0.139	0.184	0.058	0.808	0.669	-0.165	-2.027**	0.421
8	0.066	0.451	0.250	-0.142	-2.020**	0.528	0.043	0.561	0.464
9	0.014	0.095	0.264	-0.020	-0.299	0.507	-0.051	-0.650	0.413
10	-0.083	-0.603	0.181	-0.069	-1.074	0.438	0.043	0.596	0.456
11	-0.114	-0.729	0.066	-0.042	-0.653	0.397	-0.060	-0.799	0.396
12	0.198	1.230	0.264	-0.071	-1.161	0.325	0.068	0.882	0.465
13	-0.262	-1.739	0.002	0.016	0.253	0.341	-0.036	-0.498	0.429
14	-0.045	-0.268	-0.043	-0.099	-1.641	0.242	0.033	0.489	0.461
15	-0.070	-0.466	-0.113	-0.034	-0.583	0.208	0.073	1.004	0.534
16	-0.108	-0.796	-0.221	0.070	1.202	0.278	0.022	0.329	0.557
17	-0.211	-1.503	-0.432	-0.039	-0.716	0.239	-0.017	-0.259	0.540
18	0.082	0.558	-0.350	-0.065	-0.881	0.174	-0.107	-1.582	0.433
19	-0.098	-0.714	-0.448	0.020	0.229	0.194	0.122	1.881	0.555

	<b>Fertilizer &amp; Pesticides</b>			<b>Financial Services</b>			<b>Industrial Manufacturing</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
20	0.020	0.159	-0.427	-0.031	-0.508	0.163	0.109	1.682	0.664
21	-0.092	-0.697	-0.520	0.017	0.310	0.181	0.035	0.529	0.699
22	0.166	1.338	-0.354	0.022	0.387	0.203	-0.012	-0.188	0.687
23	0.211	1.577	-0.143	-0.089	-1.580	0.114	-0.013	-0.192	0.674
24	-0.106	-0.849	-0.249	0.041	0.759	0.155	-0.012	-0.158	0.662
25	-0.076	-0.587	-0.325	-0.063	-1.126	0.091	0.029	0.430	0.691
26	0.075	0.533	-0.250	-0.131	-2.404**	-0.040	-0.015	-0.220	0.676
27	0.299	1.989**	0.049	-0.094	-1.815	-0.134	0.017	0.257	0.693
28	-0.310	-2.212**	-0.261	-0.021	-0.387	-0.155	0.080	1.302	0.773
29	0.128	0.915	-0.133	-0.085	-1.513	-0.240	0.199	2.727*	0.972
30	-0.029	-0.235	-0.162	0.016	0.276	-0.225	0.030	0.462	1.002

	<b>IT</b>			<b>Metals</b>			<b>Pharma</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
-30	-0.045	-0.443	-0.045	0.282	1.121	0.282	0.107	1.566	0.107
-29	-0.006	-0.037	-0.051	0.001	0.003	0.282	-0.031	-0.411	0.075
-28	0.159	1.418	0.108	-0.037	-0.120	0.246	0.000	0.004	0.076
-27	-0.180	-1.704	-0.072	-0.351	-1.401	-0.106	0.104	1.468	0.180
-26	0.195	1.794	0.123	0.297	1.065	0.191	0.070	1.015	0.250
-25	-0.049	-0.268	0.074	-0.430	-1.695	-0.239	0.063	0.972	0.313
-24	0.365	1.529	0.439	0.341	1.486	0.102	0.091	1.352	0.404
-23	0.000	0.000	0.439	0.279	1.060	0.382	-0.026	-0.412	0.378
-22	0.102	1.047	0.541	-0.261	-1.461	0.121	-0.034	-0.536	0.344
-21	0.068	0.630	0.610	-0.314	-1.166	-0.193	0.063	0.887	0.407

	IT			Metals			Pharma		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-20	-0.058	-0.317	0.552	0.253	0.853	0.061	-0.022	-0.335	0.385
-19	0.068	0.381	0.620	0.026	0.097	0.087	0.159	2.344**	0.544
-18	0.008	0.075	0.628	-0.189	-0.672	-0.102	-0.063	-0.918	0.481
-17	0.093	0.842	0.720	0.139	0.549	0.036	0.025	0.365	0.506
-16	0.004	0.037	0.724	0.011	0.040	0.048	0.121	1.898	0.627
-15	0.137	1.380	0.861	-0.190	-0.748	-0.143	0.008	0.123	0.635
-14	-0.091	-0.892	0.770	0.099	0.388	-0.044	0.032	0.462	0.667
-13	-0.167	-1.727	0.603	0.098	0.358	0.054	0.035	0.532	0.702
-12	0.000	0.004	0.603	0.245	0.890	0.299	-0.034	-0.507	0.668
-11	-0.222	-2.373**	0.382	-0.112	-0.486	0.187	-0.001	-0.010	0.668
-10	0.010	0.083	0.391	0.114	0.540	0.302	-0.032	-0.465	0.636
-9	-0.217	-2.011**	0.175	0.289	1.339	0.591	0.050	0.768	0.686
-8	-0.074	-0.621	0.101	-0.432	-1.578	0.159	0.046	0.726	0.732
-7	0.024	0.253	0.125	0.293	1.398	0.452	-0.100	-1.514	0.632
-6	0.034	0.313	0.159	0.038	0.114	0.490	-0.084	-1.387	0.548
-5	-0.166	-1.514	-0.007	-0.083	-0.312	0.407	-0.154	-2.365**	0.394
-4	0.020	0.189	0.013	-0.447	-1.501	-0.040	0.067	1.057	0.461
-3	-0.060	-0.646	-0.047	0.492	1.524	0.452	-0.096	-1.539	0.365
-2	-0.032	-0.321	-0.079	0.097	0.373	0.549	-0.144	-2.406**	0.221
-1	0.087	0.781	0.007	-0.336	-1.524	0.213	0.046	0.723	0.267
0	0.255	2.043**	0.262	-0.380	-1.126	-0.167	0.090	1.339	0.357
1	-0.070	-0.644	0.192	0.296	1.364	0.129	-0.013	-0.189	0.344
2	0.042	0.380	0.234	-0.622	-2.098**	-0.493	0.072	1.071	0.416
3	0.002	0.018	0.236	-0.219	-1.556	-0.712	0.040	0.566	0.456
4	0.121	0.987	0.357	0.956	3.334*	0.244	0.018	0.244	0.474

	IT			Metals			Pharma		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
5	0.052	0.410	0.409	-0.502	-1.838	-0.258	-0.022	-0.283	0.452
6	-0.067	-0.444	0.342	0.294	1.190	0.036	-0.106	-1.313	0.346
7	0.188	1.316	0.530	-0.329	-1.073	-0.294	0.049	0.585	0.394
8	0.095	0.709	0.625	-0.211	-0.772	-0.505	-0.065	-0.783	0.330
9	-0.225	-1.737	0.400	0.128	0.400	-0.377	0.035	0.429	0.364
10	-0.149	-1.158	0.251	0.054	0.258	-0.323	-0.052	-0.696	0.312
11	-0.171	-1.385	0.080	-0.057	-0.239	-0.380	-0.086	-1.166	0.227
12	-0.057	-0.398	0.023	-0.034	-0.158	-0.415	-0.048	-0.620	0.178
13	-0.022	-0.175	0.001	0.091	0.287	-0.323	-0.070	-0.942	0.108
14	0.305	1.877	0.306	0.121	0.463	-0.202	0.099	1.382	0.207
15	0.158	1.376	0.463	0.014	0.045	-0.188	0.141	1.974**	0.349
16	0.148	1.441	0.611	0.146	0.628	-0.042	0.007	0.112	0.356
17	-0.121	-0.915	0.490	0.059	0.208	0.017	0.044	0.618	0.400
18	-0.059	-0.531	0.432	0.018	0.070	0.035	0.025	0.387	0.425
19	-0.042	-0.413	0.390	-0.198	-0.912	-0.163	0.058	0.841	0.483
20	0.004	0.038	0.394	0.004	0.012	-0.159	0.105	1.532	0.588
21	-0.133	-1.332	0.261	0.283	0.949	0.124	-0.030	-0.397	0.558
22	0.031	0.285	0.292	0.035	0.115	0.159	0.116	1.656	0.674
23	0.000	-0.003	0.292	-0.471	-1.460	-0.311	0.158	2.215**	0.832
24	-0.003	-0.033	0.288	0.099	0.357	-0.212	0.071	1.027	0.903
25	-0.003	-0.027	0.286	0.388	1.534	0.176	0.143	2.008**	1.046
26	-0.039	-0.429	0.246	-0.126	-0.762	0.050	0.164	2.462**	1.210
27	-0.169	-1.758	0.077	-0.345	-1.804	-0.295	0.074	1.047	1.285
28	0.002	0.022	0.079	0.160	0.924	-0.135	0.129	1.842	1.414
29	0.165	1.676	0.244	0.157	0.597	0.023	0.048	0.613	1.462
30	-0.150	-1.470	0.094	-0.386	-1.460	-0.363	-0.068	-0.678	1.395

	Services			Telecom			Textiles		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.120	0.774	0.120	-0.134	-0.541	-0.134	-0.194	-1.217	-0.194
-29	0.095	0.734	0.215	0.521	2.017**	0.387	0.156	1.099	-0.039
-28	0.117	1.006	0.332	0.113	0.434	0.500	0.125	0.763	0.086
-27	-0.152	-1.469	0.179	0.132	0.492	0.633	0.093	0.616	0.179
-26	0.013	0.115	0.192	-0.092	-0.416	0.540	0.000	-0.002	0.179
-25	-0.053	-0.434	0.139	-0.233	-0.999	0.308	-0.793	-0.978	-0.614
-24	0.074	0.619	0.213	-0.116	-0.483	0.191	0.600	0.738	-0.014
-23	-0.075	-0.656	0.138	0.197	0.701	0.389	-0.048	-0.315	-0.062
-22	-0.060	-0.541	0.077	-0.197	-0.685	0.192	-0.034	-0.262	-0.096
-21	-0.046	-0.390	0.031	-0.227	-0.861	-0.035	0.126	0.826	0.030
-20	0.121	1.031	0.152	0.065	0.241	0.030	0.261	1.648	0.290
-19	0.275	2.321**	0.426	0.121	0.395	0.152	-0.080	-0.494	0.211
-18	0.114	0.769	0.540	0.041	0.157	0.192	-0.039	-0.281	0.172
-17	-0.171	-1.592	0.369	0.115	0.427	0.307	-0.081	-0.566	0.091
-16	-0.171	-1.718	0.199	-0.012	-0.034	0.295	-0.001	-0.007	0.090
-15	-0.007	-0.064	0.192	0.061	0.172	0.356	0.009	0.061	0.099
-14	0.062	0.591	0.254	-0.090	-0.314	0.266	0.081	0.608	0.180
-13	-0.278	-1.950	-0.025	0.082	0.273	0.349	0.174	1.224	0.354
-12	0.193	1.288	0.168	0.108	0.387	0.457	-0.109	-0.894	0.245
-11	-0.208	-1.886	-0.039	0.685	2.076**	1.142	-0.021	-0.134	0.224
-10	0.185	1.687	0.146	-0.214	-0.833	0.928	-0.100	-0.774	0.124
-9	-0.058	-0.546	0.087	0.287	0.946	1.215	0.061	0.423	0.185
-8	-0.181	-1.813	-0.094	-0.133	-0.465	1.082	0.114	0.773	0.299
-7	-0.191	-1.836	-0.284	-0.076	-0.248	1.006	-0.013	-0.084	0.285
-6	0.032	0.309	-0.253	0.270	0.849	1.276	0.051	0.364	0.336

	Services			Telecom			Textiles		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-5	-0.009	-0.081	-0.261	-0.063	-0.235	1.212	-0.040	-0.284	0.297
-4	0.067	0.587	-0.195	0.203	0.721	1.415	-0.003	-0.016	0.294
-3	-0.092	-0.811	-0.287	0.444	1.457	1.859	-0.012	-0.078	0.282
-2	-0.144	-1.335	-0.431	-0.250	-0.887	1.609	0.089	0.614	0.371
-1	-0.160	-1.709	-0.591	-0.182	-0.639	1.428	0.071	0.469	0.442
0	-0.007	-0.067	-0.598	0.217	0.825	1.645	-0.305	-1.839	0.137
1	-0.014	-0.112	-0.613	-0.057	-0.187	1.588	0.344	2.256**	0.481
2	0.081	0.696	-0.532	0.146	0.462	1.734	0.011	0.077	0.491
3	-0.003	-0.022	-0.534	-0.042	-0.124	1.692	-0.253	-1.759	0.238
4	0.133	1.190	-0.401	0.107	0.346	1.799	-0.121	-0.752	0.117
5	0.031	0.262	-0.370	-0.468	-1.807	1.331	0.076	0.490	0.193
6	0.210	1.433	-0.161	-0.820	-3.293*	0.511	-0.058	-0.344	0.135
7	-0.053	-0.310	-0.214	-0.440	-1.360	0.071	-0.230	-1.318	-0.095
8	0.087	0.767	-0.127	-0.380	-1.374	-0.309	-0.129	-0.730	-0.224
9	0.146	1.233	0.018	-0.500	-2.073**	-0.809	-0.739	-0.891	-0.963
10	-0.130	-0.985	-0.112	-0.192	-0.757	-1.001	-0.388	-2.272**	-1.351
11	0.020	0.175	-0.092	0.011	0.039	-0.991	-0.035	-0.220	-1.386
12	0.007	0.059	-0.084	-0.010	-0.037	-1.000	-0.059	-0.319	-1.445
13	-0.025	-0.235	-0.110	0.656	2.025**	-0.344	0.008	0.054	-1.436
14	-0.270	-2.299**	-0.379	-0.003	-0.012	-0.347	-0.072	-0.445	-1.508
15	-0.149	-1.294	-0.528	0.036	0.130	-0.311	-0.062	-0.429	-1.571
16	0.104	0.906	-0.424	-0.060	-0.221	-0.371	0.011	0.069	-1.560
17	-0.009	-0.084	-0.433	-0.082	-0.340	-0.452	0.313	2.035**	-1.247
18	-0.240	-1.575	-0.673	-0.157	-0.673	-0.610	-0.053	-0.314	-1.300
19	0.199	1.363	-0.474	0.218	0.721	-0.391	-0.282	-1.972**	-1.582

	Services			Telecom			Textiles		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
20	0.184	1.625	-0.290	-0.196	-0.803	-0.588	0.188	1.208	-1.394
21	0.136	1.103	-0.155	-0.043	-0.176	-0.630	0.154	1.006	-1.240
22	0.078	0.731	-0.077	-0.242	-0.876	-0.872	0.002	0.012	-1.238
23	-0.021	-0.192	-0.098	-0.226	-0.800	-1.098	-0.738	-0.893	-1.976
24	0.078	0.507	-0.020	-0.315	-1.393	-1.413	0.785	0.966	-1.192
25	0.007	0.042	-0.013	0.006	0.028	-1.407	0.152	1.170	-1.040
26	-0.049	-0.505	-0.063	0.041	0.162	-1.366	-0.072	-0.453	-1.112
27	-0.044	-0.405	-0.106	0.053	0.192	-1.313	0.093	0.555	-1.018
28	-0.125	-0.652	-0.231	-0.543	-2.274**	-1.855	-0.173	-1.022	-1.191
29	0.215	1.004	-0.016	-0.205	-0.784	-2.061	0.219	1.316	-0.972
30	-0.017	-0.150	-0.032	-0.036	-0.168	-2.097	-0.689	-0.845	-1.661
* 1 percent Significance									
** 5 percent Significance									

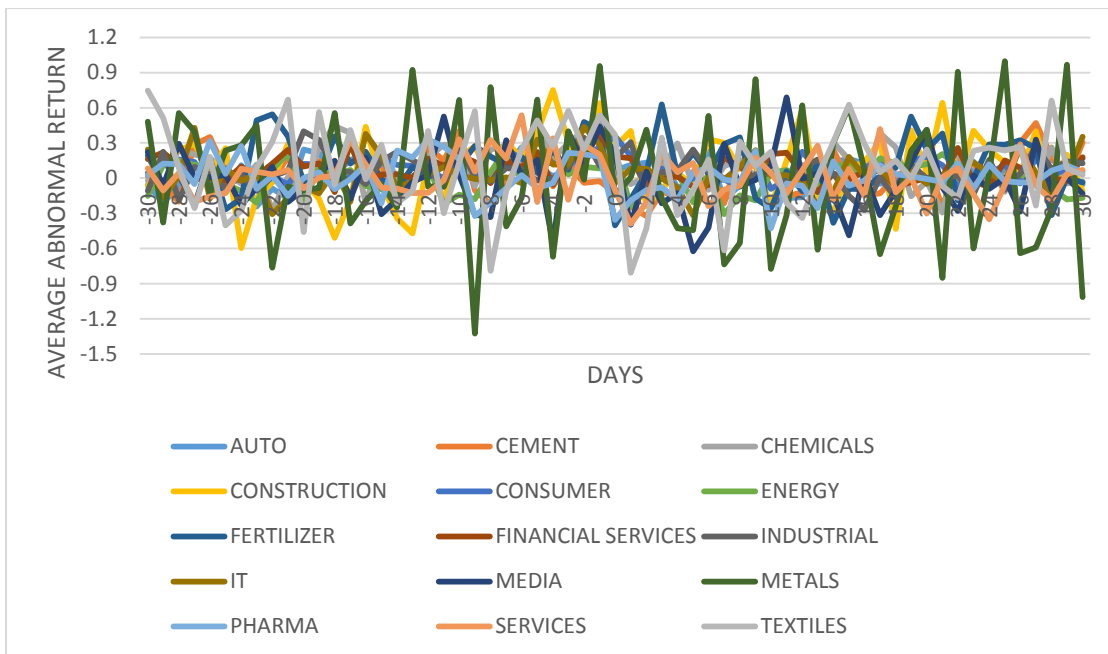
### 5.2.6 Industry Reaction to Announcement of Dividend

Table 5.13 presents the analysis of average abnormal returns, their calculated t-statistics, cumulative average abnormal returns earned by stocks of different industries during the announcement of dividend. In the immediate period of 3 days (-1, 0, +1), the AAR of stocks of automobile, chemicals, construction, consumer goods, energy, fertilizers and pesticides, financial services, industrial manufacturing, IT, media and entertainment, metals, pharma, services and textiles industry were positive on day -1 generating returns of 0.27 percent, 0.41 percent, 0.64 percent, 0.25 percent, 0.08 percent, 0.40 percent, 0.37 percent, 0.10 percent, 0.28 percent, 0.44 percent, 0.95 percent, 0.18 percent, 0.20 percent and 0.53 percent respectively. However, the returns generated by stocks of cement industry were negative at 0.02

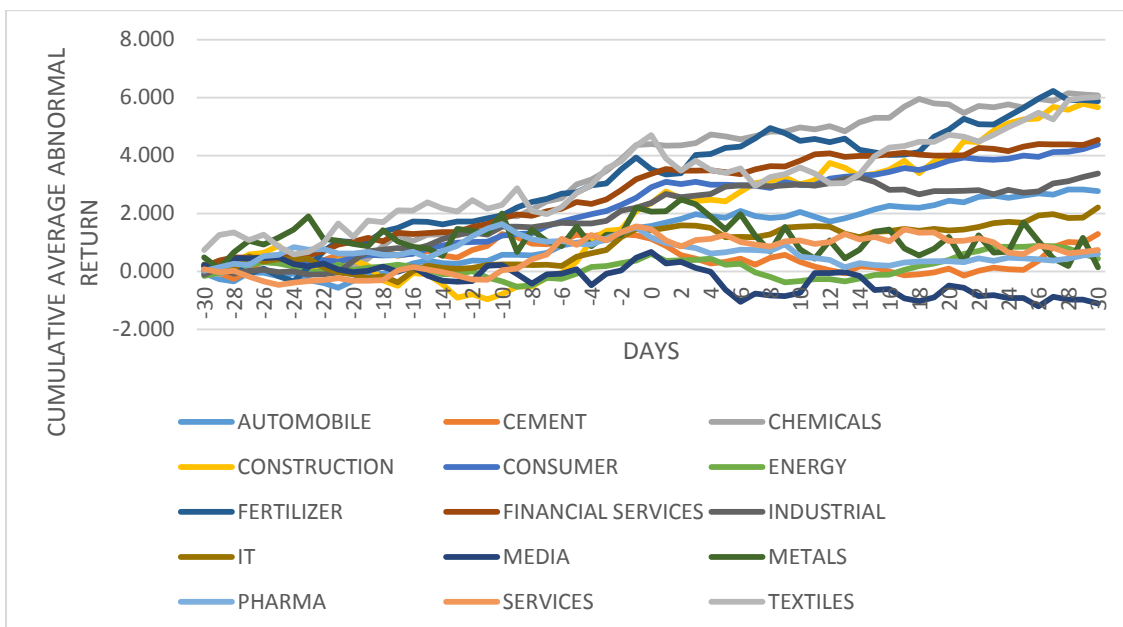


percent. While, the returns of chemicals, construction, consumer goods, financial services, IT and textiles industry were statistically significant, the returns earned by cement, energy, fertilizer and pesticides, industrial manufacturing, media and entertainment, metals, pharma and services industry were insignificant. The significance of abnormal returns before the event day indicates towards a leakage of information in the market or a prior market anticipation regarding the official announcement of dividends.

The AAR earned on event day was significant only for consumer goods and pharma industry and insignificant for other industries. Though the returns earned were positive on the event day for automobile (0.06 percent), chemicals (0.02 percent), construction (0.26 percent), consumer goods (0.35 percent), energy (0.23), financial services (0.18 percent), industrial manufacturing (0.16 percent), media and entertainment (0.20 percent) and textiles industry (0.37 percent) and negative for cement (-0.12), fertilizer and pesticides (-0.40 percent), IT (-0.04 percent), metals (-0.14 percent), pharma (-0.35 percent) and services industry (-0.10 percent), they were significant only for consumer goods and pharma industries. It was also observed the AAR of textiles was 0.37 percent, consumer goods 0.35 percent and fertilizer and pesticides -0.40 percent which evidenced that textiles, consumer goods and fertilizer and pesticides industry have a stronger market reaction to announcement of dividends than other industries. The returns on day +1 for automobile industry were estimated at 0.11 percent, cement industry -0.24 percent, chemicals industry -0.05 percent, construction industry 0.40 percent, consumer goods industry 0.19 percent, energy industry 0.23 percent, fertilizer and pesticides industry -0.17 percent, financial services industry 0.17 percent, industrial manufacturing industry 0.30 percent, IT industry 0.08 percent, media and entertainment industry -0.39 percent, metals industry 0.005 percent, pharma industry -0.19 percent, services industry -0.38 percent and textiles industry -0.80 percent. Figure 5.13 and figure 5.14 represents the average abnormal returns and cumulative average abnormal returns generated in different industries during dividend announcement.



**Figure 5.13 : Interindustry Average Abnormal Returns for Dividend**



**Figure 5.14 : Interindustry Cumulative Average Abnormal Returns of Dividend**

Further the research has conducted a short-term analysis of 11 days (-5, 0, +5) and ascertained the influence of announcement of dividend on stock returns of different industries. The AAR of automobile and IT industry was positive for all days in the pre-event window having the largest proportion of returns of 0.27 percent and 0.43

percent on -1 and -2 day respectively. The AAR of chemicals industry was positive for all days in the pre-event window with significant returns on -5, -2 and -1 days. The AAR was also positive in the post-event window ranging from +1 to +4 days. Whereas, the return on event day was negative and insignificant. The significance of returns post the event, signaled that the market reacted gradually to the announcement of dividend and they continued to react even post the announcement. Moreover, the AARs accrued in construction and consumer goods industry were positive from -5 to +1 days, having highest magnitude of return on -4 and 0 day, earning 0.75 percent and 0.35 percent of returns respectively. Also, a positive return of 0.40 percent and 0.19 percent was earned on +1 day followed by negative returns on day +2. The AAR of fertilizer and pesticides industry was significant on -2 and +3 days, financial services industry was significant on -5, -2 and -1 days, industrial manufacturing was significant on -2 day. However, the AAR earned by stocks of metal, textiles and services industry were not found to be significant in the short-period of time. Thus, the positive AARs generated before the announcement period directed at the investors optimism and expectations for the dividend results. Also, the CAAR in the pre-event window for automobile, cement, chemicals, construction, consumer goods, energy, fertilizers and pesticides, financial services, industrial manufacturing, IT and textiles industry kept trending upwards which showcases that the investors' expectations about the average dividend announced were above the market expectations.

Investors holding stocks of automobile industry during the short-term period are likely to gain as positive AARs were generated in the entire event window. Also, investors should hold stocks of chemicals, construction, consumer goods, energy, fertilizer and pesticides, IT and textiles in the pre-event window as positive returns are earned before the announcement of dividend. However, investing in stocks of cement, media and entertainment, pharma and textiles industry post the announcement of dividend will prove costly to investors as returns were largely negative after the announcement of dividends. The study has further conducted a medium-term analysis of AAR for an event window of 31 days (-15, 0, +15). The AAR of the automobile and consumer goods industry was positive during 21 days and negative during 10 days, with significant returns on -6, and -1 days and -15, -10,

-7, -2,-1, 0, +9 and +12 days respectively, AAR for cement industry was positive during 12 days and negative during 19 days, having significant returns on -10 and +2 days, AAR for chemicals industry was positive during 24 days with significant returns on days -5, -2, and -1. The, AAR for energy and IT industry was positive during 18 days and negative during 13 days, with significant returns on -11, -7, +7 days and -5, -2, -1, +5, +9, +13 days, AAR for fertilizers and pesticides and financial services industry was positive during 22 days and negative during 9 days, having significant returns on -2, +3, +14 days and -5, -2, -1, +11 days, AAR for industrial manufacturing industry was positive during 23 days and negative during 8 days, with significant returns on -14, -10 and -2 days, AAR for media and entertainment industry was positive during 15 days and negative during 16 days, having significant returns on +11 day, AAR for metals and pharma industry was positive during 13 days and negative during 18 days having significant returns on -13, - 9 days and -14, -12, -11, -9, 0, +9, 10, +13 days respectively, AAR for services industry was positive during 16 days and negative during 15 days, having significant returns on -6 day, AAR for textile industry was positive during 19 days and negative during 12 days, having significant returns on -8 day. The significance of returns in the medium-term period signaled that investors were able to earn returns before and after the announcement of dividends as the investors did not react to the news of dividends instantaneously. Thus, leaving a window of opportunity open to earn returns. Not much influence on automobile and cement industry and metals and textiles in medium term, chemicals, pharma industry has influence in medium term, not much influence on fertilizer industry in medium-term only some influence is seen in the post event window. More positive returns in short and medium term reveal a positive influence of dividend announcement on stock returns of automobile, consumer goods, chemicals, energy, fertilizer and pesticides, financial services and industrial manufacturing.

The study has further examined the influence of dividend announcement on stock returns of different industries in the long-term period of 61 days (-30, 0, +30). The AAR accrued in automobile industry was significant on -27, -23, -6, and -1 days, AAR earned in cement industry was significant on -27, -26, -10 and +27 days, AAR estimated in chemicals industry was significant on -18, -17, -5, -2, -1, +17 and +21

days, AAR generated for construction industry was significant on -24, -18, -13, -4, -1, +12, and +21 days, AAR earned in consumer goods industry was significant on -28, -15, -10, -7, -2, -1, 0, +9, +12, +20 and +27 days, AAR incurred by stocks of energy industry was significant on -23, -21, -20, -11, -7 and +7, AAR estimated for fertilizer and pesticides industry was significant on -2, +3, +14 and +19 days, AAR earned by stocks of financial services industry was significant on -29, -21, -17, -5, -2, -1 and +11 days, AAR accrued for industrial manufacturing industry was significant on -29, -20, -19, -14, -10, -2, +16 and +27 days, AAR generated by stocks of IT industry was significant on -22, -5, -2, -1, +9, +13 and +26 days, AAR estimated for media and entertainment industry was significant on +11 day, AAR earned by metals industry was significant on -13 and -9 days, AAR for pharma industry was significant on -26, -24, -14, -12, -11, -9, 0, +9, +10 and +13 days, AAR for services industry was significant on -6, +17, +20 and +24 days, AAR for textile industry was significant on -30, -19, -8, +15 and +28 days. Therefore, it was evidenced that stocks of cement, textiles, consumer goods and industrial manufacturing was statistically influenced by the announcement of dividend announcement, while significant influence on stock returns of automobile and financial services industry was seen but only in the pre-event window. However, stocks of energy and metals industry were significantly influenced by dividend announcement but only in the post-event window. Also, stocks of construction, fertilizer and pesticides industry and media and entertainment were not influenced by announcement of dividend in the long-term period.

The CAAR values reported during the 61 day event window for automobile was 2.77 percent, cement was 1.29 percent, chemicals was 6.07 percent, construction was 5.67 percent, consumer goods was 4.38 percent, energy was 0.44 percent, fertilizer and pesticides was 5.88 percent, financial services was 4.54 percent, industrial manufacturing was 3.38 percent, IT was 2.20 percent, media and entertainment was -0.56 percent, metals was 0.14 percent, pharma was 0.60 percent, services was 0.73 percent and textiles was 6.01 percent. Thus, it can be inferred that the CAAR of chemicals and textiles industry were relatively more than the CAAR of other industries during the event period.

**Table 5.13 : Analysis of Industry Reaction to Announcement of Dividend**

Days	Automobile			Cement & Cement Products			Chemicals		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	-0.055	-0.415	-0.055	0.018	0.091	0.018	-0.020	-0.147	-0.020
-29	-0.210	-1.574	-0.266	-0.072	-0.517	-0.054	-0.077	-0.433	-0.097
-28	-0.072	-0.528	-0.338	-0.201	-1.107	-0.255	0.255	1.597	0.158
-27	0.307	2.175**	-0.032	0.287	2.077**	0.032	0.201	1.100	0.358
-26	-0.014	-0.117	-0.046	0.350	2.271**	0.382	0.175	1.090	0.533
-25	-0.124	-1.087	-0.170	0.064	0.452	0.445	0.030	0.189	0.563
-24	0.110	0.920	-0.060	0.009	0.054	0.455	-0.044	-0.291	0.518
-23	-0.241	-2.153**	-0.301	-0.032	-0.218	0.422	0.116	0.697	0.634
-22	-0.090	-0.769	-0.391	-0.033	-0.245	0.390	-0.278	-1.836	0.357
-21	-0.170	-1.558	-0.561	0.184	1.242	0.574	0.008	0.053	0.365
-20	0.243	1.950	-0.318	-0.103	-0.592	0.470	-0.203	-1.317	0.161
-19	0.210	1.837	-0.108	0.147	0.868	0.617	0.279	1.844	0.440
-18	0.034	0.280	-0.074	0.071	0.424	0.688	0.443	2.300**	0.884
-17	0.158	1.173	0.084	-0.145	-0.970	0.543	0.386	2.270**	1.270
-16	0.189	1.673	0.273	0.095	0.709	0.638	-0.219	-1.312	1.051
-15	0.099	0.813	0.372	0.075	0.504	0.713	0.222	1.535	1.273
-14	-0.088	-0.674	0.284	-0.160	-0.996	0.553	0.007	0.057	1.280
-13	-0.014	-0.119	0.270	-0.079	-0.518	0.474	-0.037	-0.236	1.244
-12	0.108	0.883	0.378	0.262	1.440	0.736	0.176	1.156	1.420
-11	-0.012	-0.108	0.366	0.152	0.860	0.888	0.284	1.833	1.704
-10	0.209	1.463	0.575	0.402	2.195**	1.291	0.267	1.972**	1.971
-9	0.001	0.011	0.576	-0.106	-0.672	1.184	-0.067	-0.176	1.904
-8	-0.027	-0.206	0.549	-0.224	-1.306	0.960	0.243	0.639	2.147
-7	0.088	0.665	0.637	-0.026	-0.138	0.935	0.277	1.592	2.424

	Automobile			Cement & Cement Products			Chemicals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-6	0.264	2.195**	0.901	0.115	0.638	1.050	0.102	0.628	2.525
-5	0.094	0.701	0.995	0.223	1.233	1.272	0.482	2.484**	3.007
-4	0.018	0.140	1.012	-0.069	-0.458	1.204	0.166	1.027	3.173
-3	0.075	0.659	1.088	0.113	0.660	1.317	0.295	1.630	3.468
-2	0.145	1.201	1.233	-0.039	-0.255	1.278	0.412	2.206**	3.880
-1	0.272	2.151**	1.504	-0.027	-0.156	1.251	0.484	2.690*	4.364
0	0.068	0.379	1.572	-0.124	-0.581	1.127	0.029	0.137	4.394
1	0.113	0.668	1.686	-0.243	-1.202	0.884	-0.051	-0.188	4.343
2	0.131	0.940	1.817	-0.324	-1.813	0.560	0.013	0.062	4.356
3	0.161	1.233	1.978	-0.113	-0.792	0.447	0.074	0.566	4.429
4	-0.082	-0.617	1.896	-0.165	-0.711	0.282	0.297	1.729	4.726
5	-0.036	-0.301	1.860	0.056	0.378	0.338	-0.059	-0.345	4.667
6	0.227	1.731	2.087	0.105	0.623	0.443	-0.101	-0.605	4.565
7	-0.181	-1.368	1.907	-0.214	-1.198	0.228	0.102	0.708	4.668
8	-0.063	-0.561	1.844	0.245	1.575	0.473	0.155	0.828	4.823
9	0.046	0.420	1.890	0.098	0.684	0.571	0.005	0.037	4.828
10	0.165	1.371	2.055	-0.243	-1.601	0.328	0.142	0.816	4.970
11	-0.170	-1.436	1.885	-0.158	-1.102	0.170	-0.068	-0.430	4.902
12	-0.163	-1.404	1.722	-0.120	-0.763	0.051	0.112	0.641	5.014
13	0.116	0.946	1.838	-0.111	-0.787	-0.060	-0.171	-1.089	4.844
14	0.137	1.155	1.975	0.240	1.534	0.180	0.306	1.809	5.149
15	0.165	1.486	2.140	-0.031	-0.225	0.148	0.156	0.982	5.305
16	0.124	0.956	2.265	-0.146	-0.872	0.003	-0.005	-0.030	5.301
17	-0.049	-0.448	2.216	-0.129	-0.788	-0.126	0.384	2.386**	5.685
18	-0.018	-0.139	2.198	0.023	0.149	-0.103	0.263	1.507	5.948

	Automobile			Cement & Cement Products			Chemicals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
19	0.084	0.727	2.282	0.077	0.496	-0.026	-0.154	-0.978	5.794
20	0.164	1.197	2.446	0.130	0.757	0.104	-0.028	-0.149	5.765
21	-0.061	-0.486	2.386	-0.251	-1.683	-0.147	-0.294	-2.033**	5.471
22	0.191	1.576	2.577	0.165	0.963	0.018	0.241	1.468	5.712
23	0.041	0.294	2.618	0.117	0.725	0.135	-0.048	-0.303	5.665
24	-0.081	-0.689	2.536	-0.054	-0.342	0.081	0.105	0.678	5.770
25	0.079	0.528	2.615	-0.020	-0.117	0.062	-0.117	-0.829	5.652
26	0.081	0.669	2.696	0.302	1.653	0.364	0.300	1.710	5.952
27	-0.047	-0.448	2.649	0.471	3.290*	0.835	-0.062	-0.338	5.891
28	0.177	1.507	2.826	0.185	1.088	1.020	0.263	1.674	6.153
29	0.000	0.001	2.826	-0.028	-0.178	0.992	-0.047	-0.292	6.107
30	-0.054	-0.416	2.772	0.305	1.893	1.296	-0.029	-0.215	6.078

	Construction			Consumer Goods			Energy		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	-0.068	-0.346	-0.068	0.045	0.322	0.045	-0.151	-0.607	-0.151
-29	0.118	0.460	0.050	0.126	1.361	0.171	0.110	0.977	-0.041
-28	0.242	0.921	0.292	0.159	1.983**	0.331	0.151	1.288	0.110
-27	0.291	1.111	0.583	0.137	1.460	0.468	0.112	0.995	0.222
-26	0.061	0.259	0.644	-0.079	-0.891	0.389	0.102	0.901	0.324
-25	0.254	1.048	0.898	0.014	0.155	0.403	-0.047	-0.431	0.277
-24	-0.596	-2.366**	0.303	-0.021	-0.231	0.381	-0.112	-1.042	0.165
-23	-0.169	-0.766	0.134	-0.006	-0.070	0.375	-0.208	-2.066**	-0.043
-22	-0.037	-0.133	0.097	0.016	0.188	0.392	0.072	0.719	0.029
-21	0.293	1.147	0.391	-0.053	-0.618	0.339	0.215	2.022**	0.244



	Construction			Consumer Goods			Energy		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-20	-0.012	-0.045	0.379	0.121	1.434	0.460	-0.201	-1.990**	0.043
-19	-0.179	-0.769	0.200	0.118	1.443	0.578	0.089	0.819	0.132
-18	-0.508	-2.370**	-0.308	-0.023	-0.291	0.555	0.034	0.333	0.166
-17	-0.186	-1.038	-0.494	0.007	0.094	0.562	0.068	0.666	0.234
-16	0.437	1.798	-0.057	0.049	0.547	0.611	-0.067	-0.611	0.167
-15	-0.039	-0.118	-0.096	0.169	2.014**	0.780	-0.094	-0.919	0.073
-14	-0.342	-1.789	-0.438	0.112	1.386	0.892	-0.175	-1.369	-0.103
-13	-0.472	-2.108**	-0.909	0.106	1.284	0.998	0.016	0.144	-0.087
-12	0.130	0.459	-0.779	0.023	0.268	1.021	0.100	0.975	0.012
-11	-0.182	-0.685	-0.961	0.006	0.065	1.027	-0.216	-1.974**	-0.204
-10	0.175	0.648	-0.786	0.208	2.285**	1.234	-0.141	-1.080	-0.345
-9	0.271	1.079	-0.515	0.055	0.611	1.290	-0.178	-1.272	-0.523
-8	-0.002	-0.007	-0.517	0.031	0.350	1.321	0.051	0.372	-0.472
-7	0.313	1.003	-0.204	0.248	2.852*	1.569	0.251	2.064**	-0.221
-6	0.166	0.753	-0.038	0.161	1.858	1.729	-0.029	-0.221	-0.250
-5	0.385	1.049	0.347	0.124	1.309	1.854	0.179	1.490	-0.071
-4	0.750	2.234**	1.098	0.129	1.410	1.983	0.232	1.774	0.161
-3	0.305	1.168	1.403	0.110	1.300	2.094	0.032	0.284	0.194
-2	0.047	0.140	1.451	0.199	2.317**	2.293	0.097	0.783	0.290
-1	0.641	2.402**	2.091	0.254	2.886*	2.547	0.083	0.649	0.374
0	0.267	0.717	2.358	0.358	2.826*	2.905	0.230	1.515	0.604
1	0.402	1.198**	2.761	0.191	1.385	3.096	-0.241	-1.424	0.363
2	-0.240	-0.773	2.521	-0.079	-0.802	3.016	0.020	0.154	0.383
3	-0.091	-0.460	2.430	0.082	0.898	3.098	0.013	0.118	0.397
4	0.041	0.139	2.471	-0.108	-1.228	2.990	0.045	0.381	0.442

	Construction			Consumer Goods			Energy		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
5	-0.053	-0.166	2.418	0.000	-0.001	2.990	-0.206	-1.761	0.236
6	0.331	1.421	2.749	-0.018	-0.202	2.972	0.035	0.311	0.272
7	0.300	1.168	3.049	-0.014	-0.155	2.958	-0.307	-2.431	-0.035
8	0.078	0.272	3.127	-0.073	-0.891	2.885	-0.147	-1.245	-0.182
9	0.122	0.511	3.250	0.193	2.289**	3.078	-0.189	-1.663	-0.371
10	-0.245	-0.999	3.005	-0.092	-1.059	2.986	0.045	0.441	-0.326
11	0.148	0.434	3.153	-0.009	-0.099	2.978	0.068	0.589	-0.258
12	0.589	2.102**	3.742	0.226	2.500**	3.204	-0.005	-0.044	-0.263
13	-0.157	-0.530	3.585	0.071	0.800	3.274	-0.077	-0.761	-0.339
14	-0.289	-1.056	3.296	0.029	0.331	3.303	0.098	0.895	-0.241
15	0.077	0.348	3.373	0.037	0.404	3.341	0.124	1.184	-0.117
16	0.141	0.622	3.514	0.090	1.005	3.431	0.007	0.056	-0.111
17	0.310	1.250	3.824	0.141	1.661	3.571	0.170	1.791	0.059
18	-0.433	-1.764	3.391	-0.073	-0.838	3.499	0.126	1.090	0.185
19	0.408	1.533	3.799	0.145	1.619	3.644	0.096	0.773	0.281
20	0.051	0.182	3.850	0.183	2.058**	3.827	0.119	0.960	0.400
21	0.643	2.654*	4.493	0.109	1.215	3.935	0.205	1.762	0.605
22	-0.034	-0.122	4.460	-0.063	-0.673	3.872	0.105	0.918	0.710
23	0.405	1.568	4.865	-0.020	-0.224	3.852	0.140	1.203	0.850
24	0.245	0.876	5.109	0.033	0.374	3.885	0.000	-0.004	0.849
25	0.132	0.622	5.242	0.115	1.559	4.000	0.006	0.057	0.856
26	0.036	0.147	5.278	-0.044	-0.509	3.956	0.028	0.258	0.884
27	0.400	1.393	5.678	0.164	1.984**	4.120	-0.009	-0.091	0.875
28	-0.096	-0.414	5.583	0.011	0.116	4.131	-0.084	-0.798	0.791
29	0.201	0.834	5.784	0.085	0.884	4.216	-0.183	-1.843	0.609
30	-0.112	-0.477	5.672	0.166	1.651	4.382	-0.167	-1.789	0.441

Days	Fertilizers & Pesticides			Financial Services			Industrial Manufacturing		
	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.192	0.695	0.192	0.162	1.470	0.162	-0.107	-0.993	-0.107
-29	-0.061	-0.354	0.131	0.219	2.062**	0.381	0.224	2.000**	0.117
-28	0.025	0.111	0.156	0.109	0.995	0.489	-0.188	-1.816	-0.070
-27	-0.228	-1.256	-0.072	-0.011	-0.114	0.478	0.097	0.888	0.027
-26	0.169	0.771	0.097	-0.004	-0.040	0.474	0.033	0.310	0.060
-25	-0.266	-1.390	-0.169	-0.024	-0.238	0.450	-0.086	-0.866	-0.026
-24	-0.174	-0.860	-0.342	0.100	1.105	0.550	0.029	0.264	0.003
-23	0.491	1.852	0.149	0.018	0.180	0.568	-0.107	-0.972	-0.104
-22	0.544	1.738	0.693	0.124	1.240	0.692	0.011	0.085	-0.094
-21	0.356	1.304	1.049	0.241	2.168**	0.934	0.063	0.557	-0.031
-20	-0.035	-0.132	1.014	0.100	0.925	1.033	0.401	3.466*	0.370
-19	0.007	0.028	1.021	0.127	1.089	1.160	0.326	3.005*	0.696
-18	0.357	1.189	1.378	-0.118	-1.030	1.042	0.054	0.467	0.750
-17	0.124	0.620	1.503	0.292	2.692*	1.334	0.052	0.417	0.803
-16	0.224	0.894	1.726	-0.036	-0.352	1.299	-0.052	-0.470	0.751
-15	-0.009	-0.042	1.717	0.031	0.299	1.330	0.145	1.373	0.896
-14	-0.095	-0.401	1.622	0.035	0.351	1.365	0.225	2.179**	1.121
-13	0.097	0.469	1.719	0.000	0.003	1.365	0.153	1.396	1.273
-12	0.006	0.019	1.725	0.167	1.587	1.532	0.077	0.701	1.351
-11	0.107	0.380	1.831	0.104	0.920	1.637	-0.074	-0.626	1.276
-10	0.104	0.346	1.936	0.196	1.697	1.832	0.270	2.239**	1.546
-9	0.274	1.258	2.210	0.138	1.342	1.970	0.007	0.055	1.553
-8	0.183	0.790	2.393	-0.044	-0.414	1.926	-0.030	-0.242	1.523
-7	0.114	0.529	2.507	0.150	1.476	2.076	0.085	0.779	1.608
-6	0.180	0.814	2.686	0.095	0.954	2.171	0.071	0.580	1.679

	<b>Fertilizers &amp; Pesticides</b>			<b>Financial Services</b>			<b>Industrial Manufacturing</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
-5	0.045	0.199	2.731	0.221	2.301**	2.392	-0.021	-0.204	1.658
-4	0.239	1.220	2.970	-0.056	-0.315	2.337	-0.003	-0.021	1.655
-3	0.072	0.300	3.043	0.153	0.892	2.490	0.096	0.809	1.752
-2	0.480	2.293**	3.522	0.321	3.244*	2.810	0.346	2.513**	2.097
-1	0.408	1.533	3.930	0.372	3.635*	3.182	0.105	0.844	2.202
0	-0.402	-1.090	3.528	0.183	1.429	3.366	0.167	1.207	2.370
1	-0.178	-0.393	3.349	0.170	1.058	3.536	0.308	1.708	2.677
2	0.045	0.192	3.395	-0.051	-0.429	3.484	-0.111	-0.967	2.566
3	0.629	1.971**	4.024	-0.004	-0.034	3.480	0.050	0.407	2.615
4	0.026	0.110	4.050	0.015	0.135	3.495	0.063	0.502	2.678
5	0.218	0.896	4.267	-0.075	-0.654	3.420	0.245	1.749	2.923
6	0.038	0.148	4.305	-0.060	-0.554	3.360	0.053	0.465	2.976
7	0.291	1.270	4.595	0.169	1.554	3.529	0.001	0.014	2.977
8	0.348	1.443	4.944	0.101	0.868	3.630	-0.038	-0.319	2.939
9	-0.174	-0.815	4.770	-0.011	-0.117	3.619	0.032	0.270	2.970
10	-0.258	-1.149	4.512	0.207	1.649	3.826	0.039	0.355	3.009
11	0.059	0.248	4.571	0.216	1.996**	4.042	-0.044	-0.362	2.966
12	-0.111	-0.571	4.459	0.033	0.308	4.075	0.081	0.712	3.046
13	0.125	0.572	4.584	-0.120	-1.069	3.955	0.160	1.606	3.206
14	-0.382	-2.161**	4.202	0.038	0.390	3.993	0.038	0.353	3.244
15	-0.093	-0.403	4.109	-0.008	-0.074	3.986	-0.153	-1.528	3.092
16	-0.092	-0.433	4.017	0.053	0.517	4.038	-0.272	-2.628*	2.820
17	0.016	0.069	4.033	0.064	0.626	4.102	0.006	0.052	2.826
18	0.089	0.345	4.123	-0.072	-0.652	4.030	-0.168	-1.565	2.658
19	0.524	2.539**	4.646	-0.035	-0.368	3.996	0.117	1.181	2.774

	Fertilizers & Pesticides			Financial Services			Industrial Manufacturing		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
20	0.244	0.973	4.890	0.001	0.014	3.997	-0.001	-0.009	2.773
21	0.379	1.587	5.270	0.009	0.075	4.006	0.014	0.142	2.788
22	-0.191	-0.906	5.079	0.256	2.579*	4.262	0.017	0.145	2.804
23	-0.008	-0.035	5.071	-0.029	-0.303	4.232	-0.138	-1.104	2.666
24	0.287	1.143	5.358	-0.076	-0.819	4.157	0.155	1.474	2.822
25	0.286	1.078	5.644	0.151	1.530	4.307	-0.099	-0.996	2.723
26	0.324	1.507	5.968	0.089	0.826	4.396	0.039	0.346	2.762
27	0.259	1.158	6.227	-0.012	-0.118	4.384	0.274	2.806*	3.037
28	-0.316	-1.284	5.910	0.005	0.047	4.389	0.076	0.691	3.113
29	0.007	0.034	5.917	-0.025	-0.283	4.364	0.142	1.309	3.255
30	-0.037	-0.174	5.881	0.178	0.812	4.543	0.127	1.179	3.382

	IT			Media & Entertainment			Metals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.245	0.945	0.245	0.223	0.978	0.223	0.483	0.729	0.483
-29	-0.167	-1.366	0.078	-0.064	-0.177	0.159	-0.377	-1.379	0.106
-28	0.017	0.061	0.095	0.293	1.172	0.452	0.556	0.766	0.662
-27	0.431	1.567	0.525	0.003	0.010	0.455	0.398	0.545	1.060
-26	-0.177	-1.301	0.348	0.006	0.028	0.461	-0.128	-0.431	0.932
-25	0.086	0.677	0.435	0.029	0.147	0.490	0.237	0.516	1.169
-24	-0.023	-0.200	0.411	-0.231	-0.659	0.259	0.278	0.974	1.447
-23	0.035	0.265	0.447	-0.080	-0.306	0.180	0.448	1.238	1.895
-22	-0.307	-2.575*	0.140	0.096	0.349	0.276	-0.764	-1.475	1.131
-21	-0.171	-1.476	-0.031	-0.205	-0.887	0.071	-0.073	-0.198	1.058
-20	-0.072	-0.642	-0.103	-0.094	-0.384	-0.023	-0.103	-0.146	0.955

	IT			Media & Entertainment			Metals		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-19	-0.130	-1.072	-0.233	0.045	0.170	0.022	-0.083	-0.117	0.873
-18	0.064	0.547	-0.168	0.148	0.559	0.171	0.556	1.084	1.429
-17	-0.201	-0.772	-0.369	-0.177	-0.609	-0.007	-0.386	-0.669	1.043
-16	0.377	1.438	0.008	0.173	0.635	0.167	-0.195	-0.436	0.848
-15	0.191	1.538	0.198	-0.307	-1.149	-0.140	-0.051	-0.093	0.797
-14	-0.078	-0.620	0.120	-0.182	-0.730	-0.323	-0.250	-1.146	0.547
-13	-0.029	-0.248	0.091	-0.031	-0.176	-0.353	0.924	1.995**	1.470
-12	0.034	0.234	0.125	0.028	0.116	-0.325	-0.072	-0.112	1.399
-11	0.093	0.701	0.218	0.526	1.981**	0.201	-0.067	-0.213	1.331
-10	0.028	0.198	0.246	0.026	0.069	0.227	0.667	1.621	1.998
-9	-0.007	-0.058	0.239	-0.314	-1.276	-0.087	-1.325	-2.092**	0.673
-8	-0.017	-0.134	0.223	-0.333	-1.389	-0.420	0.776	1.002	1.449
-7	0.006	0.053	0.229	0.322	1.269	-0.097	-0.410	-0.669	1.039
-6	-0.042	-0.340	0.187	0.021	0.071	-0.077	-0.167	-0.309	0.871
-5	0.328	2.426**	0.515	0.156	0.381	0.079	0.671	1.264	1.542
-4	0.115	0.727	0.630	-0.555	-1.971**	-0.476	-0.672	-0.976	0.871
-3	0.115	0.944	0.745	0.395	1.610	-0.081	0.400	0.796	1.271
-2	0.439	2.073**	1.184	0.116	0.476	0.035	-0.012	-0.022	1.259
-1	0.281	2.145**	1.465	0.441	1.586	0.477	0.956	1.429	2.215
0	-0.040	-0.167	1.425	0.201	0.549	0.678	-0.143	-0.214	2.072
1	0.081	0.365	1.507	-0.399	-0.750	0.279	0.005	0.009	2.077
2	0.080	0.551	1.586	0.055	0.220	0.334	0.414	1.289	2.490
3	-0.005	-0.038	1.582	-0.214	-0.950	0.120	-0.172	-0.379	2.319
4	-0.077	-0.678	1.504	-0.126	-0.590	-0.006	-0.427	-0.887	1.891
5	-0.318	-2.800*	1.187	-0.623	-1.251	-0.630	-0.444	-0.684	1.447

	<b>IT</b>			<b>Media &amp; Entertainment</b>			<b>Metals</b>		
<b>Days</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>	<b>AAR</b>	<b>t-statistic</b>	<b>CAAR</b>
6	0.005	0.048	1.192	-0.423	-1.701	-1.053	0.531	1.108	1.978
7	-0.010	-0.082	1.183	0.291	1.165	-0.762	-0.735	-1.422	1.243
8	0.099	0.822	1.282	-0.069	-0.278	-0.830	-0.552	-0.960	0.691
9	0.238	1.967**	1.519	-0.016	-0.063	-0.846	0.846	1.412	1.537
10	0.023	0.218	1.543	0.106	0.484	-0.740	-0.774	-1.654	0.762
11	0.027	0.239	1.569	0.689	2.162**	-0.051	-0.315	-0.904	0.447
12	-0.026	-0.258	1.543	-0.005	-0.015	-0.056	0.622	0.943	1.069
13	-0.236	-2.210**	1.307	0.040	0.159	-0.016	-0.611	-1.309	0.458
14	-0.118	-1.156	1.188	-0.139	-0.343	-0.155	0.300	0.955	0.758
15	0.182	1.371	1.370	-0.487	-1.848	-0.642	0.613	1.648	1.370
16	0.021	0.168	1.391	0.033	0.140	-0.610	0.074	0.153	1.444
17	0.079	0.602	1.470	-0.316	-1.602	-0.926	-0.650	-1.667	0.794
18	-0.063	-0.546	1.407	-0.102	-0.355	-1.028	-0.243	-0.556	0.552
19	0.059	0.404	1.466	0.132	0.480	-0.896	0.233	0.522	0.785
20	-0.048	-0.395	1.419	0.411	1.375	-0.484	0.414	1.036	1.198
21	0.028	0.240	1.447	-0.078	-0.282	-0.563	-0.851	-1.447	0.347
22	0.087	0.741	1.534	-0.281	-1.225	-0.844	0.906	1.400	1.253
23	0.135	1.247	1.669	0.023	0.082	-0.820	-0.598	-1.091	0.655
24	0.042	0.342	1.711	-0.092	-0.428	-0.912	0.035	0.054	0.690
25	-0.028	-0.236	1.684	0.000	0.000	-0.912	0.996	1.631	1.687
26	0.252	2.077**	1.936	-0.286	-0.768	-1.199	-0.639	-0.919	1.047
27	0.047	0.388	1.983	0.329	1.296	-0.869	-0.591	-0.941	0.457
28	-0.139	-0.534	1.844	-0.101	-0.486	-0.970	-0.264	-1.439	0.192
29	0.009	0.027	1.853	0.000	-0.001	-0.970	0.967	1.770	1.160
30	0.353	1.309	2.206	-0.132	-0.560	-1.103	-1.014	-1.746	0.146

	Pharma			Services			Textiles		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-30	0.026	0.213	0.026	0.082	0.447	0.082	0.745	2.341**	0.745
-29	0.123	0.992	0.149	-0.104	-0.396	-0.023	0.514	1.715	1.259
-28	0.119	0.904	0.268	0.043	0.162	0.021	0.086	0.386	1.344
-27	-0.050	-0.450	0.217	-0.200	-1.300	-0.179	-0.255	-1.146	1.089
-26	0.316	2.217**	0.534	-0.158	-1.044	-0.337	0.181	0.449	1.269
-25	0.037	0.298	0.571	-0.128	-0.872	-0.465	-0.402	-1.447	0.867
-24	0.274	1.924	0.844	0.081	0.479	-0.385	-0.277	-1.041	0.591
-23	-0.092	-0.784	0.752	0.054	0.323	-0.330	0.088	0.359	0.679
-22	0.020	0.162	0.772	0.031	0.206	-0.300	0.308	0.999	0.987
-21	-0.151	-1.318	0.620	0.069	0.381	-0.231	0.668	2.360**	1.656
-20	0.000	0.001	0.620	-0.087	-0.485	-0.318	-0.460	-1.812	1.196
-19	0.051	0.444	0.671	0.004	0.024	-0.314	0.562	1.933	1.758
-18	-0.095	-0.879	0.577	0.022	0.136	-0.292	-0.057	-0.204	1.700
-17	-0.010	-0.081	0.567	0.328	2.279**	0.036	0.411	1.530	2.112
-16	0.116	1.002	0.683	0.117	0.763	0.153	-0.010	-0.034	2.102
-15	-0.214	-1.645	0.469	-0.082	-0.547	0.071	0.286	0.895	2.388
-14	0.237	2.059**	0.705	-0.089	-0.583	-0.019	-0.211	-0.817	2.177
-13	0.177	1.543	0.882	-0.128	-0.845	-0.147	-0.111	-0.423	2.066
-12	0.329	2.386**	1.211	-0.125	-0.429	-0.272	0.401	1.300	2.466
-11	0.268	1.997**	1.479	-0.018	-0.101	-0.289	-0.299	-1.091	2.167
-10	0.162	1.210	1.641	0.332	1.523	0.043	0.134	0.449	2.302
-9	-0.323	-2.366**	1.318	0.056	0.307	0.099	0.572	1.714	2.873
-8	-0.205	-1.501	1.113	0.326	1.746	0.425	-0.790	-3.364*	2.083
-7	-0.086	-0.697	1.027	0.167	0.758	0.592	-0.108	-0.387	1.975
-6	0.025	0.215	1.052	0.537	2.502**	1.128	0.243	1.005	2.219



	Pharma			Services			Textiles		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
-5	-0.085	-0.650	0.968	-0.205	-1.128	0.923	0.492	1.705	2.710
-4	-0.042	-0.348	0.926	0.340	1.766	1.263	0.272	0.983	2.982
-3	0.216	1.631	1.141	-0.185	-1.187	1.078	0.575	1.873	3.557
-2	0.203	1.521	1.344	0.285	1.566	1.363	0.246	1.025	3.803
-1	0.185	1.391	1.529	0.201	1.120	1.564	0.536	1.723	4.339
0	-0.356	-2.015**	1.174	-0.102	-0.538	1.462	0.371	1.415	4.710
1	-0.190	-0.979	0.984	-0.388	-1.728	1.074	-0.806	-1.990**	3.904
2	-0.102	-0.698	0.881	-0.209	-1.210	0.865	-0.428	-1.886	3.476
3	-0.079	-0.635	0.802	0.214	1.219	1.080	0.345	1.292	3.822
4	-0.186	-1.310	0.616	0.051	0.272	1.131	-0.316	-1.143	3.506
5	0.046	0.362	0.663	0.129	0.714	1.260	-0.103	-0.334	3.403
6	0.090	0.468	0.752	-0.239	-1.412	1.022	0.158	0.589	3.561
7	-0.014	-0.119	0.739	-0.098	-0.650	0.924	-0.616	-1.914	2.944
8	-0.033	-0.284	0.706	-0.065	-0.362	0.859	0.313	1.088	3.257
9	0.233	1.994**	0.939	0.177	0.835	1.036	0.106	0.300	3.364
10	-0.427	-3.590*	0.512	0.042	0.145	1.078	0.226	0.701	3.589
11	-0.045	-0.391	0.466	-0.129	-0.653	0.948	-0.211	-0.869	3.378
12	-0.065	-0.442	0.402	0.067	0.409	1.015	-0.341	-1.346	3.038
13	-0.256	-2.205**	0.146	0.276	1.546	1.291	0.014	0.054	3.051
14	0.142	1.294	0.289	-0.183	-1.041	1.108	0.306	1.178	3.357
15	-0.066	-0.526	0.223	0.081	0.399	1.189	0.625	1.895	3.982
16	-0.022	-0.185	0.201	-0.146	-0.815	1.043	0.294	0.810	4.276
17	0.111	0.855	0.312	0.419	2.604*	1.462	0.049	0.180	4.325
18	0.033	0.278	0.345	-0.121	-0.589	1.342	0.151	0.547	4.476
19	0.015	0.113	0.360	0.007	0.050	1.349	0.000	0.000	4.476

	Pharma			Services			Textiles		
Days	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR	AAR	t-statistic	CAAR
20	-0.006	-0.046	0.354	-0.301	-2.018**	1.048	0.244	0.809	4.721
21	-0.032	-0.255	0.322	0.010	0.064	1.058	-0.068	-0.276	4.653
22	0.128	1.127	0.450	0.087	0.474	1.145	-0.169	-0.810	4.484
23	-0.088	-0.774	0.362	-0.139	-0.747	1.006	0.234	0.717	4.718
24	0.117	1.037	0.479	-0.351	-2.268**	0.655	0.261	0.890	4.978
25	-0.026	-0.228	0.453	-0.057	-0.290	0.598	0.235	1.002	5.213
26	-0.037	-0.373	0.416	0.287	1.474	0.885	0.265	0.902	5.478
27	-0.034	-0.319	0.382	-0.065	-0.407	0.820	-0.234	-0.924	5.244
28	0.065	0.548	0.446	-0.186	-0.924	0.633	0.662	2.273**	5.906
29	0.106	0.912	0.552	0.038	0.239	0.671	0.082	0.218	5.988
30	0.054	0.480	0.606	0.068	0.343	0.739	0.028	0.077	6.015
* 1 percent Significance									
** 5 percent Significance									

### 5.3 ANOVA ANALYSIS OF AVERAGE ABNORMAL RETURNS FOR DIFFERENT ANNOUNCEMENTS

The study has conducted analysis of each news announcement on stock returns of different companies belonging to different industries and sectors. Every corporate news announcement should have different impact on stock returns of companies. The research has employed One-way ANOVA to determine whether there exists any statistically significant difference in the abnormal returns generated from trading in different news announcements or not. Table 5.14 highlights the results of the ANOVA test conducted. The f-statistic has a value of 2.421 and a p-value of 0.035. The p-value is less than the acceptable level of significance of 5 percent, thus,

rejecting the null hypothesis of no significant difference in AR for different announcements and accepting the alternate hypothesis of significant difference in AR for different announcements. Therefore, it can be concluded that each news announcements of bonus issue, stock split, right issue, dividend, share buyback and earnings has a distinctive influence on returns generated for different companies belonging to different industries.

**Table 5.14 : One-Way ANOVA for Individual News Announcement**

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>P-value</b>
Between Groups	13.741	5	2.748	2.421	0.035
Within Groups	408.649	360	1.135		
Total	422.391	365			

#### **5.4 ANALYSIS OF AVERAGE ABNORMAL RETURN FOR DIFFERENT INDUSTRIES WITHIN EACH ANNOUNCEMENT**

The study has also conducted an ANOVA analysis to determine whether there exists any difference in the influence of news announcements on returns of different industries. The p-value for different industries announcing bonus (0.836), dividend (1.00), earnings (0.995), right issue (1.00), share buyback (0.998) and stock split (0.999) is more than the acceptable level of significance of 5 percent which are presented in table 5.15. When p-value is more than the level of significance it leads to the acceptance of null hypothesis stating that there exists no significant difference in influence of news announcements on returns of industries, implying that when dividends are announced the returns generated in automobile industry or cement or consumer goods industry are impacted in a similar fashion.

**Table 5.15 : One-Way ANOVA for Different Industries**

<b>Bonus</b>	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>P-value</b>
Between Groups	5.753	10	0.575	0.574	0.836
Within Groups	661.488	660	1.002		
Total	667.241	670			
<b>Dividend</b>					
Between Groups	1.403	14	0.100	0.096	1.00
Within Groups	940.769	900	1.045		
Total	942.172	914			
<b>Earnings</b>					
Between Groups	4.437	14	0.317	0.291	0.995
Within Groups	975.496	900	1.087		
Total	982.933	914			
<b>Right Issue</b>					
Between Groups	0.236	6	0.039	0.036	1.00
Within Groups	456.571	420	1.087		
Total	456.807	426			
<b>Share Buyback</b>					
Between Groups	0.754	7	0.108	0.102	0.998
Within Groups	508.430	480	1.059		
Total	509.184				
<b>Stock Split</b>					
Between Groups	2.994	13	0.230	0.215	0.999
Within Groups	899.297	840	1.071		
Total	902.291	853			

Thus, there is not difference in influence of dividend announcement on returns generated of industries. Similarly, the influence of news announcements on abnormal returns of industries do not change within each industry during the announcement of bonus issue or stock split or right issue or share buyback or earnings. Thus, it is evidenced that the abnormal returns of company differ from announcement to announcement implying different announcements impact stock returns differently, while, abnormal returns do not change within the industry for a particular announcement (Pradhan and Kasilingam, 2019).

## **5.5 SUMMARY**

Companies listed with the exchange are required to inform the exchange about any changes or news related to the working of a company. An announcement made by the company listed might influence working of the company presently or in near future. The current chapter has discussed the influence of exchange declared news announcements and the subsequent change in the stock returns of the companies making the announcement. The study has determined the corporate news announcements of stock split, bonus issue, right issue, share buyback, dividend and earnings which signal to the market about the current and future performance of the company. The announcement of the news might be perceived by market participants positively or negatively which in turn have an influence on the stock price and stock returns of the respective company as they are responsible for setting the tone amongst the investors about the company's future growth potential. The study has selected Nifty500 as the sample index and the companies listed under the index are undertaken for study. Event study analysis is conducted to determine the influence of different news announcements of dividend, earnings, bonus, right issue, stock split and share buyback on the returns of the stocks and industries. The study also calculated the t-statistics of the abnormal returns to find whether the corporate news announcements have any significant impact on the stock returns of the company.

The analysis of bonus announcement showcased more positive abnormal returns were earned in the days before the announcement than in days post the announcement, while greater negative abnormal returns were earned post the

announcement. Implying that investors are able to exploit the announcement of bonus issue and generate abnormal returns. The investors ability to earn significant positive abnormal returns signaled towards the fact that there exists an information leakage in the market which is exploited by the traders to their benefit. Similarly, an analysis of the abnormal returns earned during announcement of bonus in different industries revealed that investors investing in automobile, consumer goods, financial services and information technology industry (IT) earn significantly positive abnormal returns of 2.79 percent, 2.43 percent, 2.72 percent and 1.58 percent respectively on the day of bonus announcement. The returns earned in the services industry had a strong reaction to the announcement of bonus issue compared to other industries. Also, a significant impact of bonus issue was found on automobile, consumer goods, financial services and information technology industries in the immediate time period. Furthermore, the significance of abnormal returns earned from the announcement of right issue points that the announcement has an influence on the returns earned by stocks in the long-run but the opportunity to earn abnormal returns was available only for a short period of time. Moreover, it was found stock split announcement has significant impact on the stock returns in the medium time period and there exists an information leakage in the medium term as investors are able to generate significant positive returns before the announcement and cashed out their investments post the event which was evident from the returns which turned negative in the post event window. The significance of positive returns in the pre-event window implied towards the influence of stock split announcement on stock returns in the long term, however, post the announcement the returns fades and turn insignificant after +15 days highlighting towards only a short-term influence of stock split announcement on returns in the post event window and a diminishing effect of abnormal returns in the long-run time period. The result of ARs of share buyback announcement revealed that investors might have access to information prior to the announcement but are unable to make positive gains in the long period and are able to earn positive gains only in the short-term period.

Also, it was found significance of dividend announcement on stock returns before the announcement and on the day of announcement. However, the cumulative average

abnormal returns increased only at a diminishing rate as abnormal returns peaked one day prior to the announcement. The abnormal returns experienced a see-saw post the dividend announcement as positive returns were usually followed by negative returns the next day and vice versa. There were more positive returns on days before the event than days after the event, implying investor's ability to capture gains before occurrence of the event. It is also understood that investors book larger part of their profits before the announcement of dividend, which points that there exists information leakage in the markets. The results also rebuffed the hypothesis of efficient markets as positive and significant abnormal returns are generated in the pre and post event window. The cumulative average abnormal returns remained positive throughout the event period of 61 days generating a low of 0.03 percent and a high of 0.94 percent. The long-run analysis reveal earnings announcement has a significant impact on stock returns in the long-term period and not much impact is seen on the immediate and short-term time period. Thus, stating that the information revealed from earnings is not fully incorporated by the market and its influence is visible in the long term. The study has also conducted ANOVA analysis of ARs generated by different news announcements. The results evidenced that different news announcements have different impact on the abnormal returns of the company.

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## Chapter – 6

# EXCHANGE DECLARED NEWS ANNOUNCEMENTS AND SHARE OWNERSHIP OF FOREIGN INSTITUTIONAL INVESTORS

The current chapter presents the results and analyses of the impact of exchange declared news announcements and the consequent change in the share ownership of foreign institutional investors. The influence of news announcements on stock returns has thoroughly been discussed in the previous chapter. The research has studied the share ownership of FIIs in two forms- purchase ownership and sale ownership and the influence on the ownership of FIIs by the different corporate news that are declared to the exchange. Event study has been employed to determine the daily change in purchase and sale ownership of FIIs owing to the different news announcements made by companies listed with Nifty500.

## 6.1 ANALYSIS OF NEWS ANNOUNCEMENTS ON SHARE OWNERSHIP

### 6.1.1 Change in FIIs Ownership Around the Announcement of Bonus Issue

Table 6.1 presents the results of change in purchase and sale ownership and their t-statistics during the announcement of bonus issue by companies listed with Nifty500. Figure 6.1 displays the change in FIIs purchase and sale ownership around the announcement of bonus issue by companies. The change in net purchase and sale ownership has been studied for four time periods- immediate time period of 3 days, short term period of 11 days, medium term period of 31 days and long-term period of 61 days. In the immediate term the announcement of bonus issue significantly and positively influenced the purchase and sale ownership of FIIs on the event day 0 whereas, no significant influence on the ownership was observed on day -1 and +1. A decrease in the purchase and sale ownership was witnessed in the pre-event and post event window during the short-term period. The largest change in purchase and sale ownership were estimated on the event day implying a significant influence of bonus



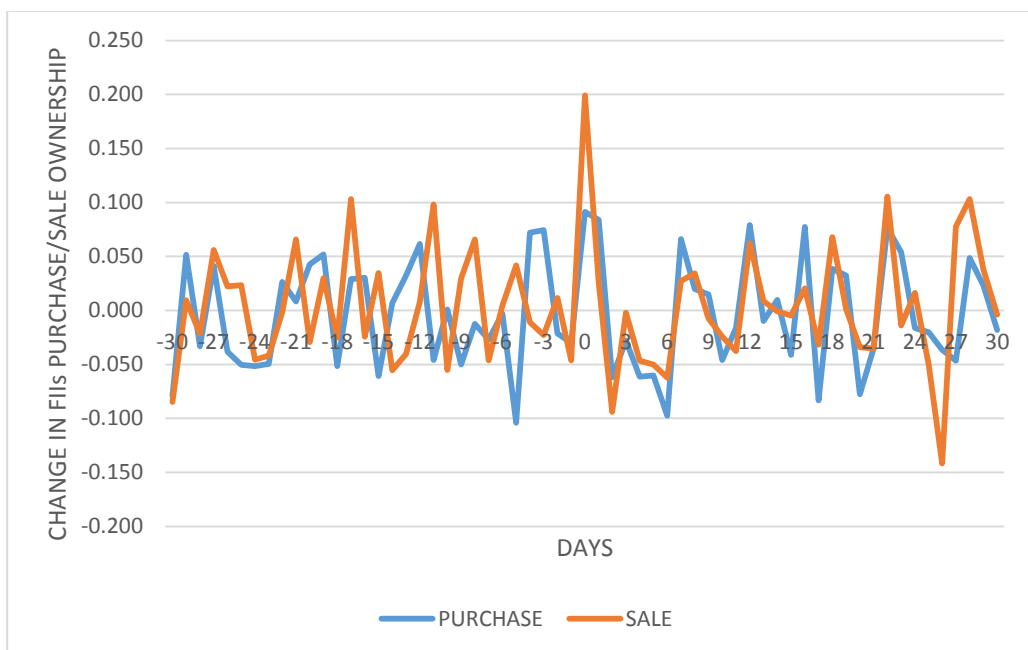
issue announcement on ownership decisions of FIIs. The change in sale ownership was also found to be significant on day +2 while no significant change in purchase ownership was seen on day +2. The positive and significant influence of bonus issue announcement on the purchase and sale ownership imply FIIs perceive positively the announcement of bonus.

**Table: 6.1 : Change in FIIs Ownership Around Bonus Issue**

Before Announcement					After Announcement				
Days	Purchase	t-statistic	Sale	t-statistic	Days	Purchase	t-statistic	Sale	t-statistic
-30	-0.079	-1.735	-0.085	-1.557	0	0.091	2.095**	0.199	3.855*
-29	0.052	1.055	0.009	0.170	1	0.084	1.561	0.026	0.533
-28	-0.033	-0.651	-0.022	-0.412	2	-0.062	-1.281	-0.094	-2.250**
-27	0.041	0.880	0.056	1.116	3	-0.028	-0.531	-0.002	-0.057
-26	-0.038	-0.872	0.022	0.500	4	-0.061	-1.320	-0.046	-1.260
-25	-0.050	-1.271	0.023	0.572	5	-0.060	-1.502	-0.050	-1.237
-24	-0.052	-1.098	-0.046	-1.267	6	-0.097	-1.856	-0.062	-1.456
-23	-0.049	-0.997	-0.042	-0.902	7	0.066	1.527	0.027	0.681
-22	0.026	0.674	-0.002	-0.037	8	0.020	0.485	0.034	0.797
-21	0.008	0.181	0.066	1.349	9	0.015	0.351	-0.007	-0.184
-20	0.043	0.960	-0.029	-0.561	10	-0.046	-0.896	-0.024	-0.469
-19	0.052	1.172	0.030	0.547	11	-0.016	-0.312	-0.038	-0.914
-18	-0.052	-1.121	-0.025	-0.463	12	0.079	2.191**	0.062	1.240
-17	0.029	0.700	0.103	2.008**	13	-0.010	-0.233	0.009	0.173
-16	0.030	0.659	-0.024	-0.521	14	0.010	0.243	-0.001	-0.022
-15	-0.061	-1.060	0.035	0.841	15	-0.041	-0.785	-0.005	-0.112
-14	0.007	0.127	-0.056	-1.285	16	0.077	1.404	0.020	0.487
-13	0.032	0.883	-0.040	-1.064	17	-0.083	-2.079**	-0.032	-0.554
-12	0.062	1.418	0.008	0.167	18	0.039	0.882	0.068	1.357

Before Announcement					After Announcement				
Days	Purchase	t-statistic	Sale	t-statistic	Days	Purchase	t-statistic	Sale	t-statistic
-11	-0.046	-1.090	0.098	2.011**	19	0.032	0.768	0.001	0.032
-10	0.001	0.020	-0.055	-1.023	20	-0.078	-1.420	-0.034	-0.903
-9	-0.050	-1.142	0.030	0.700	21	-0.035	-0.779	-0.035	-0.821
-8	-0.013	-0.321	0.066	1.439	22	0.076	1.478	0.105	2.103**
-7	-0.027	-0.577	-0.046	-1.057	23	0.054	1.238	-0.014	-0.325
-6	-0.003	-0.066	0.004	0.061	24	-0.016	-0.368	0.016	0.355
-5	-0.104	-1.862	0.042	0.721	25	-0.020	-0.522	-0.050	-1.042
-4	0.072	1.705	-0.011	-0.332	26	-0.037	-0.771	-0.142	-2.967**
-3	0.074	1.700	-0.023	-0.524	27	-0.046	-1.116	0.078	1.682
-2	-0.021	-0.410	0.011	0.268	28	0.049	1.092	0.103	2.328**
-1	-0.030	-0.663	-0.046	-1.156	29	0.023	0.521	0.038	0.719
0	0.091	2.095**	0.199	3.855*	30	-0.018	-0.321	-0.004	-0.071

\* 1 percent Significance  
\*\* 5 percent Significance



**Figure 6.1 : Change in FIIs Ownership Around Bonus Issue**

The medium-term analysis of 31 days (-15, 0, +15) displayed a significant and positive influence of bonus announcement on change in sales by FIIs on -11 day and a significant and positive impact on change in purchase by FIIs on day +12. Thus, signalling towards a positive influence of bonus announcement in the medium term on the purchase and sale ownership of FIIs. The change in FIIs purchase ownership was negatively influenced on day -15, followed by positive change in purchases on day -14, -13 and -12. However, the trend of positive change was short lived as FIIs started to reduce their purchase exposure from day -11 to -5. The change in sales by FIIs witnessed a mixed trend in the pre-event window and negative influence on sales was seen for seven days and positive influence on sales was seen for eight days.

In the post event window change in purchase ownership by FIIs was negatively influenced and the trend continued till day +6, followed by positive influence on day +7 to +9. Similarly, the change in sales by FIIs were negatively affected from day +2 to +6 followed by positive influence on day +7 and +8. The long-term analysis of change in purchase and sale ownership revealed purchases by FIIs were negatively influenced on +17 day whereas, change in sales by FIIs were positively influenced on +22 and +28 days and negatively influenced on +26 days. The significance of changes in purchases and sales in the post event window highlight towards an influence on bonus announcement in the long-term period. Moreover, during the event window of 61 days, the bonus issue positively and significantly influenced the purchases and sales on 0 and +12 days and -17, -11, 0, +22 and +28 days respectively. While, negative and significant influence on purchases and sales was seen on +17 day and +2 and +26 days respectively. The results also reveal a greater influence of bonus issue on the change in sales ownership of FIIs than purchase ownership of FIIs.

### **6.1.2 Change in FIIs Ownership Around the Announcement of Right Issue**

Table 6.2 showcases the changes in purchase and sale ownership of FIIs and their calculated t-statistics during the pre-event, post event and event day of announcement of right issue by companies. The results signaled towards no significant influence of right issue announcement on the changes in purchases and sales by FIIs in the

immediate period. The purchases were negatively and sales were positively influenced on the event day but the changes were not statistically significant. However, in the short-term period purchases were found to be statistically and negatively influenced on -4 and +4 day while no significant changes in the sales by FIIs was seen. Also, the net change in purchase started to decrease four days prior to the announcement of right issue and continued till the event day.

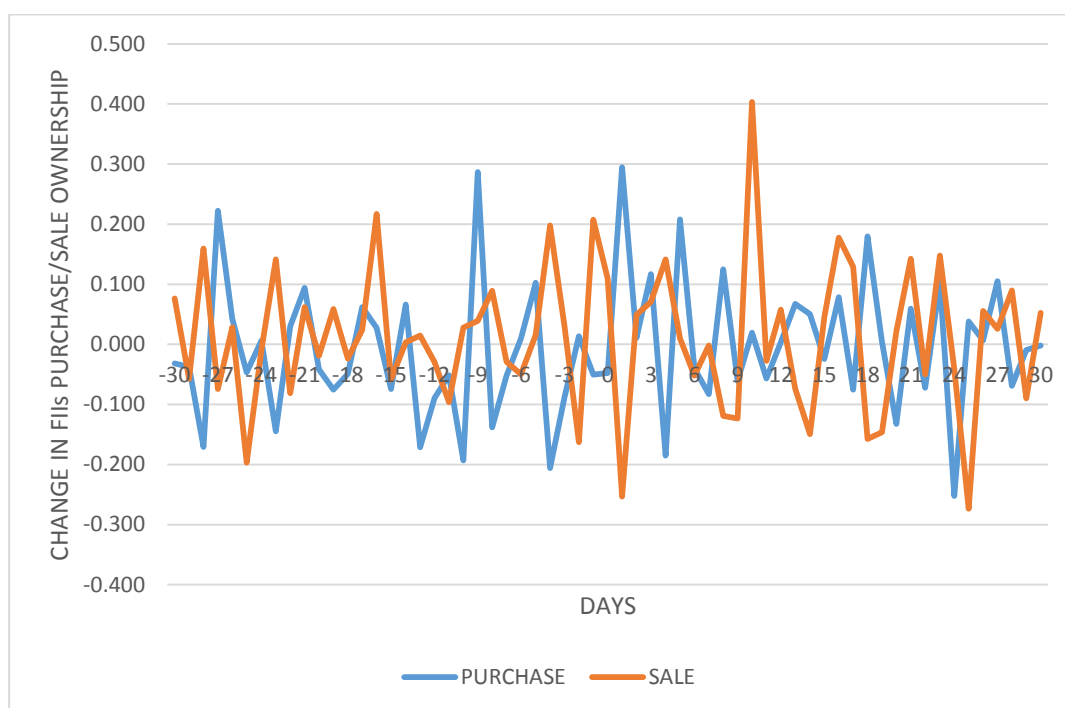
**Table: 6.2 : Change in FIIs Ownership Around Right Issue**

Before Announcement					After Announcement				
Days	Purchase	t-statistic	Sale	t-statistic	Days	Purchase	t-statistic	Sale	t-statistic
-30	-0.032	-0.328	0.076	1.007	0	-0.048	-0.713	0.110	1.541
-29	-0.037	-0.268	-0.057	-0.620	1	0.295	1.911	-0.253	-1.712
-28	-0.171	-1.672	0.159	1.409	2	0.011	0.076	0.049	0.827
-27	0.223	1.562	-0.074	-1.350	3	0.117	0.749	0.070	0.927
-26	0.042	0.510	0.029	0.253	4	-0.185	-2.060**	0.141	1.887
-25	-0.046	-0.582	-0.197	-2.017**	5	0.208	0.994	0.010	0.108
-24	0.006	0.067	-0.009	-0.110	6	-0.040	-0.168	-0.052	-0.624
-23	-0.144	-1.375	0.141	1.738	7	-0.083	-0.645	-0.002	-0.030
-22	0.030	0.413	-0.081	-0.971	8	0.125	1.406	-0.119	-1.545
-21	0.094	1.099	0.062	0.687	9	-0.060	-1.069	-0.123	-0.784
-20	-0.042	-0.426	-0.019	-0.231	10	0.019	0.155	0.404	2.653*
-19	-0.075	-1.215	0.059	1.006	11	-0.057	-0.454	-0.027	-0.638
-18	-0.049	-0.323	-0.024	-0.186	12	0.004	0.034	0.058	0.968
-17	0.062	0.677	0.024	0.174	13	0.067	0.578	-0.074	-1.039
-16	0.027	0.222	0.217	1.417	14	0.050	0.332	-0.149	-2.019**
-15	-0.074	-0.665	-0.059	-0.811	15	-0.025	-0.218	0.045	0.550
-14	0.066	1.123	0.004	0.069	16	0.079	0.784	0.178	1.935
-13	-0.171	-1.184	0.014	0.274	17	-0.076	-0.852	0.129	0.868

Before Announcement					After Announcement				
Days	Purchase	t-statistic	Sale	t-statistic	Days	Purchase	t-statistic	Sale	t-statistic
-12	-0.089	-0.630	-0.030	-0.323	18	0.180	2.174**	-0.157	-1.484
-11	-0.051	-0.754	-0.096	-1.177	19	0.005	0.060	-0.146	-1.321
-10	-0.193	-1.343	0.028	0.393	20	-0.133	-1.704	0.022	0.285
-9	0.287	1.464	0.039	0.377	21	0.060	0.559	0.142	1.263
-8	-0.138	-0.828	0.089	0.589	22	-0.072	-0.683	-0.050	-0.468
-7	-0.052	-0.503	-0.029	-0.352	23	0.105	1.399	0.148	1.850
-6	0.010	0.125	-0.050	-0.501	24	-0.252	-1.375	-0.041	-0.237
-5	0.102	0.770	0.016	0.154	25	0.038	0.251	-0.274	-2.204**
-4	-0.206	-1.996**	0.198	1.494	26	0.007	0.123	0.055	0.603
-3	-0.088	-1.054	0.031	0.619	27	0.105	0.764	0.026	0.349
-2	0.014	0.173	-0.163	-1.230	28	-0.069	-0.626	0.090	1.249
-1	-0.051	-0.645	0.208	1.863	29	-0.009	-0.087	-0.090	-1.154
0	-0.048	-0.713	0.110	1.541	30	-0.002	-0.015	0.053	0.476
* 1 percent Significance									
** 5 percent Significance									

The trend of decreasing purchase reversed on +1 day and continued till +3 day of the announcement of right issue. While, the changes in sales exhibited a mixed trend in the pre and post event window having positive changes for 8 days and negative changes for 2 days. The changes in sales were not found to be statistically significant during the 11 days windows. The medium-term analysis of 31 days signaled towards a negative influence of right issue for 17 days and positive influence for 14 days on purchase ownership of FIIs and negative influence for 14 days and positive influence for 17 days on sales ownership of FIIs. Figure 6.2 presents the change in FIIs purchase and sale ownership around announcement of right issue.

Furthermore, the long-term analysis of changes in FIIs ownership disclosed absence of significant influence of right issue announcement on purchase ownership of FIIs. However, the change in sale ownership was found to be statistically negative and significant on day -25, +14 and +25 days and positive on +10 day. Therefore, it can be inferred that FIIs sales ownership is more influenced by the announcement of right issue than the purchase ownership of FIIs. Also, the positive change in purchase ownership was seen for 29 days and a negative change in purchase ownership was seen for 32 days, whereas, a positive change in sales ownership was seen for 34 days and a negative change in sales ownership was seen for 27 days. Therefore, gesturing towards a more negative influence of right issue on purchase ownership and a positive influence on sales ownership of FIIs. The results also suggest a delayed reaction by the FIIs to the announcement of right issue, which is quite unlikely to the sophisticated nature of foreign institutional investors.



**Figure 6.2 : Change in FIIs Ownership Around Right Issue**

### 6.1.3 Change in FIIs Ownership Around the Announcement of Share Buyback

Table 6.3 presents the change in FIIs purchase and sale ownership and the estimated t-statistics during the announcement of share buyback. The results suggested no

significant change in FIIs purchases and sales during the immediate period of 3 days. However, it was observed that the change in FIIs purchase and sale ownership was positive on the event day whereas, one day prior and one day post the event the change in purchase and sale ownership was found negative. In the short time period FIIs gradually decreased their purchase positions in the days prior to the announcement but increased their ownership on the event day. Similar pattern can be observed for FIIs sales as FIIs reduced their share in sales but increased their share in sales on the event day. However, the change in sales is greater than the change in purchase ownership.

**Table: 6.3 : Change in FIIs Ownership Around Share Buyback**

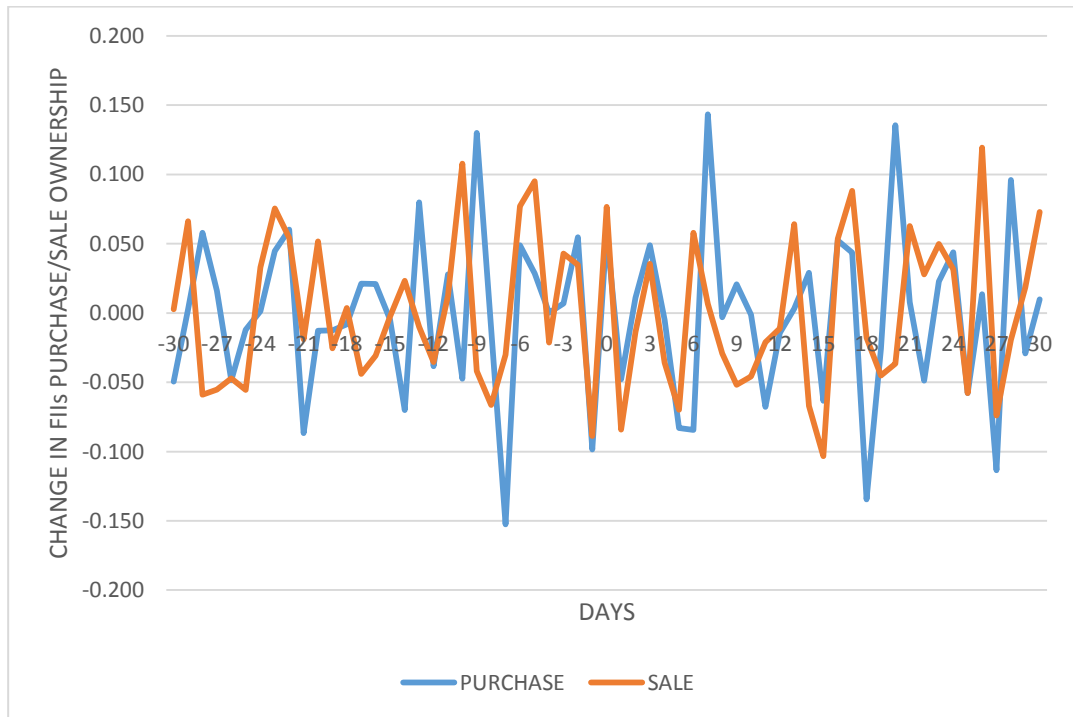
Before Announcement					After Announcement				
Days	Purchase	t-stat	Sale	t-stat	Days	Purchase	t-stat	Sale	t-stat
-30	-0.050	-0.627	0.003	0.036	0	0.059	0.924	0.076	1.096
-29	0.003	0.046	0.066	1.223	1	-0.048	-0.645	-0.084	-1.535
-28	0.058	0.837	-0.059	-0.803	2	0.011	0.148	-0.014	-0.210
-27	0.016	0.221	-0.055	-0.840	3	0.049	0.779	0.035	0.670
-26	-0.049	-0.583	-0.047	-0.667	4	-0.005	-0.086	-0.036	-0.514
-25	-0.012	-0.184	-0.055	-0.759	5	-0.083	-1.507	-0.070	-0.908
-24	0.001	0.017	0.033	0.438	6	-0.084	-1.321	0.058	0.716
-23	0.045	0.739	0.075	1.158	7	0.143	2.129**	0.007	0.105
-22	0.060	1.225	0.054	0.804	8	-0.003	-0.072	-0.029	-0.466
-21	-0.087	-1.564	-0.019	-0.395	9	0.021	0.402	-0.052	-0.634
-20	-0.013	-0.230	0.052	0.952	10	-0.001	-0.019	-0.046	-0.604
-19	-0.013	-0.245	-0.026	-0.566	11	-0.068	-0.946	-0.021	-0.343
-18	-0.008	-0.121	0.004	0.066	12	-0.015	-0.203	-0.011	-0.196
-17	0.021	0.321	-0.044	-0.766	13	0.003	0.049	0.064	0.952
-16	0.021	0.424	-0.031	-0.551	14	0.029	0.432	-0.067	-0.931

Before Announcement					After Announcement				
Days	Purchase	t-stat	Sale	t-stat	Days	Purchase	t-stat	Sale	t-stat
-15	-0.005	-0.101	-0.003	-0.038	15	-0.063	-1.064	-0.103	-1.808
-14	-0.070	-1.057	0.023	0.337	16	0.052	0.842	0.054	0.927
-13	0.080	1.071	-0.010	-0.154	17	0.044	0.778	0.088	1.657
-12	-0.039	-0.645	-0.035	-0.475	18	-0.135	-1.741	-0.018	-0.298
-11	0.028	0.451	0.012	0.184	19	-0.026	-0.407	-0.045	-0.629
-10	-0.047	-0.660	0.108	1.995**	20	0.136	2.039**	-0.037	-0.518
-9	0.130	1.426	-0.042	-0.587	21	0.008	0.143	0.063	0.964
-8	-0.012	-0.183	-0.066	-1.109	22	-0.049	-0.714	0.028	0.360
-7	-0.152	-2.382**	-0.030	-0.542	23	0.023	0.375	0.050	0.914
-6	0.049	0.828	0.077	1.266	24	0.044	0.679	0.032	0.410
-5	0.028	0.425	0.095	1.707	25	-0.058	-1.355	-0.058	-0.959
-4	0.000	0.001	-0.021	-0.399	26	0.014	0.234	0.119	1.778
-3	0.007	0.089	0.043	0.803	27	-0.114	-1.784	-0.074	-1.110
-2	0.055	0.956	0.035	0.457	28	0.096	1.431	-0.019	-0.272
-1	-0.099	-1.281	-0.089	-1.315	29	-0.029	-0.506	0.018	0.237
0	0.059	0.924	0.076	1.096	30	0.010	0.132	0.073	1.142
* 1 percent Significance									
** 5 percent Significance									

In the medium-term time period FIIs purchase was found statistically significant on -7 and +7 days and sales were statistically significant on -10 day. The purchase on -7 day was negatively significant and positive on +7 day whereas, the changes in sales was positively significant at 5 percent level of significance on day -10. The long-term analysis of FIIs purchase and sale revealed FIIs purchase was positively influenced for 32 days and negatively influenced for 29 days, whereas, the sales were positively influenced for 28 days and negatively influenced for 33 days. The results also highlight towards a weak statistical significance of share buyback on the purchases



and sales decision of FIIs implying FIIs are not motivated by the announcement of share buyback by the companies in the Indian market or are not able to interpret the information efficiently (Jegadeesh and Tang, 2010). Figure 6.3 represents the change in FIIs purchase and sale ownership around the announcement of share buyback.



**Figure 6.3 : Change in FIIs Ownership Around Share Buyback**

#### **6.1.4 Change in FIIs Ownership Around the Announcement of Stock Split**

Table 6.4 presents the change in FIIs purchase and sale ownership in the pre-event, post event and event day of stock split announcement. The calculated t-statistics which establish the significance of the announcement on FIIs ownership are also presented in the table below. FIIs purchase and sales are negatively influenced on the event day 0. While, the purchases are statistically significant the sales are not statistically significant on the event day. The results also reflected that the purchases by FIIs were positively influenced one day before and after the announcement of stock split, whereas the sales were negatively influenced one day prior and on the event day and positively influenced one day after the event.

**Table: 6.4 : Change in FIIs Ownership Around Stock Split**

Before Announcement					After Announcement				
Days	Purchase	t-stat	Sale	t-stat	Days	Purchase	t-stat	Sale	t-stat
-30	0.043	0.967	0.016	0.424	0	-0.141	-2.870*	-0.042	-0.716
-29	-0.012	-0.302	0.024	0.819	1	0.101	1.884	0.141	2.478**
-28	0.030	0.668	-0.015	-0.397	2	-0.006	-0.110	-0.099	-2.269**
-27	-0.078	-1.547	-0.010	-0.207	3	0.065	1.272	0.095	1.899
-26	0.007	0.143	-0.009	-0.210	4	-0.034	-0.757	-0.012	-0.274
-25	0.019	0.411	0.007	0.158	5	-0.047	-0.960	-0.003	-0.074
-24	0.035	1.082	0.026	0.546	6	0.054	1.231	-0.020	-0.767
-23	-0.069	-1.732	-0.013	-0.407	7	0.039	0.790	-0.007	-0.155
-22	0.039	0.913	0.020	0.561	8	-0.018	-0.441	-0.041	-0.883
-21	-0.020	-0.499	-0.010	-0.223	9	0.043	1.311	0.039	1.012
-20	0.006	0.152	-0.022	-0.573	10	0.013	0.417	0.075	1.498
-19	0.021	0.580	0.026	0.727	11	-0.026	-0.579	-0.030	-0.747
-18	0.080	2.128**	-0.006	-0.148	12	-0.020	-0.488	-0.053	-1.256
-17	-0.064	-1.405	-0.026	-0.665	13	-0.052	-1.206	0.032	0.757
-16	-0.050	-1.031	0.015	0.390	14	0.047	1.376	0.010	0.268
-15	-0.018	-0.424	-0.044	-1.000	15	0.003	0.067	-0.030	-0.639
-14	0.083	1.546	0.065	1.405	16	0.006	0.126	0.048	1.158
-13	-0.072	-1.621	-0.077	-1.758	17	-0.013	-0.277	-0.049	-1.168
-12	0.029	0.757	0.061	1.251	18	-0.049	-1.100	-0.006	-0.120
-11	-0.012	-0.223	0.032	0.810	19	0.035	0.818	0.004	0.089
-10	-0.035	-0.785	-0.082	-1.871	20	0.056	1.277	-0.010	-0.242
-9	-0.029	-0.680	0.020	0.478	21	0.031	0.878	0.029	0.577
-8	0.086	2.098**	0.047	1.266	22	0.002	0.056	-0.039	-0.760
-7	0.014	0.426	0.005	0.185	23	0.018	0.442	0.062	1.566
-6	-0.016	-0.421	-0.092	-2.052**	24	0.037	0.899	-0.003	-0.068
-5	-0.036	-0.773	0.028	0.626	25	-0.002	-0.030	-0.021	-0.465
-4	0.050	1.059	0.004	0.104	26	-0.015	-0.256	-0.029	-0.730
-3	0.034	1.054	0.118	2.713*	27	0.075	1.995**	0.029	0.747
-2	-0.093	-2.008**	-0.018	-0.522	28	-0.048	-1.014	0.014	0.382
-1	0.037	0.825	-0.017	-0.304	29	-0.050	-1.053	-0.050	-1.214
0	-0.141	-2.870**	-0.042	-0.716	30	-0.009	-0.214	-0.015	-0.343

\* 1 percent Significance  
\*\* 5 percent Significance

The short-term analysis of FIIs ownership change revealed purchases by FIIs were increased on day -4 but it gradually reduced in the subsequent days (that is day -3 and -2). However, the sales by FIIs increased from day -5 to -3 but it decreased from day -2 and the fall continued till the event day 0. The purchases were negative and statistically significant at 5 percent level of significance on day -2 and 0, whereas the sales were positive and statistically significant on day -3 and +1 and negative and statistically significant on day +2. Thus, it can be inferred that in the short term FIIs purchases were influenced negatively while sales were influenced positively and negatively by the announcement of stock split. Therefore, influence of stock split on institutional ownership is visible (Mukherji et al., 1997).



**Figure 6.4 : Change in FIIs Ownership Around Stock Split**

The sales were also statistically impacted post the announcement of stock split whereas, the purchases are influenced before and on the event day but were not significantly influenced post the announcement. Figure 6.4 showcases the change in FIIs purchase and sale ownership around announcement of stock split. Although the purchases were negatively influenced by the announcement of stock split in the short-term period a positive influence on purchases was seen on day -8 during the medium time period. This is the highest positive and significant influence of stock split on purchases in the pre-event window. Similarly, the sales were positively

influenced in the short time period but they were negatively influenced on day -6 in the medium time period. A diminishing effect of the stock split announcement on the FIIs purchase and sale in the post event window has been observed during the medium-term analysis.

During the long period analysis of influence of stock split announcement, a positive and significant influence on purchases was seen on day +27 and no significant influence on sales was realized in the post event window. Moreover, positive influence on FIIs purchases was also perceived on day -18. The analysis presented that the announcement of stock split has a greater and significant influence on purchases than the sales by FIIs and more positive and significant influence is observed in the pre-event than the post event days. Also, the purchases were positively influenced for 32 days and negatively influenced for 29 days and sales were positively influenced for 28 days and negatively influenced for 33 days.

#### **6.1.5 Change in FIIs Ownership Around the Announcement of Dividend**

Table 6.5 showcases the change in FIIs purchase and sale ownership during the announcement of dividends by firms listed with Nifty500. The table below also presents the estimated t-statistics determining the significance of the dividend announced on the ownership of FIIs. In the immediate term of 3 days purchase by FIIs was positively and significantly influenced by the announcement of dividends on event day 0 and +1 day. Similarly, the sales by FIIs were also significantly and positively impacted by the announcement of dividend on the event day 0. Thus, signalling towards a positive and significant impact of dividend announcement on the share ownership of FIIs. The purchase by FIIs was also positive and significant at 1 percent level of significance on day +1 whereas, the sales were also positively influenced on day +1 but were not statistically significant. In the short-term period, the influence of dividend announcement on FIIs purchases and sales was negative for 4 and 3 days in the pre-event window while, both the purchases and sales were negatively influenced for 4 days in the post event window. The sales by FIIs were positively influenced on -3 day and negatively influenced on +2 day. Also, during the same period the highest positive and significant change in FIIs purchase and sales was witnessed on day +1 and day 0 respectively.

**Table: 6.5 : Change in FIIs Ownership Around Dividend**

Before Announcement					After Announcement				
Days	Purchase	t-stat	Sale	t-stat	Days	Purchase	t-stat	Sale	t-stat
-30	-0.010	-1.000	0.003	0.249	0	0.067	6.310*	0.085	7.378*
-29	-0.012	-1.167	0.007	0.574	1	0.086	7.722*	0.018	1.487
-28	-0.002	-0.221	-0.009	-0.758	2	-0.066	-6.102*	-0.049	-3.897*
-27	-0.002	-0.158	0.024	2.146**	3	-0.004	-0.365	-0.006	-0.515
-26	0.005	0.463	-0.010	-0.930	4	-0.012	-1.082	-0.013	-1.175
-25	0.010	0.958	-0.006	-0.538	5	-0.011	-1.043	-0.007	-0.620
-24	-0.001	-0.093	0.010	0.895	6	0.000	-0.007	0.004	0.315
-23	0.006	0.543	0.004	0.390	7	-0.003	-0.253	-0.009	-0.804
-22	-0.004	-0.353	0.007	0.619	8	-0.005	-0.471	0.002	0.195
-21	0.018	1.661	0.000	0.001	9	0.005	0.515	0.007	0.663
-20	0.003	0.303	-0.002	-0.151	10	-0.013	-1.371	-0.005	-0.473
-19	0.007	0.666	0.016	1.466	11	-0.004	-0.441	0.000	0.012
-18	0.002	0.189	-0.011	-1.027	12	-0.004	-0.433	-0.007	-0.594
-17	-0.008	-0.757	-0.011	-0.983	13	0.001	0.136	0.006	0.522
-16	0.001	0.108	0.003	0.236	14	0.003	0.252	-0.022	-1.783
-15	0.000	0.039	-0.003	-0.317	15	-0.018	-1.679	0.027	2.315**
-14	0.017	1.689	-0.023	-2.101**	16	0.002	0.241	-0.003	-0.271
-13	0.001	0.118	0.007	0.636	17	-0.005	-0.529	-0.012	-1.043
-12	-0.010	-1.008	0.020	1.783	18	-0.004	-0.421	0.016	1.400
-11	0.012	1.122	0.016	1.417	19	-0.003	-0.276	-0.033	-2.796*
-10	0.004	0.379	-0.004	-0.328	20	0.024	2.301**	0.029	2.398**
-9	-0.018	-1.765	-0.020	-1.725	21	-0.006	-0.596	0.002	0.190
-8	0.002	0.213	-0.007	-0.684	22	-0.007	-0.663	-0.007	-0.586
-7	-0.012	-1.156	0.014	1.407	23	0.025	2.351**	-0.004	-0.321
-6	0.024	2.299**	0.013	1.232	24	-0.022	-2.186**	-0.014	-1.272
-5	-0.009	-0.948	-0.010	-0.854	25	-0.006	-0.600	-0.014	-1.241
-4	-0.012	-1.263	-0.004	-0.327	26	0.010	0.902	0.005	0.411
-3	0.002	0.188	0.027	2.425**	27	-0.003	-0.280	-0.013	-1.084
-2	-0.008	-0.802	-0.018	-1.620	28	0.003	0.300	0.011	0.947
-1	-0.004	-0.348	0.020	1.801	29	-0.007	-0.703	-0.002	-0.183
0	0.067	6.310*	0.085	7.378*	30	-0.001	-0.070	0.000	-0.026

\* 1 percent Significance  
\*\* 5 percent Significance

The research also analysed the changes in FIIs purchase and sales during the period of 31 days. FIIs purchase was positively influenced on day -6 and sales was negatively influenced on day -14 and positively influenced on day +15. Thus, exhibiting a presence of dividend effect on sales ownership and a diminishing effect on the purchase ownership of FIIs in the medium term. The results also reflected towards a trend of decreasing FIIs purchase ownership prior to the announcement of dividend. If any increase in the purchase positions was realized it was immediately followed by a decrease the next day, thus implying FIIs trading cautiously ahead of the announcement of dividends by firms. However, post the announcement of dividend the FIIs purchase was predominantly negatively affected. The sales by FIIs were negative and significant on day -14 followed by positive changes on day -13, -12 and -11. The positive changes were then succeeded by negative changes for the next 3 days erasing majority of the gains from the days -13 to -11.



**Figure 6.5 : Change in FIIs Ownership Around Dividend.**

A similar trend was followed in the FIIs sales upto the day of dividend announcement. The sales were positively swayed on day -1, 0 and +1, followed this the change in sales exhibited a negative trend for 5 days upto day +7, with positive change only on day +6. The pre dividend announcement impacted sales negatively

and post dividend announcement impacted the sales positively in the medium-term period. Figure 6.5 presents the change in purchase and sale ownership of FIIs around the announcement of dividend. In the long-term no significant impact of dividend was witnessed on FIIs purchase in the pre-event window, however, a significant and positive influence on purchases was seen on day +20 and +23 and negative on day +24. Thus, implying a long-term influence of dividend announcement in the post event window that the pre-event window. On the other hand, the changes in sales were positively significant on day -27, +20 and negatively significant on +19. Thus, pointing towards a long-term influence of dividend on sales in the pre and post event window. Also, the purchases were positive for 27 days and negative for 34 days and the sales were positive for 30 days and negative for 31 days.

#### 6.1.6 Change in FIIs Ownership Around the Announcement of Earnings

Table 6.6 displays the change in FIIs purchase and sales and their calculated t-statistics accrued upon the announcement of earnings by companies. The results exhibited a negative influence of earnings announcement on purchase and sale ownership of FIIs on the event day. In the immediate time period earnings bear a positive influence on purchases and sales by FIIs one day prior to the announcement and a negative impact on purchase and sale on the event day and one day after the announcement. However, the influence was not found to be statistically significant implying earnings announcement does not influence the ownership of FIIs. The results of the findings can be affirmed by the work of (Sen, 2009) which evidenced that announcement of earnings did not influence the ownership of stocks by FIIs.

**Table: 6.6 : Change in FIIs Ownership Around Earnings**

Before Announcement					After Announcement				
Days	Purchase	t-stat	Sale	t-stat	Days	Purchase	t-stat	Sale	t-stat
-30	-0.015	-2.346**	-0.008	-1.317	0	-0.001	-0.183	-0.003	-0.497
-29	0.001	0.100	0.005	0.896	1	-0.001	-0.191	-0.003	-0.557
-28	0.008	1.224	0.006	0.948	2	0.002	0.361	0.006	0.978
-27	0.000	0.079	-0.014	-2.248**	3	-0.008	-1.290	-0.001	-0.230

Before Announcement					After Announcement				
Days	Purchase	t-stat	Sale	t-stat	Days	Purchase	t-stat	Sale	t-stat
-26	-0.001	-0.118	0.013	2.087**	4	0.011	1.746	0.004	0.722
-25	-0.001	-0.106	0.004	0.581	5	-0.001	-0.209	0.001	0.130
-24	0.000	-0.004	0.001	0.142	6	0.009	1.493	0.010	1.582
-23	0.004	0.682	-0.006	-1.008	7	0.009	1.388	0.012	1.879
-22	0.000	0.003	0.004	0.734	8	0.005	0.774	0.013	2.211**
-21	-0.001	-0.129	-0.001	-0.210	9	0.003	0.437	0.005	0.792
-20	0.004	0.611	-0.001	-0.184	10	-0.002	-0.257	-0.006	-1.017
-19	-0.004	-0.578	-0.004	-0.555	11	-0.006	-0.967	0.008	1.319
-18	0.001	0.226	0.001	0.223	12	0.005	0.734	0.003	0.536
-17	0.003	0.532	-0.005	-0.799	13	0.004	0.648	-0.004	-0.682
-16	0.011	1.823	0.019	3.085*	14	-0.005	-0.852	-0.009	-1.585
-15	-0.008	-1.191	-0.018	-2.974*	15	-0.004	-0.677	0.003	0.454
-14	-0.001	-0.128	0.002	0.391	16	0.001	0.183	0.000	0.024
-13	-0.001	-0.175	-0.002	-0.327	17	-0.001	-0.229	-0.009	-1.490
-12	0.006	0.965	0.000	-0.073	18	-0.005	-0.853	0.005	0.892
-11	0.004	0.661	0.003	0.493	19	0.002	0.272	-0.001	-0.218
-10	-0.006	-1.001	-0.007	-1.198	20	-0.001	-0.227	0.000	-0.074
-9	-0.007	-1.210	-0.003	-0.471	21	0.002	0.266	-0.001	-0.144
-8	0.013	2.098**	0.009	1.506	22	-0.004	-0.647	-0.007	-1.168
-7	-0.009	-1.505	-0.005	-0.817	23	0.007	1.078	0.007	1.121
-6	0.005	0.840	-0.007	-1.077	24	-0.007	-1.072	0.002	0.271
-5	-0.010	-1.656	0.000	0.016	25	-0.005	-0.840	-0.004	-0.652
-4	0.015	2.426**	0.010	1.726	26	0.002	0.294	-0.001	-0.165
-3	0.004	0.595	0.004	0.624	27	-0.001	-0.109	0.010	1.576
-2	0.000	-0.019	0.003	0.451	28	-0.001	-0.129	-0.003	-0.505
-1	0.006	0.880	0.003	0.475	29	0.000	-0.017	-0.006	-0.949
0	-0.001	-0.183	-0.003	-0.497	30	0.009	1.406	0.000	-0.036

\* 1 percent Significance  
\*\* 5 percent Significance



Moreover, in the short time period of 11 days purchases were found to be significant and positive on -4 day only, while, no significant influence of earnings was seen on sales during the same period. It was also found from day -4 FIIs started to reduce their positions in stocks purchase and sale and continued with this strategy till day +1. This revealed FIIs are being risk averse as they reduce their exposure into stocks before the announcement of earnings. (Berkman and Mckenzie, 2012) Also evidenced that institutional investors decrease their holdings in stock before the announcement of earnings. Furthermore, a medium-term analysis revealed that FIIs tend to increase their exposure in stocks only after a week as both the purchase and sales were positively influenced from day +6 to +9. Also, the purchase was found to be positively influenced on day -8 and sales were found to be negatively influenced on -15 day and positively influenced on +8 day.



**Figure 6.6 : Change in FIIs Ownership Around Earnings**

Thus, signalling towards a weak influence of earnings on FIIs purchase and a significant influence on FIIs sales in the pre-event window and a diminishing impact in the post event window. Suggested informed trading and changes in institutional investors ownership was limited only to a few investors (Ali et al., 2004). Figure 6.6 represents the change in FIIs purchase and sale ownership around the announcement of earnings.

However, a long period analysis of change in FIIs purchase and sales depicts a different picture of influence of earnings on FIIs ownership. It was found FIIs purchase was statistically significant and negatively influenced on -30 day and sales was statistically significant and negative on -27 day and significant and positive on -26 and -16 days. Thus, suggesting that the earnings influence FIIs purchase and sales in the long term and FIIs like to limit their exposure before the announcement of earnings by companies. The informational disadvantage of FIIs can be attributed to a possible inability of FIIs in fathoming the fundamentals of the market or maybe they are too conceit about their investment options (Krishnan and Rangan, 2016).

Recurrent trading in stocks by FIIs is evidenced that their losses tended to amplify which implies an overconfidence in FIIs investment strategies (Daniel and Hirshleifer, 2015 and Krishnan and Rangan, 2016). Another possible reason can be FIIs aim at being investors of long-term horizon and trade in terms of alpha accretive returns accruing over a purview of years than days or months. Such an investment requires an avoidance towards a continuous changing of the portfolios in the short or medium period. Few researchers argue that investments from FIIs are nothing but investments of domestic investors entering the market via the route of safe haven countries to avoid taxes and thus FIIs concede with the losses as the gains from tax avoidance are more compared to the short-term losses. Also, FIIs being return chasers exit market if the returns generated are not at par with their expectations which can wreak havoc in the domestic markets. Such a case was seen at the time of subprime crisis of 2008, when FIIs plugged out their money from emerging market on the fears of a global meltdown. To avoid a sudden exit from the stock markets government and market regulators impose restrictions on FIIs investments and tightly regulated their investments. At times, excessive regulations cause investors to miss opportunities generating profit in the short span of time.

## **6.2 SUMMARY**

Foreign institutional investors are contented to be one of the important sources of foreign inflows into the Indian economy. Inflows from such investors are useful to meet the need of foreign capital as these investors supply the capital to those in need.

Also, such inflows hold the capability to modify a country's balance of payment status and disrupt the fund flows. Researchers have conducted studies to understand the factors that determine the inflows from foreign institutional investors. Different host and home country specific factors have been studied to understand what influences the inflows from FIIs. Since, foreign institutional investors invest into the capital markets of India the need also arises to comprehend the market or firm specific events that effect the inflows of FIIs. Therefore, the current chapter has focused at estimating the influence of corporate news announcements by firms that are declared to the exchange and their impact on the share ownership of foreign institutional investors investments into different firms. The study has determined six news announcements and they are- bonus issue, right issue, share buyback, stock split, dividend and earnings and their influence on purchase and sale ownership of stocks owned by foreign institutional investors. The research has undertaken a sample of NSE listed companies that form part of Nifty500 and six-news announcements have been identified for analysing their influence on purchase and sale ownership of foreign institutional investors. The results of event study revealed exchange declared news announcements of bonus issue, stock split and dividend have a significant influence on the purchase and sale ownership of foreign institutional investors in the immediate, short-term and medium period. Whereas, right issue, share buyback and earnings do not bear a significant influence on the purchase and sale ownership of FIIs in the near time period but a significant influence in the long-term period was observed.

The results of event study also found announcement of bonus issue by companies positively influencing the purchase and sale ownership of FIIs. Thereby, attributing announcement of bonus issue indicating towards a company's availability of surplus funds and a confidence in the future growth and investment potential. Thus, significantly impacting the investment decisions of FIIs. Moreover, the stock split announcement by companies significantly influenced the purchase ownership of FIIs on the event day and sales ownership one day post the announcement. The short-term analysis of impact of stock split on FIIs purchase and sale revealed FIIs purchases were negatively influence by the announcement of stock split. The results suggested

a greater influence of stock split announcement on the FIIs sales in the post event period and FIIs purchase in the pre-event period. Furthermore, the announcement of dividend positively and significantly impacted the purchase and sales ownership of FIIs on the day of the announcement. Also, the highest change in FIIs sale was witnessed on the event day and change in purchases was seen one day post the event implying FIIs underreacting to the announcement of dividend in the immediate term. The results also reflected towards a trend of decreasing FIIs purchase ownership prior to the announcement of dividend. If any increase in the purchase positions was realized it was immediately followed by a decrease the next day, thus implying FIIs trading cautiously ahead of the announcement of dividends by firms.

The results also evidenced that the right issue announcement by companies influenced FIIs purchases negatively and sales positively but the effect was not significant on the event day. A significant influence of right issue on FIIs purchase and sales was found in the short-term period implying a slight delay in the reaction of FIIs to process the new information available in the market. It was also found right issue bore a positive impact on sales ownership and a negative impact on the purchase ownership of FIIs. Similarly, the announcement of share buyback by companies pointed towards an absence of a significant impact on the share purchase and sales ownership of FIIs in the immediate period. A Weak but significant influence of share buyback was realized in the short-term period implying FIIs do not feel motivated to make investments around the announcement of share buyback by the companies. Additionally, the announcement of earnings by companies instilled a negative impact on the FIIs purchase and sale ownership of different stocks of companies. FIIs reduced their exposure in companies before the announcement of earnings which signaled towards a risk averse strategy adopted by them. Also, a delayed response to the announcement of earnings in the post event window was observed which points towards an informational disadvantage of FIIs in the Indian stock market. Therefore, it can be concluded that news announcements of bonus issue, right issue, stock split, share buyback, dividend and earnings do exert an influence on the purchase and sale ownership of FIIs in the near and distant time period.

## Chapter – 7

# **FOREIGN INSTITUTIONAL INVESTORS TRADING BEHAVIOUR ON DIFFERENT SECTORS OF STOCK MARKET**

The Indian markets have grown by leaps and bounds post the adoption of liberalization, privatization and globalization policy of 1991. One of the major changes that the reforms of 1991 has brought is the introduction of foreign institutional investors into the Indian capital market. A study of the trends and pattern of foreign institutional investors investments revealed the number of foreign institutional investors and their number of investments have increased each year. Also, the FIIs are based from different countries and hold a large proportion of the Indian assets under their custody. An entity registered as a FII can invest in the equity, debt and derivatives market of India. The Indian government has been working continuously to attract and sustain the investments from these FIIs. Few investments into limited government backed securities have also been opened for foreign institutional investors.

Foreign institutional investors are largely known as the movers and shakers of an economy as they invest large sums of money with the motive of earning profit and exit at the very threat of uncertainty. A sudden exit of such large number of investments can cause disruption in the economy of the host country. Since, FIIs primarily investment in the stock markets, the greater influence of the sudden inflow or outflow of FIIs investment is seen on the stock market and the different sectors that comprise within the market. The Indian stock market is largely comprised of banking, financial services, energy, information technology, telecom, real estate, automobile, fast moving consumer goods, industrials, media and pharmaceuticals sectors representing the different areas of the Indian economy and its peculiar characteristics and features. Each sector consists of a group of industries and these industries consist a group of public and private listed companies whose stocks are

traded in the market. The different sectors and their details are mentioned in appendix -1 of the study. For the purpose of estimation, the study has undertaken ten sectors representing the stock market. These sectors comprise approximately 82.49 percent of the total market capitalization. The time period is selected from 2012 to 2019 as the data on foreign institutional investment inflows into different sectors is not available prior to the year 2012. The data limitation constraint has also been argued in the study of (Narayan et al., 2014). The major data challenge faced is that there exists no time-series historical data prior to 2012 on different Nifty sectors and the corresponding FII investment in each sector. Since the research intends to examine the trading behaviour of foreign institutional investors investment on different sectors of stock market and the FII investment in each sector of stock market is not available before 2012, thus, the research has used the data available from the year 2012 onwards.

## **7.1 OVERVIEW OF THE NET FIIS INFLOW INTO DIFFERENT SECTORS OF STOCK MARKET**

Foreign institutional investments have been one of the major players in the Indian stock market. The growing interest from FIIs in the Indian economy is largely attributed to the increased investment opportunities in the market. The table 7.1 highlights the investments made by FIIs in different sectors of the stock market. Ten broad sectors are undertaken in the study- auto sector, banking sector, energy sector, financial services sector, fast moving consumer goods (FMCG) sector, information technology sector, media sector, metals sector, pharma sector and realty sector. A trend analysis of foreign institutional investors' investment into the ten broad sectors is presented in table 7.1 below:

**Table 7.1 : Net FIIs Investments in Different Sectors**

Year	Auto Sector			Bank Sector			Energy Sector		
	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment
2012	5868	-	4.94	20001		16.85	10041		8.46
2013	4340	-26.04	6.03	10661	-46.70	14.80	8598	-14.37	11.94
2014	9430	117.28	11.01	19375	81.74	22.62	7586	-11.77	8.86
2015	4710	-50.05	23.42	822	-95.76	4.09	9421	24.19	46.85
2016	3559	-24.44	18.01	3345	306.93	16.92	9897	5.05	50.07
2017	-513	-114.41	-1.39	30361	807.65	82.39	8015	-19.02	21.75
2018	-16230	3063.74	24.90	-19623	-164.63	30.11	-10632	-232.65	16.31
2019	-1063	-93.45	-1.15	23756	-221.06	25.66	20513	-292.94	22.16

Year	Financial Services Sector			FMCG Sector			IT Sector		
	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment
2012	42868		36.11	11156		9.40	13285		11.19
2013	17783	-58.52	24.69	-5629	-150.46	-7.82	18808	41.57	26.11
2014	30214	69.90	35.27	4553	-180.88	5.31	6992	-62.82	8.16
2015	4589	-84.81	22.82	-3537	-177.69	-17.59	-8540	-222.14	-42.47
2016	25723	460.54	130.14	-5410	52.95	-27.37	-5960	-30.21	-30.15
2017	33209	29.10	90.12	-7900	46.03	-21.44	-19596	228.79	-53.18
2018	-5283	-115.91	8.11	-6709	-15.08	10.29	-3598	-81.64	5.52
2019	72536	-1473.01	78.36	-7457	11.15	-8.06	-16340	354.14	-17.65

Year	Media Sector			Metals Sector			Pharma Sector		
	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment
2012	801		0.67	5728		4.82	9038		7.61
2013	3291	310.86	4.57	2806	-51.01	3.90	9943	10.01	13.81
2014	3176	-3.49	3.71	1836	-34.57	2.14	1768	-82.22	2.06
2015	-227	-107.15	-1.13	-6555	-457.03	-32.60	18573	950.51	92.36
2016	-354	55.95	-1.79	3925	-159.88	19.86	-15381	-182.81	-77.82
2017	-3501	888.98	-9.50	2535	-35.41	6.88	-6408	-58.34	-17.39
2018	-2122	-39.39	3.26	-2682	-205.80	4.11	3034	-147.35	-4.65
2019	7381	-447.83	7.97	-2878	7.31	-3.11	-3379	-211.37	-3.65

Year	Realty Sector			Total Net Investment
	Net Investment (₹ Crore)	Year on Year Percent Change	Percent of Total Investment	Total Net FII Investment (₹ Crore)
2012	-60		-0.05	118726
2013	1422	-2470.00	1.97	72023
2014	736	-48.24	0.86	85666
2015	854	16.03	4.25	20110
2016	422	-50.59	2.13	19766
2017	647	53.32	1.76	36849
2018	-1336	-306.49	2.05	-65181
2019	-504	-62.28	-0.54	92565



In the year 2012, the net FIIs investment in all the ten sectors combined was estimated at ₹118726 crores. Out of the ten sectors, financial services sector attracted the largest investments from FIIs, totaling at ₹42868 crores, followed by the banking sector at ₹20001 crores. Media and reality sectors were the least preferred sectors for investment by foreign institutional investors as the net FII inflow was estimated at ₹801 crore and -₹60 crore respectively. In 2013, financial services sector continued to be the favourable sector drawing net investments of ₹17783 crore from FIIs. However, the year-on-year percentage change in net investment for financial sector turned negative at -58.52 percent in 2013. In the same years, Information technology (IT) sector emerged as the new favourable sector as FIIs parked net investments of ₹18808 crore. The year-on-year growth in net investments in IT sector was calculated at 41.57 percent, highest amongst all the other sectors. The IT sector attracted 26.11 percent while the financial services sector attracted 24.69 percent of the total investment amongst all the other sectors. The net investment in pharma and banking sector was estimated at ₹9943 crore and ₹8598 crore having percentage share of 13.81 percent and 11.94 percent to the total net FII investment. The total year on year investment in sectors indicated towards an overall weak sentiment as the net change in investments during 2013 was -₹46703 crores. The investments from FIIs marked a cautious tone ahead of the results of the general elections of 2014.



**Figure 7.1 : Net FIIs Investment in Different Sectors**

FII's pumped money into the Indian market at the beginning of 2015, however, the investments declined following the uncertainty looming over the tax-related policies of the Indian government. 2015 saw FII's turning sellers and the largest sell-off from FII's was experienced in the IT sector of outflows of ₹8540 crore. This was largely on account of tarnished image of the IT industries abroad, especially in US and Europe. Legal actions against the two major IT giants (TCS and Infosys) of the country made FII's jittery on the information technology sector. FII's also reduced their exposure in the banking sector as the net investments declined to ₹822 crore in 2015 compared to an investment of ₹19375 crore in 2014. The growing bad loan ratio of the banking companies spurred the sell-off from FII's. While FII's turned sellers in IT and banking sector, they turned net buyers in the energy and pharma sector. The highest net inflow from FII's was seen in the Pharmaceuticals sector at ₹18573 crore after the government increased FII's investment limit in Glenmark Pharmaceuticals Ltd. and Aurobindo Pharma Ltd. to 49 percent and 7 percent respectively. Energy sector became the new favourable sector for FII's as the net investment increased to ₹9421 crore in 2015 from ₹7586 crore in 2014. In 2015, FII's investment declined in all the sectors with IT, media, financial services, banking and FMCG being the major losers amongst the others. Similarly, in 2016 the net FII inflow was estimated at ₹19766 crore and the large share of FII's investment was seen in the energy and financial sector having a net inflow of ₹9897 crore and ₹25723 crore.

In 2017, Fresh investments were seen in the banking and financial sectors at ₹30361 crore and ₹33209 crore respectively, after the Indian government announced a re-capitalization plan of ₹2.11 lakh crore to infuse capital into the public sector banks. While, the banking and financial sector rejoiced from FII inflows, auto, media, pharma, IT and FMCG sector experienced outflows of -₹513 crore, -₹3501 crore, -₹6408 crore, -₹19596 crore and -₹7900 crore. Investments in Auto sector turned negative for the first time in 2017 due to the poor domestic demand. Further, general motors' exit from India because of poor sales, discouraged FII's from investing in the auto sector. FMCG sector failed to attract investments from FII's as FII's continued with the selling spree owing to poor performance of the sector. FII's went on a selling

spree in 2018 as they plugged out their investments and turned net sellers in nine sectors out of the ten sectors. Pharmaceutical industry was the only industry that experienced inflows from FIIs. However, the trend was short-lived as the FIIs turned net buyers in 2019 injecting ₹92565 crore in the market. The highest inflow was seen in financial services, banking and energy sector.

## **7.2 DESCRIPTIVE STATISTICS ANALYSIS**

Table 7.2 presents the descriptive statistics highlighting the mean, median, standard deviation (SD), skewness and kurtosis of the variables undertaken during the sample period. The descriptive statistics revealed the average monthly foreign institutional investments were more in the financial sector (₹1775.03 crore) followed by banking sectors (₹ 773.11 crore). Foreign institutional investments were lowest for media (₹12.66 crore) and information technology (₹16.55 crore) sector. However, the average monthly foreign investments were negative in the FMCG sector (₹-160.42 crore). The average return was highest in financial services and banking sector and lowest in the realty and metals sector. The results of standard deviation revealed net FIIs were most volatile in the financial services and banking sector and sector returns were most volatile in realty and metal sectors. The skewness was negative for auto, information technology, FMCG and media sector. The returns in the auto sector were the most negatively skewed. The results of kurtosis revealed that majority of the FII investments were leptokurtic while the returns in different sectors were largely seen to be normal.

**Table 7.2 : Descriptive Statistics**

<b>Sectors</b>	<b>Mean</b>	<b>Median</b>	<b>Standard Deviation</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>Nifty Auto</b>							
Net FII Investment	132.90	319.00	1145.31	2613	-3886	-0.902	4.786
Sector Return	0.497	0.756	2.474	5.703	-7.386	-0.478	3.314
<b>Nifty Bank</b>							
Net FII Investment	773.11	454.00	2745.42	10244	-8026	0.210	5.715
Sector Return	0.633	0.499	2.960	9.510	-6.441	0.250	3.593
<b>Nifty Financial Services</b>							
Net FII Investment	1775.03	1529.50	3800.88	12320	-8299	0.171	3.471
Sector Return	0.638	0.523	2.620	8.271	-5.731	0.053	3.390
<b>Nifty IT</b>							
Net FII Investment	16.55	22.00	2129.74	5081	-6789	-0.664	4.323
Sector Return	0.442	0.243	2.554	7.558	-7.688	-0.081	3.830
<b>Nifty FMCG</b>							
Net FII Investment	-160.42	-153.00	1358.30	2615	-7193	-1.695	10.121
Sector Return	0.565	0.455	1.852	4.188	-4.374	-0.129	2.507
<b>Nifty Energy</b>							
Net FII Investment	511.02	517.50	1639.55	7730	-3669	0.882	6.805
Sector Return	0.372	0.367	2.404	6.567	-5.741	0.043	3.406

<b>Sectors</b>	<b>Mean</b>	<b>Median</b>	<b>Standard Deviation</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>Nifty Pharma</b>							
Net FII Investment	344.84	306.00	2181.10	16202	-4504	4.487	35.515
Sector Return	0.342	0.381	2.278	5.384	-5.916	-0.201	2.823
<b>Nifty Realty</b>							
Net FII Investment	31.96	3.00	268.12	645	-588	0.144	3.047
Sector Return	0.120	-0.226	4.517	13.217	-9.956	0.257	3.004
<b>Nifty Metals</b>							
Net FII Investment	90.39	33.00	784.91	2852	-1744	0.368	3.944
Sector Return	0.127	-0.347	3.388	9.592	-7.001	0.405	3.040
<b>Nifty Media</b>							
Net FII Investment	12.66	37.50	329.98	748	-842	-0.234	2.897
Sector Return	0.431	0.407	2.539	7.572	-6.46	-0.190	3.151

### **7.3 UNDERSTANDING THE RELATIONSHIP BETWEEN FIIS INVESTMENTS AND SECTOR RETURNS**

#### **7.3.1 Correlation Analysis**

Correlation is defined as the quantitative technique that helps to access the relationship and the degree of association between two or more variables. It assumes presence of a linear association amongst the variables. The correlation coefficient value derived from correlation analysis ranges between +1 to -1. Correlation

coefficient also provides information on the degree of association and strength amongst the variables (Gogtay and Thatte, 2017).

The current study has conducted correlation analysis between net FII investment and returns of the different Nifty sectors undertaken in the study. Table 7.3 shows the correlation coefficient values of the relationship between the net FIIs investment in the different sectors and the returns sector. The readings of the correlation coefficient signal towards a positive correlation amongst net FIIs investment and returns in each sector. The correlation is statistically significant at 1 and 5 percent level of significance. The correlation coefficient between FII and nifty auto return is estimated at 0.46 which points towards a medium and positive association amongst the two variables. A positive correlation coefficient implies that a change brought in variable X will bring a change in variable Y in the same direction. Furthermore, the value of correlation coefficient between FII investment and Nifty Bank and FII investment and Nifty Financial Services is calculated 0.47 and FII investment and Nifty Metals is computed at 0.44 which also points towards presence of medium and positive correlation between the variables.

The value of correlation coefficient of FII investment and Nifty IT, FII investment and Nifty FMCG and FII investment and Nifty Energy is positive with values of 0.32, 0.36 and 0.38 respectively. The correlation value signifies towards a moderate to medium positive association between the variables. Also, the correlation value between FII investment and Nifty Pharma and FII investment and Nifty Realty is estimated at 0.15 and 0.29 which signals towards a positive and moderate association between the variables. However, a correlation coefficient of 0.02 between FII investment and Nifty Media points towards a weak but positive association between the FII investment Nifty Media sector returns.

**Table 7.3 : Correlation Matrix of Net FIIs Investments and Sector Returns**

<b>Variables</b>	<b>Net Foreign Institutional Investments</b>	<b>Sector Return</b>
<b>Nifty Auto</b>		
Net FII Investment	1.00	0.458
Sector Return	0.458	1.00
<b>Nifty Bank</b>		
Net FII Investment	1.00	0.467
Sector Return	0.467	1.00
<b>Nifty Financial Services</b>		
Net FII Investment	1.00	0.468
Sector Return	0.468	1.00
<b>Nifty IT</b>		
Net FII Investment	1.00	0.322
Sector Return	0.322	1.00
<b>Nifty FMCG</b>		
Net FII Investment	1.00	0.363
Sector Return	0.363	1.00
<b>Nifty Energy</b>		
Net FII Investment	1.00	0.380
Sector Return	0.380	1.00
<b>Nifty Pharma</b>		
Net FII Investment	1.00	0.151
Sector Return	0.151	1.00
<b>Nifty Realty</b>		
Net FII Investment	1.00	0.287
Sector Return	0.287	1.00
<b>Nifty Metals</b>		
Net FII Investment	1.00	0.438
Sector Return	0.438	1.00
<b>Nifty Media</b>		
Net FII Investment	1.00	0.021
Sector Return	0.021	1.00

## **7.4 EMPIRICAL RELATIONSHIP BETWEEN FIIS INVESTMENT AND SECTOR RETURNS**

The research has used Granger causality to determine the existence of causal relationship amongst returns in each sector and net investments of FIIs into various sectors of the stock market. The concept of Granger-Causality determines the presence of causal relationship between two variables, X and Y in a time series. Granger-Causality states that, if a given variable X affects another variables Y, then a change in variable X will occur before the change in variables Y as X causes Y and Y is the effect of the change in X. The hypothesis framed for testing the causality (i) Whether there exists bi-directional causality between net FII investment in each sector and sector returns. (ii) Whether there exists unidirectional causality between net FII investment in each sector and sector returns. (iii) Whether there exists no causality between net FII investment in each sector and sector returns.

Babu and Prabheesh (2008) found bi-directional causality between foreign institutional investments and stock returns in the Indian market. Chandra (2012) produced similar results of presence of bi-directional causality between FII trading behaviour and stock returns in short run but stressed on the fact that the returns in the Indian market have been a major factor in influencing inflows from FIIs. However, evidence revealed that returns in the Indian market were dominantly driving the investments of FIIs (Kumar, 2009 and Bulsara et al., 2015).

### **7.4.1 Results of Empirical Analysis**

Before an econometric model or technique is employed the first and foremost thing is to check whether the variables determined are stationary or non-stationary, implying whether the series contains unit root or not. A series that has constant mean and variance is defined as a stationary series. A non-stationary series if included in the research model will produce spurious results (Libanio, 2005). Augmented Dickey-Fuller Test is adopted to inspect for presence of stationarity in a series and results are shown in table 7.4. The null hypothesis is stated as- the series has a unit root and checked at 1 and 5 percent of significance. The readings of the table 7.4 revealed that net investments by foreign institutional investors in each sector and returns in all the



ten sectors are free from the issue of unit root and are stationary at levels as the ADF value is more than the critical value of 1 and 5 percent level of significance. If the series meet the condition of stationary, after that the presence of autocorrelation in the series is determined. To test the autocorrelation, Durbin-Watson test is employed. If the result of the Durbin-Watson test generates a value of 2 or approximate to 2, it is determined that the series does not have autocorrelation in it.

**Table 7.4 : Augmented-Dickey Fuller Test Statistics**

<b>Variables</b>	<b>Test Statistics</b>	<b>Critical Value*</b>	<b>Critical Value**</b>	<b>Conclusion</b>
<b>Nifty Auto</b>				
Net FII Investment	-5.756	-3.511	-2.896	No unit root
Sector Return	-8.922	-3.511	-2.897	No unit root
<b>Nifty Bank</b>				
Net FII Investment	-5.572	-3.511	-2.896	No unit root
Sector Return	-8.997	-3.511	-2.896	No unit root
<b>Nifty Financial Services</b>				
Net FII Investment	-5.794	-3.511	-2.896	No unit root
Sector Return	-8.780	-3.511	-2.896	No unit root
<b>Nifty IT</b>				
Net FII Investment	-4.068	-3.512	-2.897	No unit root
Sector Return	-10.242	-3.511	-2.896	No unit root
<b>Nifty FMCG</b>				
Net FII Investment	-5.775	-3.511	-2.896	No unit root
Sector Return	-9.877	-3.511	-2.896	No unit root
<b>Nifty Energy</b>				
Net FII Investment	-7.804	-3.511	-2.896	No unit root
Sector Return	-10.133	-3.511	-2.896	No unit root

Variables	Test Statistics	Critical Value*	Critical Value**	Conclusion
<b>Nifty Pharma</b>				
Net FII Investment	-7.492	-3.511	-2.896	No unit root
Sector Return	-10.998	-3.511	-2.896	No unit root
<b>Nifty Realty</b>				
Net FII Investment	-8.144	-3.511	-2.896	No unit root
Sector Return	-8.601	-3.511	-2.896	No unit root
<b>Nifty Metals</b>				
Net FII Investment	-5.810	-3.511	-2.896	No unit root
Sector Return	-8.556	-3.511	-2.896	No unit root
<b>Nifty Media</b>				
Net FII Investment	-4.063	-3.512	-2.897	No unit root
Sector Return	-8.470	-3.511	-2.896	No unit root
<p>H<sub>0</sub>: Series has Unit Root</p> <p>* Indicates 1 percent level of significance</p> <p>** Indicates 5 percent Level of significance</p>				

The Akaike Information Criterion (AIC) is used to estimate an appropriate lag length. The results of AIC criteria are presented in table 7.5 The value of AIC criterion helps to identify the lags that will be used to run the Granger-Causality Model.

**Table 7.5 : Lag Length Selection Using Akaike Information Criterion**

Lag	AIC Value
1	22.826
2	22.805
3	22.802

Table 7.6 presents the results of the Granger-Causality model estimating the bi-directional causality amongst the variables. The p values (0.038 and 0.907) of null hypothesis between returns of Nifty Bank index and net FII investment shows a unidirectional causality between the variables, implying returns in Nifty Bank index granger cause net FII investment. Similarly, the results of the Granger-Causality presented p values (0.009 and 0.817) of null hypothesis between returns of Nifty Financial Services and net FII investment and signaled towards unidirectional causality running from returns to FII investment. Unidirectional causality was also found amongst Nifty Metals Index and net FII investment as the p values (0.002 and 0.813) pointed towards returns causing net FII investment.

However, the p values (0.321 and 0.809) of null hypothesis between returns of Nifty Auto Index and net FII investment indicated towards the acceptance of the null hypothesis, concluding no causation between the variables. Similarly, the p-values (0.486 and 0.358) examining the null hypothesis between returns in Nifty FMCG Index and net FII investment propounded no causal relationship amongst the variables. Same results were seen while checking the null hypothesis between returns in Nifty Pharma Index and net FII investment as the p values (0.134 and 0.622) found no causality amongst the variables. Furthermore, the p values (0.321 and 0.809) estimating null hypothesis between returns in Nifty IT Index and net FII investment exemplified absence of causality amongst the variables. Moreover, the p values of (0.788 and 0.382) for null hypothesis between Nifty Realty Index and net FII investment points towards no causal relationship between the two variables. The p values (0.924 and 0.492) between Nifty Media Index and net FII investment led to acceptance of null hypothesis stating no causality between the variables.

The results of the Granger-Causality test signal towards a return chasing attitude of foreign institutional investors (Chandra, 2012) and influence of returns on FIIs investment (Misra, 2018). The results of the current study are not consistent with the idea of bi-directional causality amongst stock returns and inflows from FIIs (Babu and Prabheesh, 2008 and Inoue 2009). The present study points towards existence of a unidirectional causality running from sector returns to FIIs investment implying foreign institutional investors investment decisions in different sectors of the stock

market are determined by returns generated in those sectors. Evidence of uni-directional causation running from stock returns to FIIs investment is confirmed by the studies of (Ahmad et al., 2005; Kumar, 2009; Ray, 2009 and Bulsara et al., 2015).

**Table 7.6 : Granger Causality Test between Net FIIs Investment in Each Sector and Sector Returns**

<b>Sector</b>	<b>Null Hypothesis</b>	<b>F-Statistics</b>	<b>Prob</b>	<b>Direction of Causality</b>	<b>Decision</b>
<b>Nifty Auto</b>	Return does not Granger Cause Net FII	1.185	0.321	RET $\neq$ FII	Fail to Reject
	FII does not Granger Cause return	0.321	0.809	FII $\neq$ RET	Fail to Reject
<b>Nifty Bank</b>	Return does not Granger Cause Net FII	3.397	0.038	RET $\rightarrow$ FII	Rejected
	FII does not Granger Cause return	0.097	0.907	FII $\neq$ RET	Fail to Reject
<b>Nifty Financial Services</b>	Return does not Granger Cause Net FII	7.072	0.009	RET $\rightarrow$ FII	Rejected
	FII does not Granger Cause return	0.053	0.817	FII $\neq$ RET	Fail to Reject
<b>Nifty IT</b>	Return does not Granger Cause Net FII	1.182	0.321	RET $\neq$ FII	Fail to Reject
	FII does not Granger Cause return	0.321	0.809	FII $\neq$ RET	Fail to Reject
<b>Nifty FMCG</b>	Return does not Granger Cause Net FII	0.4881	0.486	RET $\neq$ FII	Fail to Reject
	FII does not Granger Cause return	0.8541	0.358	FII $\neq$ RET	Fail to Reject

<b>Sector</b>	<b>Null Hypothesis</b>	<b>F-Statistics</b>	<b>Prob</b>	<b>Direction of Causality</b>	<b>Decision</b>
<b>Nifty Energy</b>	Return does not Granger Cause Net FII	2.815	0.097	RET $\neq$ FII	Fail to Reject
	FII does not Granger Cause return	0.414	0.521	FII $\neq$ RET	Fail to Reject
<b>Nifty Pharma</b>	Return does not Granger Cause Net FII	2.288	0.134	RET $\neq$ FII	Fail to Reject
	FII does not Granger Cause return	0.243	0.622	FII $\neq$ RET	Fail to Reject
<b>Nifty Realty</b>	Return does not Granger Cause Net FII	0.072	0.788	RET $\neq$ FII	Fail to Reject
	FII does not Granger Cause return	0.770	0.382	FII $\neq$ RET	Fail to Reject
<b>Nifty Metals</b>	Return does not Granger Cause Net FII	9.908	0.002	RET $\rightarrow$ FII	Rejected
	FII does not Granger Cause return	0.055	0.813	FII $\neq$ RET	Fail to Reject
<b>Nifty Media</b>	Return does not Granger Cause Net FII	0.078	0.924	RET $\neq$ FII	Fail to Reject
	FII does not Granger Cause return	0.714	0.492	FII $\neq$ RET	Fail to Reject

The results have also found FIIs inflows into banking, financial services and metals sector are influenced by the returns accrued in these sectors. While, no causal relationship is found between net FII inflows and returns of auto, energy, media, pharma, realty, IT and FMCG sectors. It has been evidenced that the metals sector has been generating significant returns on the backdrop of increase in infrastructure projects and the rising demand for automotive products. The metals companies in the Indian market have adopted a low-cost based strategy which has played to their advantage giving them an edge globally. The domestic companies are also entering

into strategic partnership with the overseas investors to strengthen their production capacities and bring in an advanced technical-know-how. The metals sectors and its returns has thus generated an interest amongst the foreign institutional investors who are willing to ride on the lucrative returns. It was also found that the largest share of FII inflows was seen in banking and financial services sectors compared to other sectors of the stock market. FIIs follow the trend of return chasing for few important sectors of the market. The Indian government has been continuously making efforts to reform the banking space as it has been promoting the use of digital payments and banking practices to provide a customer friendly experience to their clients. Though, the retail banking sector has grown in the recent years owing to the government's efforts of moving towards a formal banking system. However, there still exists a vast section of the population that does not have access to the basic banking facilities thus creating an unexplored and untapped clientele for the banking sector. The unpenetrated potential of the Indian banking sector attracts foreign investments into the stocks of the companies forming the banking sector. Furthermore, the innovation in technology has provided an easy access to customers in the form of mobile and internet banking. The number of people using the internet and mobile banking facilities are relatively scarce which creates opportunities for growth and development for the banking sector. The government's endeavors at providing bank accounts for a greater number of the people has led to the growth of the Indian banking space and therefore, attracting inflows from foreign institutional investors.

FIIs investment decision is also influenced by returns generated in the financial services sector. Many peer-to-peer and non-banking financial companies have been trying to bridge the gap by catering to the daily credit needs of the individuals who otherwise do not have access to the traditional means of banking. The efforts of the financial companies aimed at providing customer friendly experience and inclusion of new clients using the means of technology and aiming for less or no paperwork has helped the financial sector generate significant returns. The foreign institutional investors are trying to tap into the returns generated in the financial services sector and have thus based their investment decisions chasing the returns of the sector. The innovations of social investing adopted by banks and insurers have thus attracted inflows from foreign investors.

## 7.5 SUMMARY

The Indian stock market is largely comprised of banking and financial services, energy, information technology, telecom, real estate, automobile, fast moving consumer goods, industrials, media and pharmaceuticals sectors representing the different areas of the Indian economy and its peculiar characteristics and features. Foreign institutional investments have been one of the major players in the Indian stock market. The growing interest from FIIs in the Indian economy is largely attributed to the increased investment opportunities in the market. Thus, the research examined the influence of foreign institutional investor trading behaviour on the different sectors of stock market. The average monthly foreign institutional investments were more in the financial sector (₹1775.03 crore) followed by banking sectors (₹ 773.11 crore). Foreign institutional investments were lowest for media (₹12.66 crore) and information technology (₹16.55 crore) sector.

The results of the Granger-Causality model estimating the causality amongst the variables revealed returns of Nifty Bank index and net FII investment exhibit a unidirectional causality implying returns in Nifty Bank index Granger cause net FII investment. Similarly, the results of the Granger-Causality between returns of Nifty Financial Services and net FII investment signaled towards unidirectional causality running from returns to FII investment. Unidirectional causality was also found amongst Nifty Metals Index and net FII investment pointing towards returns causing net FII investment. The results of the Granger-Causality test signaled towards a return chasing attitude of foreign institutional investors. The metals sector has been generating significant returns on the backdrop of increase in infrastructure projects and the rising demand for automotive products. The government's endeavours at providing bank accounts for a greater number of the people has led to the growth of the Indian banking space and therefore, attracted inflows from foreign institutional investors. The foreign institutional investors are trying to tap into the returns generated in the financial services sector. The innovations of social investing adopted by banks and insurers have also attracted inflows from foreign investors.

## Chapter – 8

### **VARIATION IN FOREIGN INFLOWS BY DIFFERENT CATEGORIES OF FOREIGN INSTITUTIONAL INVESTORS**

The Indian markets are buoyed by the strong growth fundamentals and consistent efforts by the government in the ease of doing business has helped India become a favourite destination for investment by foreign institutional investors. According to the 2018 World Bank Report on Ease of Doing Business, India ranked 77 in terms of ease of doing business. The current chapter focuses on the inflows of investments originating from different types of FIIs and the factors determining the inflows of FIIs into India. The Indian government is continuously working towards making the country investor friendly, especially to investors originating from different countries across the globe. The government aims to attract foreign investment by streamlining the process of FIIs entry and investments into the market. Thus, a move was initiated to restructure the investment norms and remove unwarranted documentation for entry by FIIs in the Indian stock market which led to the introduction of the new SEBI norms of 2014 for FIIs. The new norms aimed to widen the scope for entities eligible to register as FIIs by allowing entities originating from countries enjoying diplomatic tie-ups with India and those complying to the FEMA (Foreign Exchange Management Act). According to the new SEBI Regulations of 2014, foreign institutional investors are divided into three categories to facilitate the flow of investments. They are as follows:

#### **1. Category I- Sovereign and International Entities**

Under the category-I classification, all the government and government related investors are qualified to be categorized as foreign institutional investors. Following are the types of foreign institutional investors that fall under category-I:

- (a) Central banks
- (b) Sovereign wealth funds
- (c) Government agencies



- (d) International/Multilateral organisations
- (e) Government owned organisations

## **2. Category II- Regulated Entities**

According to category-II classification, all the broad-based investment funds which are regulated or those investment funds whose managers or those brokers who are regularly regulated are eligible to register under category-II of foreign institutional investors. Following are the types of foreign institutional investors that fall under the second category:

- (a) Mutual funds
- (b) Investment trusts
- (c) Insurance/reinsurance companies
- (d) Pension funds
- (e) University funds

## **3. Category III- Unregulated Entities**

As per the category-III classification all the non-broad-based investment funds and those entities which are not covered under the I and II category are included in the third category of FIIs. Following are the types of the entities that fall under the third category of foreign institutional investors:

- (a) Hedge funds
- (b) Corporates
- (c) Endowments
- (d) Charitable societies
- (e) Individuals.

The entities categorized under I and II type of FIIs are largely government owned or regulated and thus, they do not need to furnish new documents for registering as per the regulation 4(f), (g), (h) and (i) of SEBI regulations 2014 as the requirements are held as fulfilled. The government also did away with the continuous need to obtain authorization in case of change in local custodian or designated depository

participant. However, those individuals who are non-resident Indians are not eligible to be registered as FIIs but are allowed to make investments in FIIs upon fulfilment of certain conditions.

## **8.1 SECTION-I VARIATION IN FOREIGN INFLOWS BY DIFFERENT CATEGORIES OF FIIS**

The research aims to analyse the variation in contribution to foreign inflows by the three different categories of FIIs. Foreign institutional investors have been categorized into three categories by the Securities and Exchange Board of India. Yearly data on the net investment by different categories of foreign institutional investors into the equity and debt segment of Indian capital markets is taken from National Securities Depository Limited. Since, the introduction of new SEBI norms of 2014, for FIIs, data related to net investment by different categories of FIIs was not available prior to 2012, which limits the study time period to 2012-2019.

### **8.1.1 Empirical Results**

Table 8.1 portrays the descriptive statistics related to investments in equity and debt instruments made by the different categories of FIIs during the period 2012-2019. The mean investment in equity stood at ₹11729413.60 crore and ₹1913386.27 crore in debt. The largest contribution to equity investments was estimated at ₹28874093.80 crore which was made by category -II FIIs that is FIIs regulated by the government. The inflows from category-II FIIs was ₹3828521.80 crore and they had the largest share in the total debt inflows. The mean investment and volatility of inflows varied between different categories of FIIs in equity and debt markets. The category II FIIs had a lion's share in foreign inflows in the equity and debt segment of the Indian stock market and the standard deviation of inflows revealed that the inflows from category II type of FIIs is the most volatile in both equity and debt market. Foreign inflows coming from category III and category I FIIs in the equity and debt market were the least volatile having the lowest standard deviation. The minimum investment in the equity segment was ₹ 83397 crore which is the minimum investment of category I FIIs. The maximum investment in equity market is ₹ 82381214 crore which is the maximum investment of category II FIIs. Similarly, the

minimum investment in the debt segment was ₹ 2211 crore which is the minimum investment of category III FIIs. The maximum investment in equity market is ₹ 6780305 crore which is the maximum investment of category II FIIs. Thus, it is inferred that category II FIIs are the largest contributors to foreign institutional inflows in the equity and debt securities of the Indian stock market. Further, the analysis of skewness reveals that the investments of equity are right skewed. Skewness measures the symmetry in the data and kurtosis highlights the shape of a distribution. A reading of the kurtosis reveals that inflows of category II in equity are leptokurtic and inflows in debt are platykurtic. Clearly, the descriptive statistics show that investments made by category II type of FIIs are more volatile and contribute a larger share to both equity and debt instruments.

**Table 8.1 : Descriptive Statistics**

	Category	Mean	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
<b>Equity</b>	Equity	11729413.60	21015822.51	83397	82381214	3.11	10.38
	C1	4502499	4107522.36	83397	11149543	1.21	2.27
	C2	28874093.80	31134843.45	9008952	82381214	1.86	3.36
	C3	1811648	1978265.21	325209	5025833	1.43	1.51
<b>Debt</b>	Debt	1913386.27	2265840.75	2211	6780305	1.35	0.45
	C1	1149414.20	903124.79	265302	2570792	1.10	1.10
	C2	3828521.80	3035506.82	540712	6780305	-0.46	-3.12
	C3	762222.80	984106.56	2211	2416583	1.61	2.81

Table 8.2 reports the results of Kolmogorov-Smirnov and Shapiro-Wilk test to check the normality of the data. Data normality is important as it helps to ascertain the tools that will further be used in data analysis. Table 8.2 presents the statistics, degree of freedom and the p-value of the results. The null hypothesis gets accepted if the calculated p-value is greater from acceptable level of 0.05 and a smaller p value compared to 0.05 causes a rejection of the null hypothesis. The table below shows the p-values of the three categories of FIIs in the equity and debt markets. According to the Shapiro-Wilk and Kolmogorov-Smirnov test, the p-value of category 1,

category 2 and category 3 FIIs in equity markets is 0.79, 0.07, 0.38 and 0.20, 0.11 and 0.20 respectively. Similarly, the Shapiro-Wilk and Kolmogorov-Smirnov test, p-value of category 1, category 2 and category 3 FIIs in debt market is 0.94 0.06, 0.59 and 0.20, 0.13 and 0.20 respectively. Since, all the p-values are greater than the p-value of 0.05, the null hypothesis of normally distributed data is accepted and alternate hypothesis of non-normal data is rejected.

**Table 8.2 : Test of Normality**

	Category	Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistic	df	P-value	Statistic	df	P-value
Equity	C1	0.25	5	0.20	0.96	5	0.79
	C2	0.32	5	0.11	0.79	5	0.07
	C3	0.22	5	0.20	0.89	5	0.38
Debt	C1	0.15	5	0.20	0.98	5	0.94
	C2	0.31	5	0.13	0.77	5	0.06
	C3	0.20	5	0.20	0.93	5	0.59
5 percent significance							

Once, the normality of the data is established the next step is to ensure whether there exists homogeneity of variances amongst the groups. To check notion that the groups have homogenous variance the study has conducted Levene's Test of Homogeneity of Variances. Table 8.3 shows the Levene Statistic for equity is calculated at 3.49 having a p-value of 0.06 and the Levene Statistic for debt is estimated 4.94 with a p-value of 0.02.

**Table 8.3 : Test of Homogeneity of Variances**

	Levene Statistic	Df1	P-Value
<b>Equity</b>	3.49	2	0.06
<b>Debt</b>	4.94	2	0.02
Df1 represents one degree of freedom			

The p-value of equity is more than the acceptable alpha value of 0.05 which attests to the fact that variances of groups is homogenous in equity, while the p-value of debt is less than 0.05 which states that there exists heterogeneity in variance in debt market. However, the robustness of the homogeneity of debt is further checked from Brown-Forsythe and Welch test. The p values for both Brown-Forsythe and Welch test are estimated at 0.18 and 0.08 which is greater than 0.05, thus implying presence of homogeneity amongst groups (FIIs categories) in debt and equity markets.

Table 8.4 documents the results of One-way ANOVA which is conducted to determine whether there exists any statistical variation in inflows between different categories of foreign institutional investors in equity and debt respectively. The results of One-way ANOVA reveal that there exists significant statistical difference between the investments made by different categories of foreign institutional investors when investing in the equity segment of the stock market. The result is statistically significant as the p-value of 0.010 is less than the p value of 0.05, thus rejecting the null hypothesis of no statistically significant difference and accepting the alternate hypothesis of significant difference in investment by different categories of foreign institutional investors.

**Table 8.4 : One-way ANOVA**

		<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>P-value</b>
<b>Equity</b>	Between Groups	38101192.37	2	19050596.19	6.94	0.010
	Within Groups	32939668.55	12	2744972.38		
	Total	71040860.92	14			
<b>Debt</b>	Between Groups	3096171.54	2	1548085.72	3.26	0.074
	Within Groups	5701310.77	12	475109.23		
	Total	8797482.32	14			

However, the same does not hold true for investments made by different categories of FIIs in the debt segment of the stock market. The p-value for debt segment is estimated at 0.07, which is greater than the acceptable level of significance of 0.05.

Thereby, implying there exists no statistically significant difference in investments made by different categories of foreign institutional investors in the debt segment of the stock market.

The result of One-way ANOVA revealed that there exists statistically significant difference between the investments made by different categories of foreign institutional investors in equity segment of the market. However, the results of ANOVA do not reveal which groups of foreign institutional investors differs in their investments. To further, understand the difference amongst the categories and which category differs in investments from other category, the study has conducted a Tukey post hoc test. Post hoc test is applied once an event has happened. The Tukey post hoc test also helps to restrict the rate of error. The results of Tukey Post Hoc test are reported in table 8.5 as follows:

**Table 8.5 : Tukey Post Hoc Test**

Category (I) Category(J)	Mean Difference (I-J)	Std. Error	P- value	95% Confidence Interval	
				Lower Bound	Upper Bound
<b>C1</b> <b>C2</b>	2980.48	1047.85	0.03	-5776.00	-184.96
	<b>C3</b>	693.31	1047.85	0.79	-2102.20
<b>C2</b> <b>C1</b>		2980.48	1047.85	0.03	-184.96
	<b>C3</b>	3673.79	1047.85	0.01	-878.27
<b>C3</b> <b>C1</b>	-693.31	1047.85	0.79	-3488.83	2102.20
	<b>C2</b>	-3973.79	1047.85	0.01	-6469.31

The Tukey Post Hoc test reveal that there exists significant difference in the mean investments made by category-I and category-II of FIIs and category-II and category-III of FIIs, whereas, no difference exists in the investments made by category-I and category-III of FIIs.

### 8.1.2 Empirical Results for Each Year

Table 8.6 reports the year-wise descriptive statistics highlighting the mean, standard deviation (SD), skewness and kurtosis of the variables undertaken during the sample period. Firstly, the descriptive statistics for the year 2012 are presented. The resultant statistics revealed that the average foreign institutional investments were calculated at ₹789413 crore and ₹128406.47 crore in equity and debt segment respectively. The maximum investments in equity segment were estimated at ₹ 5486274 crore which was contributed by category II FIIs and ₹ 677111 crore was the maximum investments in debt segment which was also contributed by category II FIIs. The results of overall kurtosis reveal that FIIs investment in equity and debt were leptokurtic and platykurtic respectively. Furthermore, the distributions were right skewed in the equity and debt instruments. The study presents an analysis of the descriptive for each category in equity and debt. The mean average investments in 2012 for category I, II and III FIIs was ₹ 355041.20 crore, ₹1623777.20 crore, ₹1363664.92 crore, ₹166390.12 crore, ₹273196 crore and ₹59181.40 crore in equity and debt markets respectively. The mean foreign institutional inflows into equity by category-II FIIs were highest and debt inflows of category-I FIIs were highest in the year 2012. The reading of standard deviation values of foreign investment showed inflows from category-II FIIs were the most volatile in both equity and debt market. It was also found that foreign inflows of category-II FIIs were twice as volatile as Category-III and four times more volatile than category-I FIIs with respect to equity markets. Furthermore, the category-II FIIs were thrice as volatile as category-I and twice as volatile as category-III FIIs with respect to debt markets. A reading of the skewness revealed that all FII inflows from all categories in equity and debt markets were positively skewed. However, the equity inflows from category-I and debt inflows from category-II were platykurtic and inflows from all other categories were leptokurtic.

The research further presented a descriptive analysis of FII investment for the year 2013. The average equity investments in 2013 was estimated at ₹962479.33 crore and

debt at ₹127728.80 crore. The maximum inflows in equity market were calculated ₹6665594 crore and ₹718021 crore in debt market which was contributed by category-II FIIs respectively. The standard deviation values for all the categories revealed that in the equity and debt markets, inflows from category-II FIIs were the most volatile. The volatility of category-II type of FIIs was three times more and five times more than category-I FIIs in equity instruments. Further, the examination of the skewness value revealed the equity investment by all the categories of FIIs was positively skewed and debt investment by category-II FIIs was moderately skewed. The value of kurtosis indicated that equity investment from category-I and debt investments from category-II were platykurtic while rest of the investments in equity and debt were leptokurtic. The research further presents the descriptive on foreign inflows in the equity and debt market for the year 2014. In the year 2014, the average inflows in the equity markets were estimated at ₹1022680 crore and debt markets at ₹166737.33 crore. Compared to the year 2013 and 2012, the average investment increased by ₹60200.67 crore and ₹39008.53 crore and ₹233267 crore and ₹38330.86 crore in equity and debt instruments respectively. This implied that foreign institutional investors have a positive outlook towards the Indian capital markets. The mean average inflows from category- I, II and III was estimated at ₹335878.40 crore, ₹2489859.80 crore, 242301.80 crore, ₹19372.40 crore, ₹346534.20 crore and 44305.40 crore in equity and debt respectively. The figures of standard deviation for the year 2014, disclosed that inflows from category-II FIIs compared to category I and II were the most volatile in equity and debt markets. The minimum investment in equity was estimated at ₹3827 crore which came from category-I FIIs and maximum investment stood at ₹6766225 crore which was contributed by category-II FIIs. Similarly, the minimum investment in debt was estimated at ₹1 crore which came from category-III FIIs and maximum investment stood at ₹701533 crore which was contributed by category-II FIIs. The reading of skewness and Kurtosis revealed that investments from all categories in equity and debt segments was right skewed while the investments from all categories in debt were platykurtic and leptokurtic investments in equity instruments.



Furthermore, the analysis of descriptive for the year 2015 revealed that the average investment in equity increased to ₹ 1627950.07 crore and in debt to ₹269997.40 crore from the previous year. The overall minimum investment in equity stood at ₹102 crore and at ₹29 crore in debt, while, the maximum investment in equity was estimated at ₹11425199 crore and ₹1045680 crore in debt. The minimum investment in equity and debt came from category-I and category-III and maximum investment was contributed by category-II investors both in equity and debt instruments. The standard deviation values signaled that investments coming from category-II FIIs were the most volatile in equity and debt markets. The volatility of category-II FIIs was five times more than the category-I in equity segment and two times more than category-I and four times more than category-II in debt segment of the Indian markets. The readings of skewness revealed that investments from different categories in equity and debt are positively skewed except for category-II FIIs in debt segment are negatively skewed. Similarly, an analysis of the kurtosis of different categories in equity and debt found inflows from category-II and III in equity and category III in debt were platykurtic, while the investments from category-I in equity and debt were leptokurtic. Further, in the year 2016, the average FIIs investment in equity rose to ₹1626889.67 crore and in debt it increased to ₹270182.47 crore. Also, the overall minimum investment in equity and debt increased to ₹1389 crore and ₹95 crore and the maximum investment increased to ₹11230572 crore and ₹917863 crore compared to the previous year. The volatility of inflows of category-II FIIs was the highest in equity and debt instruments amongst all other categories of FIIs. The skewness value implied that inflows from all categories were positively skewed expect inflows from category-II investors in debt were negatively skewed.

**Table 8.6 : Descriptive Statistics of Each Year**

		<b>Category</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>2012</b>	<b>Equity</b>	C1	355041.20	509676.59	0	1156906	1.28	0.45
		C2	1623777.20	2163889.80	513877	5486274	2.21	4.91
		C3	1363664.92	784627.98	6045	1790909	2.22	4.93
	<b>Debt</b>	C1	166390.12	91448.34	0	213175	2.03	4.16
		C2	273196	299453.98	1762	677111	0.72	-2.20
		C3	59181.40	105438.69	0	243350	1.99	4.01
<b>2013</b>	<b>Equity</b>	C1	475654.60	659740.97	0	1493317	1.18	-0.36
		C2	2002081.40	2620509.55	431667	6665594	2.17	4.80
		C3	409702.00	84682.30	0	1929033	2.23	4.98
	<b>Debt</b>	C1	41873.60	58140.04	2140	144173	2.05	4.37
		C2	291141.60	318776.31	997	718021	0.56	-2.03
		C3	50171.20	103666.61	0	235364	2.22	4.95
<b>2014</b>	<b>Equity</b>	C1	335878.40	309603.37	3827	717023	0.35	-2.46
		C2	2489859.80	2454905.07	758335	6766225	1.96	3.96
		C3	242301.80	505100.08	5079	1145457	2.23	4.98

		<b>Category</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Skewness</b>	<b>Kurtosis</b>
	<b>Debt</b>	C1	109372.40	125136.32	5959	292971	0.93	-0.97
		C2	346534.20	273145.98	55551	701533	0.18	-1.82
		C3	44305.40	57159.95	1	130465	1.06	-0.50
<b>2015</b>	<b>Equity</b>	C1	538153.40	843835.43	102	1991909	1.87	3.48
		C2	9553520.64	4216894.78	1317433	11425199	1.69	2.68
		C3	28142.60	39719.48	985	95346	1.72	2.82
	<b>Debt</b>	C1	158582.60	231400.36	1480	562459	1.97	4.04
		C2	577481	470629.50	35386	1045680	-0.45	-3.00
		C3	73928.60	104454.74	29	225961	0.96	-1.27
<b>2016</b>	<b>Equity</b>	C1	629020.80	921619.91	1389	2227159	1.90	3.82
		C2	4143665.60	4282095.02	1060212	11230572	1.57	2.01
		C3	107982.60	127730.29	5338	324049	1.67	3.01
	<b>Debt</b>	C1	180482.60	177505.83	3552	421731	0.48	-1.63
		C2	526073.40	412811.39	82124	917863	-0.46	-3.11
		C3	103991.40	159842.24	95	367395	1.54	1.84
<b>2017</b>	<b>Equity</b>	C1	719713.60	790357.46	9547	1755124	0.52	-2.27
		C2	5111828.00	5437067.60	1125375	14070867	1.54	1.87
		C3	196135.60	275310.71	4750	660831	1.71	2.70

		<b>Category</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Skewness</b>	<b>Kurtosis</b>
	<b>Debt</b>	C1	187739.40	139351.96	4165	342886	-0.29	-1.64
		C2	635957.80	543435.99	76143	1224766	-0.12	-2.88
		C3	117048.20	184212.11	652	423896	1.62	2.20
<b>2018</b>	<b>Equity</b>	C1	698423.40	717617.07	20662	1559864	0.29	-2.73
		C2	4861700.80	5485345.31	1072942	13977824	1.59	2.16
		C3	222810	296865.79	5702	719585	1.63	2.45
	<b>Debt</b>	C1	202897	137248.55	4428	375448	-0.43	0.63
		C2	621906.80	555596.81	82070	1251519	0.17	-2.88
		C3	462306.94	251003.27	39	580191	1.82	3.19
<b>2019</b>	<b>Equity</b>	C1	750613.60	724006.48	19627	1527490	-0.02	-2.93
		C2	4323626.80	4921401.15	872122	12758659	1.82	3.29
		C3	215152.80	217225.44	18863	559543	1.12	1.27
	<b>Debt</b>	C1	215624.60	138439.75	2952	387325	-0.70	1.92
		C2	556231	489154.01	87143	1107820	0.33	-3.01
		C3	162951.40	292340.77	1395	678350	2.08	4.39

Moreover, the Kurtosis of investment from different categories of FIIs implied equity investment by category-II and debt investments by category-I and III were platykurtic and equity investments by category-III investors was mesokurtic while, the investment from category-I and category-II in equity and debt was leptokurtic. Likewise, the average investment in equity grew to ₹2009225.73 crore and ₹313581.80 crore in debt market in the year 2017. The minimum investment increased to ₹4750 crore from ₹1389 crore in equity and minimum investment in debt increased to ₹652 crore from ₹95 crore in debt compared to the previous year. Similarly, the maximum investment grew to ₹14070867 crore in equity and ₹1224766 crore in debt. Like the previous years, the maximum investment in equity and debt was contributed by category-II investors. The volatility of inflows is maximum of category-II FIIs both in equity and debt segment. The volatility of category-II FIIs is almost five times more the combined volatility of category-I and II in equity. Similarly, the volatility of category-II investors is more than the combined volatility of all other categories of investors in debt segment. Thus, it has been found that like the average inflows for each category varies the volatility for each category also varies across equity and debt markets. The investment inflows into equity from all categories are positively skewed and only the third category of FIIs investment into debt is positively skewed while, the investment of category I and II are negatively skewed. An analysis of the kurtosis of the investments reveals that all investments into equity and debt by different categories of FIIs are platykurtic.

However, for the first time in the period of eight years the average net investments in equity markets decreased to ₹1927644.73 crore from previous year investment of ₹2009225.73 crore while, the investment in debt increased to ₹325149.67 crore compared to previous year investment of ₹313581.80 crore in the year 2018. The minimum investment in equity stood at ₹5702 crore and ₹39 crore in debt. The minimum investment in equity and debt was made by category-III investors in the same year. While, the standard deviation values showed the investments from category-II FIIs were the most volatile in both equity and debt markets. The skewness figures revealed investments from all the categories were positively skewed except investment from category-I FIIs in debt markets. A similar picture

was drawn when the kurtosis values were evaluated. It was found all of the investments originating from category-I, II and III investors into equity and debt were platykurtic. In the year 2019, the average investments into the equity segment declined for the second year. The average investment was reduced to ₹1763131.07 crore from ₹1927644.73 crore and to ₹311602.33 crore from ₹325149.67 crore in equity and debt instruments respectively. Similar to the previous years, the largest contribution to equity and debt inflows was made by category-II investors estimating ₹4323626.80 crore and ₹556231 crore. Moreover, the standard deviation values of category-II investors were the largest for equity and debt markets which pointed towards the volatile nature of inflows from the investors. The investment flows of category-I investors were negatively skewed in both equity and debt market and positively skewed for all other categories of investors. Only, the investments coming from category-III investors in debt market was leptokurtic and all others investments were platykurtic. The descriptive analysis of the inflows for each year ranging from 2012-2019 has shown that the largest contribution to equity and debt markets has been made by category-II investors. At the same time, the investments originating from category-II investors in equity and debt market have been found to be the most volatile amongst all other types of investors. Thus, it can be assessed that the category-II type of FIIs, that is, those FIIs which are regulated or those entities whose managers or brokers are regulated contribute the most to the foreign institutional investments in the Indian stock markets. This also implies that the investments into the Indian stock markets are originating from regulated sources and a background check can be conducted to identify the source of foreign investments.

Table 8.7 reports the results of One-way ANOVA for each year from the time period 2012 to 2019. One-way ANOVA explains if a statistically significant difference amongst the investments made by different categories of FIIs in equity and debt component of Indian market exists. Firstly, the research has examined if a statistically significant difference in investments by different categories of FIIs in equity and debt component of the market exists for the year 2012. The results estimated by One-way ANOVA showed the  $F(2,12) = 2.50$  and a p-value of 0.12 for equity investments and a  $F(2,12) = 2.17$  and a p-value of 0.16 for debt investments.

The p-value exhibits whether the groups means are statistically significant or not. The calculated p-value for between groups in equity and debt was more than 0.05, thus it implied, there is no significant and statistical difference in the investments made by different categories of FIIs. The results of one-way ANOVA for 2013 painted a similar picture as the year 2012 as the  $F(2,12) = 2.66$  and a p-value of 0.11 for equity investments and a  $F(2,12) = 2.17$  and a p-value of 0.15 for debt investments. The p-value for difference between the groups was greater than the acceptable level of 0.05, which led to the acceptance of null hypothesis that there is no statistically significant variation amid investments made by different categories of FIIs investors in the equity and debt instruments of Indian market.

**Table 8.7 : One-way ANOVA for Each Year**

Year			Sum of Squares	Df	Mean Square	F	P-value
2012	Equity	Between Groups	1645990.88	2	822995.44	2.50	0.12
		Within Groups	3950297.78	12	329191.48		
		Total	5596288.66	14			
	Debt	Between Groups	273783.35	2	136891.67	2.17	0.16
		Within Groups	756465.69	12	63038.80		
		Total	1030249.04	14			
2013	Equity	Between Groups	2123388.53	2	1061694.26	2.66	0.11
		Within Groups	4781406.14	12	398450.51		
		Total	6904794.67	14			
	Debt	Between Groups	270800.51	2	135400.25	2.17	0.15
		Within Groups	748857.24	12	62404.77		
		Total	1019657.75	14			
2014	Equity	Between Groups	3769560.58	2	1884780.29	7.51	0.008
		Within Groups	3009382.71	12	250781.89		
		Total	6778943.29	14			
	Debt	Between Groups	383560.16	2	191780.08	4.39	0.03
		Within Groups	523410.45	12	43617.53		
		Total	906970.61	14			

Year			Sum of Squares	Df	Mean Square	F	P-value
2015	Equity	Between Groups	8712319.97	2	4356159.98	10.95	0.002
		Within Groups	4773949.23	12	397829.10		
		Total	13486269.20	14			
	Debt	Between Groups	648636.66	2	324318.33	3.54	0.06
		Within Groups	1087815.21	12	91484.60		
		Total	1746451.88	14			
2016	Equity	Between Groups	6815857.60	2	3407928.80	7.75	0.007
		Within Groups	5274650.50	12	439554.20		
		Total	12090508.10	14			
	Debt	Between Groups	497721.18	2	248860.59	3.05	.085
		Within Groups	979168.48	12	81597.37		
		Total	1476889.64	14			
2017	Equity	Between Groups	7879277.36	2	3939638.68	7.13	0.009
		Within Groups	6625058.84	12	552088.23		
		Total	14504336.21	14			
	Debt	Between Groups	594218.30	2	297109.15	3.10	0.08
		Within Groups	1149635.17	12	95802.93		
		Total	1743853.47	14			
2018	Equity	Between Groups	6898479.82	2	3449239.91	6.08	0.01
		Within Groups	6797302.44	12	566441.87		
		Total	13695782.27	14			
	Debt	Between Groups	52295.07	2	261497.53	2.50	0.12
		Within Groups	1252487.63	12	104373.97		
		Total	1775482.70	14			
2019	Equity	Between Groups	5759821.16	2	2879910.58	5.85	0.01
		Within Groups	5906843.14	12	492236.92		
		Total	11666664.31	14			
	Debt	Between Groups	411680.79	2	205840.39	2.17	0.15
		Within Groups	1135261.29	12	94605.10		
		Total	1546942.05	14			



However, the scenario changed in the year 2014, as the  $F(2,12) = 7.51$  and a p-value of 0.008 for equity investments and a  $F(2,12) = 4.39$  and a p-value of 0.03 for debt investments signaled that there exists statistically significant difference in the inflows by different categories of FIIs in equity and debt. Though the results of one-way ANOVA reveal that there is an overall significant variation in investment inflows amid different categories of FIIs the results do not showcase which categories differs. Thus, to infer the difference and identify which category differs from another, the study conducted Tukey-Post Hoc tests. The results of the test for equity markets revealed that the difference between mean investment of category-I and category-II has a p-value of 0.02, while the difference between category-I and III has a p-value of 0.81 and difference between category-II and III has a p-value of 0.009. Therefore, the results suggested that there exists significant difference in the investment inflows between category-I and II FIIs and category-II and III FIIs while no significant difference exists between the inflows of category-I and III FIIs. While, the result of test for debt showcases that the difference between category-II and III is significant and the inflows between category I and III and I and II are not statistically significant.

Furthermore, the results of one-way ANOVA for 2015, are reported as  $F(2,12) = 10.95$  and a p-value of 0.002 for equity investments and a  $F(2,12) = 3.54$  and a p-value of 0.06 for debt investments. The p-value for equity investments is less than the acceptable p-value and thus it rejected the null hypothesis and accepted the alternate hypothesis that there exists statistically significant variation between the investments made by different categories of FIIs in the equity markets. However, the p-value for between groups for debt instruments was more than 0.05 thus, signalling towards no significant difference in investment amongst the different categories of FIIs in debt market. The result of Tukey-Post Hoc test indicated that there exists statistically significant difference amid inflows of category-I and II (p-value = 0.012), category-III and II (p-value = 0.002) and insignificant variation amongst category-I and III FII inflows (p-value = 0.605) in the equity market. The results of 2016 presented a similar picture as that of 2015, as the estimated ANOVA value was  $F(2,12) = 7.75$  and a p-value of 0.007 for equity investments and a  $F(2,12) = 3.05$  and a p-value of 0.08 for debt investments, implied presence of significant difference between inflows

by groups of FIIs in equity markets and insignificant difference between inflows by groups of FIIs in debt market. The results of Tukey-Post Hoc test have an estimated p-value of 0.02 for difference between category-I and II, p-value of 0.008 for category-II and III. The significance of p-values directs towards the fact that the difference in FIIs investment in equity segment between groups is due to the difference in investment preferences of category-I and II and category-II and III FIIs. Similarly, the results of one-way ANOVA for the year 2017 was  $F(2,12) = 7.13$  and a p-value of 0.009 for equity investments and a  $F(2,12) = 3.10$  and a p-value of 0.08 for debt investments, signified that there exists no statistically significant difference in the investment inflows by different categories of FIIs in the debt market while significant difference between categories of FIIs was observed in the equity markets. Moreover, the results of Tukey-Post Hoc test showed there exist significant and statistical difference amid the investments made by category-I and II and category-II and III FIIs investors in equity markets. The result of one-way ANOVA for the year 2018 was  $F(2,12) = 6.08$  having a p-value of 0.01 for equity investments and a  $F(2,12) = 2.50$  having a p-value of 0.12 signaled there exists statistically significant variation in the investment inflows by different categories of FIIs in the equity market while no significant difference in investment between different categories of FIIs was observed in the debt markets. The Tukey-Post Hoc values showed that difference between the categories-II and III investments have a p-value of 0.01 and for categories-I and II and categories-I and III have a p-value of 0.052 and 0.79, implying there is difference in inflows between category-II and III and no significant difference between the categories-I and III and II and III. The one-way ANOVA results for 2019 painted a picture similar to that of 2018, as the calculated  $F(2,12) = 5.85$  have a p-value of 0.01 for equity investments and a  $F(2,12) = 2.17$  have a p-value of 0.15 which indicated towards a significant variation in inflows amongst three categories of FIIs only in equity segment and no significant difference in investment by the three categories of FIIs in debt markets. Similarly, the result of Tukey-Post Hoc test revealed that p-value of difference between category-II and III is estimated at 0.01 while for category I and II and category-I and III is estimated at 0.06 and 0.76. Thus, stating that the difference in investment by different categories of FIIs in equity segment is due to the different in inflows between category-II and III of FIIs investors.

Thus, it has been inferred that majority of the difference in foreign inflows amongst different categories of FIIs is seen in investments made in equity markets. Also, the difference amongst the group means for equity investment is due to the difference in the investments made between category-I and II and category-II and III FIIs investors. It has also been observed that the investments from category-II FIIs is the most volatile and the majority of the inflows are contributed by the second category of FIIs which are the government related or the agencies regulated by the government or an appropriate authority. Since, the volatility of foreign inflows is highest amongst the category-II FIIs thus it is required that the government should introduce norms which bolster their sentiments towards investing in India. Furthermore, steps can be introduced to widen the scope for entities like- broker dealer and swap dealer that can register under category-II FIIs. This will widen the scope for different types of investors to invest in Indian markets and reduce the volatility in the inflows. Moreover, if an FII requests for registration with the Indian government, it takes more than two months' time for the entire registration process to finish. To avoid the long process and discouragement amongst foreign institutional investors the government can aim to reduce the months' time to a week which will speed-up the process of registration and encourage FIIs towards investing in the Indian stock market. Furthermore, to smoothen the inflow from FIIs the government can also introduce steps which will help to lessen the repetitive paper-work which discourages the foreign investors from registering and investing in India. It has also been observed that the regulatory and tax environment in Indian markets is more complex and difficult compared to their emerging markets counterparts (Report on foreign portfolio investor survey 2016-17, Price Waterhouse Cooper). Therefore, steps are needed to streamline the regulatory and tax setting to maintain the inflow from foreign institutional investors.

It has also been found that a large chunk of foreign institutional investments is directed towards the equity market and a small amount is invested in the debt markets. Therefore, adequate measures can be taken to enhance the foreign institutional investors investment limit in debt securities. Such steps are likely to create more room for investments in debt securities and contribute to inflows. The

year-on-year increase in foreign institutional investments in equity and debt segment signals towards a positive FIIs outlook for India. Thus, it is required that the Indian government should continue to introduce reforms and policies which helps to strengthen the confidence and investment sentiment of FIIs.

## **8.2 SECTION-II DETERMINANTS OF FOREIGN INSTITUTIONAL INVESTMENTS**

The research also looks to assess the determinants of foreign institutional investments in Indian stock markets. For the purpose of estimation seven variables have been classified as the possible determinants of FIIs in India. The variables have been explained in detail in appendix-3. Owing to an absence of continuous data with respect to the variables identified as possible determinants of foreign institutional investments and lack of exhaustive work regarding the same has created a research gap identifying the important determinants of foreign institutional investments in India.

### **8.2.1 Empirical Results**

Table 8.8 and 8.9 shows the descriptive statistics and correlation matrix of the data undertaken in the study.

**Table 8.8 : Descriptive statistics**

<b>Variables</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Skewness</b>	<b>Kurtosis</b>
<b>FII/GDP</b>	1.039	0.907	-.841	2.775	-0.111	-0.106
<b>ER</b>	33.938	1.111	32.540	35.670	0.488	-1.384
<b>FR</b>	42.498	1.543	39.130	44.540	0.647	-0.292
<b>PR</b>	60.229	2.770	54.920	63.710	0.498	-0.897
<b>Fm_Dev</b>	63.979	23.353	22.893	113.333	0.077	0.217
<b>Size</b>	5.104	1.832	1.582	7.025	-0.918	-0.662
<b>TO</b>	261.637	239.813	94.791	960.589	2.646	5.901
<b>ROI</b>	-4.698	0.268	-5.106	-4.307	-0.004	-1.431

Correlation table 8.9 points at a powerful relationship amongst the variables identified in the study. The correlation coefficient between FIIs and rate of return on investment and FIIs and trade openness of the country pointed towards a presence of negative correlation between the variables. Whereas, the correlation coefficient between FIIs and political risk, FIIs and economic risk, FIIs and financial risk, FIIs and financial market development and FIIs and size of the economy signals towards positive association amongst the variables. The issue of multicollinearity amid the independent variables has also been tested using the VIF (Variance Inflation Factor) statistics. The value of VIF statistics is less than 10 which highlights that there does not exist any multicollinearity amongst the independent variables.

**Table 8.9 : Correlation Analysis**

<b>Variables</b>	<b>FII/GDP</b>	<b>ER</b>	<b>FR</b>	<b>PR</b>	<b>Fm_Dev</b>	<b>Size</b>	<b>TO</b>	<b>ROI</b>
<b>FII/GDP</b>	1.000							
<b>ER</b>	0.126	1.000						
<b>FR</b>	0.395	0.334	1.000					
<b>PR</b>	0.309	0.389	0.817	1.000				
<b>Fm_Dev</b>	0.225	-0.061	0.559	0.638	1.000			
<b>Size</b>	0.597	0.320	0.686	0.747	0.388	1.000		
<b>TO</b>	-0.119	0.007	0.150	0.088	-0.050	0.322	1.000	
<b>ROI</b>	-0.117	0.441	-0.269	-0.297	-0.510	-0.450	0.853	1.000

Notes: FII/GDP – net foreign institutional investment as percentage of GDP; ER – economic risk; FR – financial risk; PR – political risk; Fm\_Dev – financial market development of the country; Size – growth of the GDP per capita capturing the size of the economy, TO – trade openness of the country which is estimated by the total of exports and imports of the country to GDP; ROI – rate of return on investment in the country.

The results of Augmented Dicky-Fuller Test are presented in table 8.10. The null hypotheses of no unit root are examined at 1 and 5 percent of significance. The results in table 8.10 showcases variables such as size of the economy and trade openness of the country does not have unit root at level whereas, foreign institutional

investments which have been taken as percentage of GDP, financial market development, financial risk, and economic risk do not contain unit root at their first difference and rate of return on investment and political risk do not contain unit root at the second difference.

After affirming stationarity in the series, the study has further enquired into the presence of autocorrelation. To test for autocorrelation amongst the series, Durbin-Watson test has been employed. The values of different variables estimated using Durbin-Watson are estimated at two, thus signalling towards an absence of autocorrelation amongst the variables. However, the results of Durbin-Watson test might produce spurious results if a lagged dependent variable act as a regressor in the model. In such a scenario, the validity of Durbin-Watson test results might not be effective and thus, require another test to affirm the absence of autocorrelation. The control for this shortcoming arising from the Durbin-Watson, the research has adopted Q-statistic test to examine the problem of autocorrelation in the series. The results of Q-statistic do not signal at a significant p-value which verifies that no serial correlation is present in the series.

**Table 8.10 : Augmented Dickey Fuller Test Statistics**

<b>Variables</b>	<b>Test Statistics</b>	<b>Critical Value a</b>	<b>Critical Value b</b>
<b>FII/GDP</b>	-5.394A	-3.081	-2.681
<b>ER</b>	-5.028B	-3.733	-3.310
<b>FR</b>	-3.200A	-3.119	-2.701
<b>PR</b>	-4.055A	-3.081	-2.681
<b>Fm_Dev</b>	-3.946A	-3.065	-2.673
<b>Size</b>	-3.268A	-3.052	-2.666
<b>TO</b>	-4.889A	-3.052	-2.666
<b>ROI</b>	-4.398B	-3.791	-3.342

Note: Ho: FII/GDP, ER, FR, PR, Fm\_Dev, Size, TO and ROI have unit root;  
A presents ADF model with constant and no trend;  
B presents ADF model with constant and trend;  
5 Percent Significance

To further check the issue of serial correlation in the model, the study has used Breusch-Godfrey serial correlation LM test. The null hypothesis formed is: the residuals are not autocorrelated. The probability chi-square value derived from the Breusch-Godfrey test is more than the acceptable level of 5 percent significance level. Thus, accepting the null hypothesis of no serial correlation in the residuals. Once, the absence of serial correlation in the residuals has been determined the next step is required to enquire into the problem of heteroscedasticity in the residuals. For the purpose of estimation of heteroscedasticity, the research has employed Breusch-Pagan-Godfrey test. The null hypothesis framed for checking heteroscedasticity is- errors are homoscedastic. The probability chi-square value derived from Breusch-Pagan-Godfrey test is more than the 5 percent level of significance, thus, pointing towards the presence of homoscedastic errors. Therefore, the results of VIF, Breusch-Godfrey test and Breusch-Pagan-Godfrey test determine that the model does not contain the issue of multicollinearity, serial correlation and heteroscedasticity. Furthermore, the results of difference GMM are displayed in Table 8.11 as follows:

**Table 8.11 : GMM Regression Results that Determine Factors Influencing FIIs**

<b>Variables</b>	<b>Coefficient</b>	<b>t-statistics</b>	<b>P- Value</b>
<b>ER</b>	-0.356	-1.945	0.083
<b>FR</b>	0.190	1.215	0.255
<b>PR</b>	-0.305	-5.132	0.000
<b>Fm_Dev</b>	0.013	3.643	0.005
<b>Size</b>	0.786	13.537	0.000
<b>TO</b>	-0.002	-6.100	0.000
<b>ROI</b>	2.372	2.623	0.027

Note: H1: Higher Economic Risk (ER) decreases the flow of FII  
H2: Higher Financial Risk (FR) decreases the flow of FII  
H3: Higher Political Risk (PR) decreases the flow of FII  
H4: Financial Market Development (Fm\_Dev) and FII are positively related  
H5: Size of economy (Size) and FII are positively related  
H6: Trade Openness (TO) attracts more FII  
H7: Return on Investment (ROI) and FII are positively related

The value of R-squared is estimated at 0.7821 which points at the model being a good-fit. A value of 0.7821 signals that 78.21 percent of variation in the dependent variable that is foreign institutional investments is explained by the independent variables taken in the study. The significance of probability value of F-statistics at 5 percent level of significance provides additional evidence to the goodness of fit of the model. The results also highlighted that the variables such as political risk, financial market development, trade openness of the country, size of the economy and rate of return on investment are important factors determining the FIIs in India. The results showcased a significant and negative impact of political risk on FIIs in India, implying that greater the political risk fewer the investment inflows from FIIs into the country. A political environment which is stable helps to maintain the faith of the international investors in the investment story of a nation due to the fact that a stable government is more focused in moving towards the road of development. Moreover, a steady government is less likely to function with corruptive practices and encounter religious or ethnic clashes.

Moreover, FIIs are investors of the long run looking to earn larger profits and thus capitalize on the adjustments in the stock market owing the fluctuations in the political atmosphere of the country. A change in the political environment thus poses an opportunity in front of the FIIs to make gains from the correction in the market and boost their returns. Therefore, it can be inferred that a high political risk hampers the inflows from FIIs and a low political risk attracts the inflows from FIIs. Though political risk is found to significantly influence the inflows of FIIs, evidence suggested that economic risk and financial market risk are insignificant in determining FIIs in India. Furthermore, development in the financial market is also found to exhibit a significant and positive impact on FIIs thus implying that a well-developed financial market appeals to foreign institutional investors looking to make investments into the country. A strong and developed financial market indicates towards proper regulation of the organizations in the market, affirming at the government's resilience to promote reforms in the market. A development of the financial market also suggests that the managers are competent enhancing the performance of their company thus creating a demand of the local companies amongst the foreign institutional investors which boosts the belief of FIIs in the



investment story of the country. A strengthening of the beliefs of FIIs thus, leads to their greater participation in the stock markets. Therefore, it is evidenced that FIIs base their investment decisions based on the development of the financial market of the country. The results also reveal that the trade openness of the country manifest a negative and significant impact on the FIIs investing in India. The negative bearing is largely due to the fact that India's trade policy is less open compared to the developed countries which creates a reluctance amongst the foreign investors to exploit the Indian markets as a basis of their international trade. Such, shyness amongst the foreign investors also hinders the inflows from FIIs. The government can overcome this issue by liberalizing the norms and frame policies that are contemporary to the international norms for the companies engaged in the trade of goods and services. Development of trade boosts the exports of a country which is a result of an increase in the exports of the firms involved in international trade. Increased exports brighten the future potential of a firm which draws investments from investors both domestically and globally. Moreover, an improved economic growth will further help to attract more investments from foreign investors.

The results further points towards rate of return on investment as a significant determinant affecting the inflows of foreign institutional investors in India. It was found that rate of return on investment bore a positive impact on FIIs investment decisions into the country which suggested that FIIs are pulled in by the high returns generated in the country. This can be evidenced by the fact that investors invest outside their country in search of greater profits and returns and those countries that generate a significant high rate of return will draw more foreign investments and appeal to foreign institutional investors. Thus, it can be inferred that higher the returns on investments higher the FIIs investment into the Indian stock market. Moreover, the results also found size of the economy positively influencing FIIs into the country which highlights that larger economic size attracts more inflows. It has also been evidenced that the market size of an economy acts as an essential element in ascertaining investments from foreign investors (Chakrabarti, 2001). Thus, it has been established that financial market development, trade openness of the country, rate of return on investment and size of the economy have a major role in determining the inflows from foreign institutional investors into the Indian stock

market. Out of the elements of country risk, political risk has been found to exhibit a significant influence on FIIs investments whereas, economic and financial market risks are not found to significantly influence the investments of FIIs.

A significance of political risk in determining FIIs investment decisions implies that the government should work to ensure a stable political environment and reduce the uncertainties and fears amongst the businesses. An unstable government is neither welcomed by businesses nor does it attract investments from foreign investors, thus a stable government is necessary for attracting investments from FIIs. To further strengthen the political environment efforts should be made towards promoting free speech and create a robust business environment by abolishing discriminating business policies. Thus, it is required that the Indian government should continuously monitor its political environment, international trade policies and developments in the financial market to maintain and enhance the inflows from foreign institutional investors. Measures should be aimed at eliminating the restrictions that hinders the foreign inflows to encourage greater participation from foreign institutional investors into the Indian stock market. An economy that attracts the foreign investors draws in additional investments enabling a judicious management of financial resources and promote economic development of the nation.

### **8.3 SUMMARY**

The Indian markets are buoyed by the strong growth fundamentals and consistent efforts by the government in the ease of doing business has helped India become a favourite destination for investment by foreign institutional investors. According to the 2018 World Bank Report on Ease of Doing Business, India ranked 77. The Indian government is continuously working towards making the country investor friendly, especially to investors originating from different countries across the globe. The government aims to attract foreign investment by streamlining the process of FIIs entry and investments into the market. The research has focused on the investments made by different types of FIIs into Indian markets and the determinants of FIIs investments into India. FIIs are divided into three categories, namely, category-I sovereign and international entities, category-II regulated entities and category-III unregulated entities.

The results revealed that there exists statistically significant difference between the investments made by different categories of foreign institutional investors in equity segment of the Indian market. The study conducted Tukey post hoc test which implied significant difference exists in the mean investments made by category-I and II and category-II and III of FIIs. Majority of the difference in foreign inflows amongst different categories of FIIs was seen in investments made in equity markets and the difference in the group means for equity investment was due to the difference in the investments made between category-I and II and category-II and III FIIs investors. It was also observed that the investments from category-II FIIs was the most volatile and the majority of the inflows are contributed by the second category of FIIs which are the government related or the agencies regulated by the government or an appropriate authority. The volatility of foreign inflows was highest amongst the category-II FIIs which points towards the need to introduce norms bolstering their sentiments towards investing in India. Furthermore, steps can be introduced to widen the scope for entities like- broker dealer and swap dealer that can register under category-II FIIs. This will widen the scope for category-II of FIIs and reduce the volatility in their inflows. It was also found that a large chunk of foreign institutional investments into India is directed towards the equity market and a small amount is invested in the debt markets. Therefore, adequate measures can be taken to enhance the foreign institutional investors investment limit in debt securities.

The study also examined the determinants of foreign institutional investments in India and the results of GMM model found political risk, financial market development, trade openness of the country, size of the economy and rate of return on investment as important factors determining FIIs investments. The results showcased a significant and negative impact of political risk on FIIs in India, implying that greater the political risk fewer the investment inflows from FIIs into the country. The results also established that financial market development, trade openness of the country, rate of return on investment and size of the economy had a major role in determining the inflows from foreign institutional investors into the Indian stock market. Financial market development, rate of return on investment and size of the economy had a positive influence whereas, trade openness of the country

exerted a negative influence on the investment decisions of FIIs. If the Indian government wants to sustain the inflows from foreign institutional investors it is required that the government should continuously monitor its political environment, international trade policies and developments in the financial markets. Measures should be aimed at eliminating the restrictions that hinders the foreign inflows to encourage greater participation from foreign institutional investors into the Indian stock market. Efforts should be aimed towards framing policies that sustain the current investment environment and adopt fresh measures to boost the rate of return earned by the investors. An economy that attracts the foreign investors draws in additional investments enabling a judicious management of financial resources and promote economic development of the nation.

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## Chapter – 9

# SUMMARY, CONCLUSIONS AND SUGGESTIONS

Foreign institutional investors have been a pivotal source of foreign inflows into the Indian market and has helped in providing a boost to the domestic stock prices. FIIs help in fulfilling the financial needs of the companies as they invest into the stocks which bridges the gap between the haves and have not. Such investments in the stock market boosts the liquidity and increase the volume of the market which is fundamental for the growth and development of an emerging market such as India. Though FIIs are significant in promoting growth and development of emerging economies, investments from foreign investors pose certain issues and challenges which can wreak havoc in the market of the home country. Therefore, it is essential to monitor and examine investments emerging from FIIs into a country. The study thus focuses on analyzing the foreign institutional investments in the Indian stock market.

The present chapter provides the summary and conclusions of the research conducted and provides suggestions to help facilitate, monitor and understand the inflows from FIIs into the Indian economy. The chapter also highlights few measures which can help to streamline and stimulate the flow of FIIs investments in accordance to the policies of the government.

### 9.1 SUMMARY AND CONCLUSIONS

In today's globalized economy, it is not only the land resources that count towards prosperity of a country, it is the industrial resources and development of the economy that counts. Countries like USA and UK are more developed in comparison to India due to the fact that these countries have more international collaborations as they attract foreign investments from all sources. These foreign investments bring with them better infrastructure, technology and generate employment opportunities, thus, paving road for development. On the other hand, India is a developing country and to help the country take a quantum leap from developing world to developed world

India cannot operate with its doors closed. The research has therefore, analysed the foreign institutional investments in Indian stock market. The conclusions which have been summarized are presented below.

- Empirical evidence showcased FIIs have largely remained bullish towards the Indian markets owing to the strong domestic fundamentals of the country. Though the initial years saw a lukewarm response from FIIs, investments gained momentum as the government started to open new avenues for investments and provided clarity on the different rules and regulations levied on the investment of FIIs.
- It was also observed that the Indian markets were not immune to the happenings around the globe. The influence of global sentiment on Indian markets was seen during the times of turmoil in the markets all over the world.
- During the phase of 2007-08 markets all over the globe witnessed a decline in the commodity prices, equity markets and a major correction in the Asian markets was experienced. The impact of bearish global sentiment was also felt on the Indian markets as the Indian stocks underwent a major selling spree amongst the investors.
- The chaos in the global markets affected the risk appetite of FIIs for emerging markets causing them to reduce their exposure to emerging economies like India. The mayhem in US markets such as the collapse of Lehman brothers and US Subprime crisis added fuel to the fire and panic amongst investors across the globe.
- Investors lost faith in US banking policies and rushed towards safe haven assets dismissing the emerging markets. This added to the selling pressure in securities markets of India and other emerging countries. FIIs turned their back to Indian markets as the global meltdown created panic amongst investors and raised concerns about developed countries governments' ability to take control of the situation.
- Though it was evidenced that global market sentiment did influence FIIs investment decisions towards emerging countries like India. But the domestic

fundamentals of the country played a significant role in sustaining the inflows from FIIs. Government's ability to control inflation and the problem of twin deficits along with roll out of GST, improvement in the performance of public sector banks and adequate measures to handle insolvency helped in maintaining an inflow of investments from FIIs.

- The investment sentiment of FIIs was further boosted by the announcement of stimulus package by the US Federal Reserve and European Central Bank. Saturation in major developed markets and bright prospects of Indian economy made FIIs take a U turn to India and other emerging economies. Also, strengthening of the equity markets and economic recovery of major developed countries like USA, Japan and Europe boosted the investment sentiment and enhanced capital flows to emerging countries.
- Investment in equity and debt segment of the market highlighted equity markets attracted majority of the FIIs investments in the initial years. But as the government opened other avenues, FIIs started to diversify their investments.
- Opening of debt market to FIIs was one of the major developments facilitating the flow of inflows from FIIs. Over the years, it was observed that foreign institutional investors started to increase their investments in debt and reduce their exposure in equity scripts. Highest amount of investment in debt segment was seen in 2017-18 where investment in debt market accounted for 82.27 per cent of the total net investment by FIIs compared to -2.6 per cent in 2000-01.
- A change in FIIs investment pattern in different markets showed FIIs are hedgers and like to averse risk during turbulent times. This was evident from 2008-09, 2014-15 and 2017-18 when uncertainty loomed over global and domestic markets and FIIs got inclined towards safe investments like those of debt market.
- Exploration of FIIs investment in derivatives instruments evidenced towards a change in investment preferences of FIIs. FIIs started as major buyers of stock futures but later switched to index options. Though, in the initial years, FIIs investment in stock futures was more than 50 percent compared to other

derivative instruments but with the progression and development of other derivative instruments the share of stock futures decreased and index options became the new favourite investment instrument of FIIs.

- The shift from futures to options is primarily due to options being more suitable to hedge large positions during uncertain times and FIIs like to minimize their risks associated with their investments. Thus, inferring options as a tool of investment helps FIIs hedge their investments during turbulent times.
- FIIs have also been attributed with increasing the breadth and liquidity of Indian securities markets as they buy and sell securities in large number which plays a considerable role in market turnover. A value of correlation coefficient of 0.91 signalled towards a strong and positive association between FIIs turnover and turnover at NSE.
- An investigation into the influence of news announcements of bonus issue, right issue, stock split, share buyback, dividend and earnings revealed a leakage of the information in the market, rebuffing the efficient market hypothesis in context to Indian stock markets. Significance of stock returns prior to the event implied few investors were able to get access to the company specific information and were able to generate abnormal returns.
- The results also evidenced that different news announcements have different impact on the abnormal returns of the company. Those investors investing during the announcement of dividend, bonus and stock split will earn significant returns while, investors investing during the announcement of right issue, earnings and share buyback do not earn significant returns on the event day.
- The investigation into the role of news announcements on stock returns of different industries revealed significant influence of bonus issue announcement on returns generated in automobile, consumer goods, financial services and information technology industries on the event day. Similarly, significant returns were generated on the event day upon the announcement of stock split in construction, consumer goods, fertilizer and pesticides, financial services,



industrial manufacturing, pharmaceuticals, services and textiles industries. However, only significant returns were generated in media industry on the event day at the time of announcement of share buyback, information technology generated significant returns to investors on the event day of earnings and consumer goods and pharmaceuticals industry generated significant returns for stocks on the event day of dividend announcement.

- Furthermore, analysis of news announcement on share ownership of FIIs revealed that news announcement of dividend, bonus issue and stock split influenced FIIs purchase and sale ownership.
- Moreover, FIIs were also found to be at an information disadvantage as majority of the change in their purchase and sale ownership occurred on the event day.
- The informational disadvantage of FIIs was also visible during the announcement of earnings by companies. It was evidenced that FIIs started to reduce their exposure in the stocks prior to the announcement of earnings and continued with the same upto one day post the announcement. This revealed FIIs were being risk averse as they reduce their exposure into stocks before the announcement of earnings. Such a strategy is generally adopted when an investor is not aware about the earnings report or has an information disadvantage.
- The informational disadvantage of FIIs can be attributed to a possible inability of FIIs in fathoming the fundamentals of the market or maybe they are too conceit about their investment options.
- Another possible reason of FIIs major reaction occurring only on the event day and not prior to the event can be attributed to the fact that few domestic investors presume FIIs to be intelligent investors and they end up imitating FIIs investment style. Such a strategy may lead to a herding mechanism causing an increase in the demand for certain stocks which leads to over valuation forcing FIIs to reverse few of their positions.

- Few researchers argue that investments from FIIs are nothing but investments of domestic investors entering the market via the route of safe haven countries to avoid taxes and thus FIIs concede with the losses as the gains from tax avoidance are more compared to the short-term losses.
- FIIs being return chasers exit market if the returns generated are not at par with their expectations which can wreak havoc in the domestic markets. Such a case was seen at the time of subprime crisis of 2008, when FIIs plugged out their money from emerging market on the fears of a global meltdown. To avoid a sudden exit from the stock markets, government and market regulators impose restrictions on FIIs investments and tightly regulate their investments. At times, excessive regulations cause investors to miss profit generating opportunities in the short span of time.
- A return chasing attitude of foreign institutional investors is further affirmed by the examination of FIIs investments into different sectors of the stock market. Unidirectional causality between FIIs investment in different sectors of the stock market and sector returns exhibited that returns in banking, financial services and metals sectors attract investments from foreign institutional investors.
- The metals sector has been generating significant returns on the backdrop of increase in infrastructure projects and the rising demand for automotive products. The metals companies in the Indian market have adopted a low-cost based strategy which has played to their advantage giving them an edge globally.
- The domestic companies are also entering into strategic partnership with the overseas investors to strengthen their production capacities and bring in an advanced technical-know-how. The metals sectors and its returns has thus generated an interest amongst the foreign institutional investors who are willing to ride on the lucrative returns.
- The Indian government is continuously making efforts to reform the banking space as it has been promoting the use of digital payments and banking

practices to provide a customer friendly experience to their clients. Although, the retail banking sector has grown in the recent years owing to the government's efforts of moving towards a formal banking system. There still exists a vast section of the population that does not have access to the basic banking facilities thus creating an unexplored and untapped clientele for the banking sector. The unpenetrated potential of the Indian banking sector attracts foreign investments into the stocks of the companies forming the banking sector.

- Furthermore, the innovation in technology has provided an easy access to customers in the form of mobile and internet banking. The number of people using the internet and mobile banking facilities are relatively scarce which creates opportunities for growth and development for the banking sector. The government's endeavours at providing bank accounts for a greater number of the people has led to the growth of the Indian banking space thereby, attracting inflows from foreign institutional investors.
- FIIs investment decision is also influenced by returns generated in the financial services sector. Many peer-to-peer and non-banking financial companies have been trying to bridge the gap by catering to the daily credit needs of the individuals who otherwise do not have access to the traditional means of banking.
- The efforts of the financial companies aimed at providing customer friendly experience and inclusion of new clients using the means of technology and aiming for less or no paperwork has helped the financial sector generate significant returns. The foreign institutional investors are trying to tap into the returns generated in the financial services sector and have thus based their investment decisions chasing the returns of the sector. The innovations of social investing adopted by banks and insurers have also attracted inflows from foreign institutional investors.
- The Indian government is continuously working towards making the country investor friendly, especially to investors originating from different countries

across the globe. The government aims to attract foreign investment by streamlining the process of FIIs entry and investments into the market. Thus, introducing the new SEBI norms of 2014 for FIIs. The new norms aimed to widen the scope for entities eligible to register as FIIs by allowing entities originating from countries enjoying diplomatic tie-ups with India and those complying to the FEMA (Foreign Exchange Management Act). According to the regulations FIIs are now categorised into three categories.

- Investments from category-II FIIs were found to be the most volatile and the majority of the inflows were also contributed by them. Since, the volatility of foreign inflows was highest amongst the category-II FIIs thus, it is required that the government should introduce norms which bolster their sentiments towards investing in India.
- Larger the political risk, less will be the inflows from foreign institutional investors. It was evident from the findings that political risk has a significant and negative impact on the investments of FIIs in India.
- Rate of return of the market, development of financial market and trade openness of the country also influenced the foreign institutional investments in India.

## **9.2 SUGGESTIONS AND POLICY IMPLICATIONS**

In the light of the analysis of foreign institutional investments into the Indian stock market, the need now arises to make suggestions to improve and enhance the investment experience of foreign institutional investors. Also, it is important to find ways to avoid a misuse of the different channels opened for investment for FIIs into the country.

- To encourage investments from foreign institutional investors measures can be introduced by opening investment opportunity to those FIIs who do not prefer to get registered with the market regulator but want to invest into the Indian market. Such, investments can be routed via private banks. Allowing investments from such type of foreign investors will attract substantial

investments from the untapped sources of FIIs giving an additional boost to the domestic prices.

- To prevent the misuse of investment via this route the government can direct private banks to furnish the periodical details of the investments made and the details of the entities registered on whose behalf investments are being made by the banks.
- Since, inflows from category-II of FIIs are volatile therefore, the government should aim at framing policies that manages the outflows from such investors especially during short-term period by supporting inflows from other categories of FIIs.
- Measures can be introduced to widen the scope for entities like- broker dealer and swap dealer that can register under category-II FIIs. This will widen the scope for different types of investors to invest in Indian markets and reduce the volatility arising from the inflows of category-II FIIs.
- Those investors who do not fall under the category I and II of FIIs are eligible to get themselves registered under category-III of FIIs. However, inflows from category-III of FIIs are low compared to category-I and II of FIIs therefore policies should be framed to increase the inflows from this category of FIIs.
- Measures should be introduced to simplify the process of registration for FIIs. If an FII requests for registration with the Indian government, it takes more than two months' time for the entire registration process to finish. To avoid the long process and discouragement amongst foreign institutional investors the government can aim to reduce the months' time to a week which will speed-up the process of registration and encourage FIIs towards investing in the Indian stock market.
- To further smoothen the inflow from FIIs the government can also introduce steps which will help to lessen the repetitive paper-work encouraging more foreign investors to register and invest in India.
- To ensure a stability in foreign inflows, the government and market regulators should continuously monitor the inflows from foreign institutional investors.

- The government should also frame policies that limits the influence of global uncertainties on the performance of the domestic markets by strengthening the investor base within the country. Also, measures can be introduced which allows in a phased manner the outflows from FIIs during the turbulent times.
- Steps should also be taken to strengthen the banks and financial system of the country as it is evident that returns accruing in both the sectors draw investments from FIIs. Policies should be framed to reduce the non-performing assets of banks and increase their profitability.
- Efforts should be made to address to the problems faced by foreign funds managers who restrain from investing in Indian markets. Addressing the queries of funds managers and providing them with a solution will point towards the government positive attitude towards foreign institutional investors.
- It has also been found that a large chunk of foreign institutional investments is directed towards the equity market and a small amount is invested in the debt markets. Therefore, adequate measures can be taken to enhance the foreign institutional investors investment limit in debt securities. Such steps are likely to create more room for investments in debt securities and contribute to the inflows.
- The market regulators can also contemplate to allow investments from FIIs into unlisted debt instruments to increase inflows into debt markets.
- To provide a boost to the investment by FIIs in derivative instruments, government can restructure the taxation policies pertaining to gains accrued in derivatives markets. The taxes levied on the derivative instruments can be equated to the short-term capital gain tax for equity investments.
- Investment into derivatives instruments can further be encouraged by introducing new investment options for FIIs. Efforts can be made to allow investments from FIIs into listed warrants which will help to create a diversified pool of investment options for FIIs and will support in the formation of the capital markets.

- To further widen the scope of investment options for FIIs steps should be directed towards allowing investment from foreign institutional investors into the commodities markets.
- The government can work towards bringing down the cost of trading for foreign institutional investors as a high cost of trading compared to other emerging markets has discouraged few entities from investing in India.
- A stable government and policies attract investments from foreign institutional investors as uncertainty and continuous changes in rules and regulations discourages FIIs. Also, a stable government ensures continuous reform which work towards the development of the economy. Thus, the government should ensure a stable environment where the rules and regulations are not changed on a day-to-day basis and ensure consistency to the foreign investors.
- To further ensure a favourable political environment the government should ensure to lessen the political uncertainties looming over the foreign investors with respect to the home country.
- Rules and regulations should be made to ensure no discriminating business practices are being conducted. Further, ensuring a healthy and stable investment environment provides an upwards boost to the investments from FIIs.
- The well-developed financial market also plays a significant role in drawing investments towards the stock market. The government and market regulators should ensure a sustained improvement in the functioning of the financial market as it instils the confidence of foreign institutional investors and ensures a smooth flow of money.
- The Indian markets are still not fully open to the world as the trade openness variable indicates towards a reluctance amongst the foreign investors to fully capitalize the Indian stock markets. Thus, the hesitation of investors across the globe curtails the flow of investments. Therefore, adequate measures are needed to unlock the barriers to foreign investors.

- Once the barriers to trade and investment are removed it will facilitate the trade for the companies, strengthening their fundamentals which in-turn will attract investments from both domestic and global investors. Better fundamentals of companies will generate higher returns for investors. Higher returns will thus, attract more foreign investors.
- The government should continuously monitor the policies relating to the investment by FIIs and maintain the existent investment environment along with the introduction of new measures that help foreign institutional investors generate higher returns on the investments made by them.

India as an investment destination has gained recognition across the globe owing to the improved business practices and hospitable investment environment. The persistent efforts by the country's central bank and SEBI to provide a transparent and conducive working environment has strengthened the investor confidence towards India. This is evident from the year-on-year increase in foreign institutional investments in different securities which signals towards a positive FIIs outlook for India. Thus, it is required that the Indian government should continue to introduce reforms and policies which helps to strengthen the confidence and investment sentiment of FIIs towards India. Further, streamlining the process of FIIs registration will provide confidence to those investors who have previously abstained from investing into the Indian markets. A country that ensures a healthy investment environment is more likely to draw inflows from foreign investors, thus, enabling a judicious management of the financial resources and promotion of economic development.

In the times when all governments across the globe are introducing investor friendly policies to attract foreign investments into their markets it is required that the Indian government should take a step in the right direction by addressing the important role played by FIIs and aim at simplifying the challenges faced by them at the time of investment into the Indian markets. If the government shows a determination towards framing policies that support growth and encourage movement towards global practices foreign institutional investors will continue to park their funds in the Indian market. The adoption of global practices ensures transparency in the market which



builds the confidence of the global investors cultivating more foreign inflows. The government's continuous efforts to pursue a strategy of reforms and sustainable business environment, ensure political stability, provide clarity on tax structures will boost the investments from FIIs. Taking steps towards providing greater liquidity and widening the sources of FIIs will also provide thrust to the foreign inflows. The Indian government's adoption of investor friendly practices showcases that in the long-run it will be very difficult for big foreign institutional investors to overlook India as an investment destination.

### **DIRECTIONS FOR FUTURE RESEARCH**

- The research is limited to analysis of foreign institutional investments with respect to Indian stock markets only. Future work can be carried out by conducting a comparative analysis of FIIs investment in Indian market with other emerging markets.
- Future research can be carried out by conducting a comparison in investment strategies of foreign institutional investors and domestic institutional investors.
- An influence of news announcements on share ownership of FIIs can be further studied to check the time-invariance, implying change in the FIIs ownership during the conditions of boom or depression.
- The study is based on secondary data only and future research can be carried with a combination of secondary and primary data.
- Additional variables that influence the investment decision of FIIs into the market and into the firms can be studied.

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## INDEX

<b>AAR</b>	— Average Abnormal Return
<b>ADF</b>	— Augmented Dickey Fuller
<b>ADR</b>	— American Depository Receipts
<b>ANOVA</b>	— Analysis of Variance
<b>AOA</b>	— Article of Association
<b>AR</b>	— Abnormal Return
<b>BSE</b>	— Bombay Stock Exchange
<b>CAAR</b>	— Cumulative Average Abnormal Return
<b>CAR</b>	— Cumulative Abnormal Return
<b>CAGR</b>	— Compounded Annual Growth Rate
<b>CMIE</b>	— Centre of Monitoring Indian Economy
<b>CSDL</b>	— Central Depository Limited
<b>DW</b>	— Durbin Watson
<b>EM</b>	— Emerging Market
<b>ER</b>	— Economic Risk
<b>FDI</b>	— Foreign Direct Investment
<b>FEMA</b>	— Foreign Exchange Management Act
<b>FII</b>	— Foreign Institutional Investments
<b>Fm_Dev</b>	— Financial Market Development
<b>FR</b>	— Financial Risk

<b>FVCI</b>	— Foreign Venture Capital Investor
<b>GDP</b>	— Gross Domestic Product
<b>GDR</b>	— Global Depository Receipts
<b>GMM</b>	— Generalized Method of Moment
<b>ICRG</b>	— International Country Risk Guide
<b>IMF</b>	— International Monetary Fund
<b>KYC</b>	— Know Your Customer
<b>MOA</b>	— Memorandum of Association
<b>NSDL</b>	— National Securities Depository Limited
<b>NSE</b>	— National Stock Exchange
<b>OECD</b>	— Organisation for Economic Co-operation and Development
<b>PR</b>	— Political Risk
<b>P-Notes</b>	— Participatory Notes
<b>P-value</b>	— Probability Value
<b>RBI</b>	— Reserve Bank of India
<b>ROI</b>	— Rate of Return on Investment
<b>SEBI</b>	— Securities and Exchange Board of India
<b>TO</b>	— Trade Openness
<b>T-stat</b>	— T-Statistic

## **APPENDIX – 1**

### **OVERVIEW OF SECTORS OF INDIAN STOCK MARKET**

#### **Financial Sector**

The financial sector is considered as the backbone for growth and a force that ensures the stability of the Indian economy. The Indian financial sector is largely composed of banks, insurance companies, non-banking financial companies, mutual funds, pension funds and other investment entities. The banking and insurance industries account for a large portion of the Indian financial sector. The Reserve Bank of India and the government are collectively taking steps to strengthen and stimulate the growth and development of the financial sector by providing easy access of finance for different industrial needs. The government has also allowed entry of private participants in certain areas which were earlier restricted for public entities. The entry of foreign investments has positively affected the length and breadth of the Indian financial sector as the existing entities have upgraded themselves in-line with the international financial norms and standards. The foreign institutional investors have been actively investing into the Indian financial sector owing to its strong growth potential globally.

#### **Energy Sector**

The Indian energy sector is an important pillar of support in developing the infrastructure of the country. India being the fourth largest consumer of energy in the world, it is required that most of the energy demands of the country are met domestically. The government has been working towards the development of the energy sector and has introduced a variety of reforms aimed towards bringing easy and clean energy to its citizens. The main source of Indian energy has been coal, hydropower and renewable energy. However, the Indian renewable energy sector is largely untapped and the government has been making efforts to exploit it to its best potential. The government has allowed investment by the private and foreign individuals and companies in the energy sector. The entry of foreign companies has helped the Indian energy sector become more efficient and competitive. The energy

sector has seen inflows from FIIs on the background of strong growth potential of the energy markets in India.

### **Healthcare Sector**

The healthcare sector in the Indian markets is rapidly changing, providing a range of opportunities and services to the citizens. The government is actively working with the private sector to provide better, improved and easy access to the healthcare services. Reforms have also been introduced to allow the entry of foreign participants in the Indian healthcare sector. Foreign investments have been primarily directed towards the manufacturing sector, drugs and medicines and research and development of the healthcare sector (Joseph and Ranganathan, 2016). FIIs have been investing in the healthcare sector and stocks of industries as they want to capitalize on the future growth potential.

### **Information and Technology Sector**

The information and technology sector is the fastest growing sector in the Indian economy and has played an important role in the working of day to day life and business. India has been a hub of global outsourcing needs especially for technology companies from developed nations of US, UK and Europe. The top IT companies namely, Tata consultancy services, Infosys and Wipro have paved the way for the growth of the information and technology sector in the country. The government allowed foreign participation in the information and technology sector during the liberalization and globalization reforms of 1991. The competence and growth potential has drawn foreign investors towards the Indian IT market. Foreign investors are investing in the IT space due to the availability of IT talent, strengthening of the infrastructure and growing international demands. India has become a global competitor in providing IT services at cost effective rates. The future and scope of Indian IT sector has enabled investments from foreign investors.

### **Telecom Sector**

The Indian telecom sector is one of the most promising sectors in the market. The telecom sector is composed of wireless, wireline and internet services. According to

the Indian Brand and Equity foundation (IBEF) India accounts for the second largest market in the world in terms of telecommunications. The scope and growth potential of the telecom sector owing to large population and rural connectivity has attracted inflows from foreign investors.

### **Real Estate Sector**

The Indian economy is growing at a rapid pace and with growth increases the demand for retail and urban spaces. The real estate sector has been rapidly rising due to the improved living standard of the Indians, growth of the hospitality and tourism industry, education and healthcare. The transformation of rural areas and urbanization has provided the impetus to the real estate sector in India. Thus, the growth potential of the real estate sector and government's effort to attract foreign investments has appalled to the foreign investors across the globe. Foreign institutional investors have started to increase their exposure to the stocks of the real estate sector owing to the initiatives undertaken by the government to support growth.

### **Automobile Sector**

The Indian automobile sector is one of the prominent sectors assisting in the growth and development of the Indian economy. Automobile has also been responsible for creation of employment opportunities in the country. The de-licensing of the auto sector during the liberalization of 1991 allowed foreign players to enter the Indian market. Companies like General Motors, Hyundai, Toyota and Nissan have established their automobile manufacturing units in the country. Foreign institutional investors have been heavily investing in the Indian automobile manufacturing sector and automobile ancillary industries to have an exposure to the auto sector of the country.

### **Fast Moving Consumer Goods Sector**

The consumer and retail sector of the Indian economy is one of the fastest growing sectors in the market. It has been observed foreign investors are actively participating in the industries engaged in fulfilling the consumer needs due to growing demand

and transformation in the Indian lifestyle. Foreign institutional investors have changed their tangent of investment to favourable in the fast-moving consumer goods sector due to the growing dynamics of the Indian market and reforms and policy implementation by the government.

### **Industrials Sector**

The industrials sector is the ancillary sector that supports the manufacturing and construction industry by producing capital goods and services. The industrials sector of the stock market is composed of transportation, capital goods, general industries and commercial services and supplies industries. The industrial sector of the Indian stock market has attracted investments from foreign institutional investors.

### **Media Sector**

The Indian media sector is largely dominated by the entertainment, television, radio, animation and digital advertising industries. The changing demographics of the media and entertainment sector and policy reforms introduced by the government have attracted foreign investors investments. The innovation in technology and digitization of the television industry has helped the media sector grow by leaps and bounds.

### **Pharmaceuticals Sector**

The Indian pharmaceuticals sector plays a pivotal role in the global pharma market. India is considered as the world's largest producer of generic medicines housing more than 3000 pharma companies domestically. The consistent performance of the pharmaceutical sector has attracted foreign investors to park their funds into the stocks of companies engaged in fulfilling the pharma needs. Also, the liberal policies by the government have helped in the smooth flow of foreign investments into the pharma sector.

## **APPENDIX - 2**

### **DIFFERENT SECTORS IN INDIAN STOCK MARKET**

The sectors undertaken in the study jointly comprise approximately 82.49 percent of the total market capitalization. The leading sector is financial services sector consisting 19.2 percent, followed by banking sector 13.34 percent, information and technology sector 12.15 percent, energy sector 11.1 percent, auto sector 8.6 percent, FMCG sector 8.6 percent. The indices studied for the purpose of estimation are explained as follows:

#### **Nifty Auto Index**

The Nifty Auto index is made of stocks engaged in the automobile sector of the Indian market. The index comprises of the top 15 auto stocks traded at the national stock exchange. Stocks that have atleast 90 percent of the trading frequency for the past six months and are part of the auto sector are eligible for inclusion in the auto index. Those stocks which are listed only for six months are not considered for inclusion. Approximately 8.6 percent of the total free float market capitalization and 91.1 percent of the total free float of market capitalization of stocks of automobiles sector are represented by Nifty Auto index. (source: NSE)

#### **Nifty Bank Index**

The Nifty bank index is made up of the 12 most liquid stocks of banking companies that are listed with the National Stock Exchange of India. The eligibility criteria for stocks to be included in the nifty index are same to that of auto index. Additionally, those companies that are permitted to trade in the future and options segments are eligible for inclusion in the bank index. 13.34 percent of the total free float market capitalization of banking entities listed with NSE and 86.13 percent of the free float of market capitalization of stocks consisting of banking sector in Indian market are represented by the Nifty Bank index. (source: NSE)

#### **Nifty FMCG Index**

The top 15 stocks listed with the National Stock Exchange of India (NSE) and which belong to the Fast Moving Consumer Goods (FMCG) category form the Nifty



FMCG index. The conditions for stock selection and eligibility are similar to those of Nifty Auto index. About 8.6 percent of the total free float market capitalization of FMCG stocks listed with NSE and 80.4 percent of the total free float market capitalization of all stocks comprising of the FMCG category are represented by the Nifty FMCG index. (source: NSE)

### **Nifty IT Index**

The Nifty IT index is the index represented by the top 10 NSE listed stocks that belong to the Information and Technology sector. The guidelines and eligibility criteria for stock selection are similar to other indexes. Additionally, stocks that provide trading in future and options are preferred over others. This index accounts for 12.15 percent of the free float of market capitalization and 91.9 percent of free float of market capitalization of all stocks belonging to information and technology sector. (source: NSE)

### **Nifty Energy Index**

The Nifty Energy index is comprised of the top 10 NSE listed stocks from the energy sector. The eligibility criteria for stocks selection are similar to the indexes defined previously. The index represents 11.1 percent of the total free float market capitalization of all NSE listed stocks. (source: NSE)

### **Nifty Financial Services Index**

The Nifty Financial services index is composed of the top 20 NSE listed stocks of companies engaged in providing financial services in India. The eligibility criteria for stock selection is similar to the indexes defined previously. Stocks of banking industry, financial institutions, housing finance, insurance companies and other financial services form the universe for Nifty Financial Services index. About 19.2 percent of the stocks listed and their total free float market capitalization at NSE and 75.8 percent of the total free float market capitalization of stocks belonging to the financial services are represented by the financial services index. (source: NSE)

### **Nifty Pharma Index**

The Nifty Pharma index is comprised of the top 10 stocks of pharmaceutical companies that are listed at NSE. The eligibility criteria for stock selection is similar

to the indexes defined previously. About 6.1 percent of the total free float market capitalization of stocks listed at NSE and 79.9 percent of total free float market capitalization of all stocks from financial sector are denoted by the index. (source: NSE)

### **Nifty Realty Index**

The Nifty Realty Index consists of the top 10 stocks belonging to the realty sector that are listed at NSE. The eligibility criteria and guidelines are similar to the other indexes. Approximately 0.4 percent of total free float market capitalization of realty listed stocks at NSE and 71.1 percent of total free float market capitalization of all stocks from the realty sector are represented by the index. (source: NSE)

### **Nifty Media Index**

The Nifty Media index comprises of the top 14 stocks belonging to the media and entertainment sector listed at NSE. Around 91.04 percent of the total free float market capitalization of stocks constituting the media and entertainment sector are represented by the Nifty Media index. (source: NSE)

### **Nifty Metals Index**

The Nifty Metals Index consists of the top 15 stocks listed at NSE that belong to the metals sector. About 2.6 percent of the total free float market capitalization of stocks listed at NSE and 87.9 percent of the total free float market capitalization of the stocks comprising the metals sector are represented by Nifty Metals index. (source: NSE)

### **Net Foreign Institutional Investment**

The foreign institutional investors invest in the stocks of different companies that are part of different industries and these industries jointly form the sectors. The data on net foreign institutional investments in different sectors is collected from National Securities Depository Limited.

## APPENDIX – 3

### DETERMINANTS OF FOREIGN INSTITUTIONAL INVESTMENTS

#### Country Risk

The risk associated with making investments in a country or a country's capability or incapability to repay the monetary commitments is defined as country risk. Taffler and Abassi (1984) also explained country risk as the failure on part of a country to pay back its financial debt owed to foreign investors. Cosset and Roy (1991) explicates the probability of default by a government on its financial obligations can be ascertained by the risk ratings assigned to a country. The need to gauge a country's risk rises when investments are to be made in the emerging economies than developed economies (Harvey, 2004). For the purpose of estimation, the study has incorporated the International Country Risk Guide's elements of political, economic, and financial risks into the study.

- **Economic Risk**

Economic risk is defined as the risk associated with the changes in the macroeconomic conditions of a nation which discourages the foreign investments into the home country, reducing the return on investments on account of fluctuations in the market. Uncertain macroeconomic conditions have a negative bearing on the growth of countries (Alguacil et al., 2011). The current research looks to examine the relationship and the role played by economic risk in attracting foreign institutional investments to India and has incorporated the International Country Risk Guide economic risk index. Points are allotted to every economic risk component – GDP per capita, real GDP growth, annual inflation rate, budget balance as percentage of GDP and current account as percentage of GDP. A high point signals less economic risk and a low point signals more economic risk.

- **Political Risk**

The risk arising on account of unstable political environment or frequent changes in the state policies creating an uncertain investment environment for domestic

and foreign investors is termed as political risk. The returns of stock markets of emerging countries are more influenced by the political risks than the returns generated in developed countries (Diamonte et al., 1996). The present study estimates a negative association amongst political risk and FIIs in India. The research has used the political risk index of International Country Risk Guide which is comprised of twelve risk components – government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucracy quality. A high total of the political score signals at low political risk and low political risk score signals at a greater political risk in an economy.

- **Financial Risk**

The risk arising on account of a country's default on sovereign debt or incapability to repay finances which creates an uncertain environment amongst investors is defined as financial risk. A financial risk creates a fear amongst the foreign investors that they might lose their investments made in another country. Developing economies such as India are required to fulfil their need for capital from foreign investors to meet their needs of investments. A country's mounting financial debt outside the purview of it repaying capability signals towards a greater chance of a default on part of the country causing a financial crisis in the market. Long-term ratings on foreign currency are the most critical factor to encourage foreign capital flows (Kim and Wu, 2008). The research assumes a positive influence of financial risk on FIIs investments in India. International Country Risk Guide (ICRG) indicators of financial risk have been incorporated for the purpose of estimation of financial risk. The indicators are– foreign debt as percentage of GDP, foreign debt as percentage of exports of goods and services, current account as a percentage of exports of goods and services, net international liquidity as months of import cover and exchange rate stability. A less risk score signals at a large financial risk and large risk score signals at low financial risk.

### **Trade Openness of the Country**

The openness of a country with respect to the international trade is defined as trade openness of a country. The trade openness of a country has a pivotal role in elevating the status of foreign investments into a country (Pistoresi, 2000; Deichmann, 2001; Asiedu, 2002; Hill, 2008; Li & Filer, 2007). International trade is considered as one of the most crucial elements affecting foreign investment in a country (Janicki and Wunnava, 2004). The research has measured trade openness of a country as the sum of exports and imports of the country divided by the GDP of the country. The study assumes positive association amongst trade openness and FIIs in India.

### **Size of Economy**

If an economy grows it implies an increase in the demand for the goods and services and a growth in the country's productivity. Foreign investors base their investments into a country on account of the size of the economy (Wheeler and Mody, 1992). With an increase in the market size of the economy foreign investment increases (Shamsuddin, 1994; Tsai, 1994; Billington, 1999, Pistoresi, 2000; Janicki and Wunnava, 2004 and Parletun, 2008). The research has substituted growth of size of the economy with the GDP per capita growth of the host country. The study assumes a positive association amongst the growth of the economy size and FIIs investments.

### **Development of the Financial Market**

Countries having a recognized and well-developed financial market attract a large number of foreign investments (Portes and Rey, 2005). Present research has proxied stock market capitalization to GDP as a measure of financial market development. A positive relationship amongst development of the financial market and FIIs in the country is assumed.

### **Rate of Return on Investment**

Investments in countries with scarce capital yield higher returns while, the countries with higher per capita income yield lower returns (Asiedu, 2002). To measure the rate of return on investment the research has substituted the rate of return on investment with the log of the inverse of real GDP per capita similar to (Asiedu, 2002).