# Project Dissertation on

# Impact of Foreign Institutional Investors on Indian Stock Market (BSE Sensex)

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### **DELHI SCHOOL OF MANAGEMENT**

**Delhi Technological University** 

Bawana Road, Delhi 110042 Jan-May 2016 **Certificate from the Institute** 

This is to certify that the Project Report titled Impact of Foreign Institutional

Investors on Indian Stock Market (BSE Sensex) is a bonafide work carried

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Management, Delhi Technological University, Bawana Road, Delhi-110042 in

partial fulfillment of the requirement for the award of the Degree of Masters of

Business Administration.

Signature of Guide (DSM)

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Place: New Delhi

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The information and data given in the report is authentic to the best of my

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This Report is not being submitted to any other University for award of any

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#### **Executive summary**

Indian stock market is an attractive investment destination for the foreign investors. From the past it had been growing steadily and had allured foreign investor as well as domestic investors. In the Indian stock market major part of investment is attributed by the institutional investors among them foreign institutional investors (FIIs) are of primary importance. The major concern in this matter is that whether FIIs regulate the Indian stock market or vice-versa. This project examines whether movement in market can be explained by these investors or not. FIIs are short-term nature, and may impact the returns of other domestic financial markets such as money markets, stock markets, and foreign exchange markets. Foreign institutional investors (FIIs) exerts moderate impact on domestic financial market in short run and real and large impact on long run, so understanding of FIIs is very important for any emerging economy. The objective of the study is to find out the relationship and variation between FII and Indian stock market (especially BSE Sensex) using statistical measures such as linear regression, correlation coefficient, t-test and F-test. The data for the study uses the information obtained from the secondary resources like website of BSE Sensex and SEBI.

Based on 10 years data starting from 2006 to 2015, it can be concluded from the data that there is a positive correlation between the FIIs and BSE Sensex and FIIs have high positive significant impact on the Sensex of Indian stock market. This signifies that market rise with increase in FII's and collapse when FII's are withdrawn from the market. However there are other major factors also that influence the movement of the stock market, but FII is definitely one of the factors.

From the year wise analysis, it was concluded that on an overall basis, when the relationship between Sensex vs. Net investments exists and it is significant, it produces a positive impact in the Sensex as it starts moving up, but when the case is opposite, it tends to remain on a lower side. This study will be useful for the middle class investor, Small Industries and foreign investor.

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#### **Abbreviations**

FIIs Foreign Institutional Investor

BSE Bombay Stock Exchange

NSE National Stock Exchange

SEBI Securities and Exchange Board of India

OCB Overseas Corporate Bodies

FDI Foreign direct investment

PIS Portfolio investment scheme

NRI Non-Resident Indian

PIO Person Of Indian Origin

GDP Gross domestic product

PPP Purchasing power parity

FEMA Foreign Exchange Management Act

# **CHAPTER 1: INTRODUCTION**

Most of the under developed countries suffer from low level of income and capital accumulation. Though, despite this shortage of investment, these countries have developed a strong urge for industrialization and economic development. As we know the need for Foreign capital arises due to shortage from domestic side and other reasons. Indian economy has experienced the problem of capital in many instances. While planning to start the steel companies under government control, due to shortage of resources it has taken the aid of foreign countries. Likewise we have received aid from Russia, Britain and Germany for establishing Bhilai, Rourkela and Durgapur steel plants. The present project is a modest attempt to study the impact of Foreign Institutional Investment on Indian Stock Market with special reference to BSE SENSEX India. It is observed that the FIIs investment has shown significant improvement in the liquidity of stock prices of both BSE and NSE. However, it is believed that there exists a high degree of positive correlation between FIIs investment and market capitalization, FIIs investment and BSE & NSE indices, revealing that the liquidity and volatility was highly influenced by FIIs flows. Further, it is also proved that FIIs investment was a significant factor for high liquidity and volatility in the capital market prices. The present study is proposed to analyze the impact of FIIs on Indian capital market with special reference to BSE.

An investor or investment fund that is from or registered in a country outside of the one in which it is currently investing is known as Foreign Institutional Investment and investors are known as Foreign Institutional Investors. Institutional investors include hedge funds, insurance companies, pension funds and mutual funds.

The term is used most commonly in India to refer to outside companies investing in the financial markets of India. International institutional investors must register with the Securities and Exchange Board of India to participate in the market. One of the major market regulations pertaining to FIIs involves placing limits on FII ownership in Indian companies.

#### 1.1 Foreign Institutional Investors (FIIs)

FII is defined as an institution organized outside India for the purpose of making investments into the Indian securities market under the regulations prescribed by SEBI. The term "FII" may be defined as overseas pension funds, mutual funds, investment trust, asset management company, nominee company, bank, institutional portfolio manager, university funds, endowments, foundations, charitable trusts, charitable societies, a trustee or power of attorney holder, incorporated or established outside India, proposing to make proprietary investments or investments on behalf of a broad-based fund. FIIs can invest their own funds as well as invest on behalf of their overseas clients registered as such with SEBI. These client accounts managed by FIIs are known as "sub-accounts". A domestic portfolio manager can also register itself as an FII to manage the funds of sub-accounts.

#### 1.2 Background of FIIs in India

On 14th September 1992, FIIs and Overseas Corporate Bodies (OCBs) were permitted to invest in India in financial instruments. Thereafter, the status of FIIs kept on improving steadily and cautiously. Then in June 1998, FIIs were also permitted to invest in Treasury Bills. As on 31st March 2004, there were 540 FIIs and 1542 sub-accounts operating in India. This was against 502 and 1350, respectively, a year earlier. On 31st January 2005, Indian finance ministry clearly indicated that FIIs were distinct entity from FDIs for determining the overall foreign investment ceiling. On 29th November 2006 FII"s net investment crossed \$50 billion mark. Then in October 2008, SEBI changed rule related to P-Note issuance and reporting by FIIs due to the discrepancies pointed out in Barclays Bank operating in India, crash of Lehman Brothers and huge withdrawals by FIIs from Indian markets. Thereafter till now, FIIs have persistently given impetus to Indian growth.

#### 1.3 Investment limits for FII

Foreign Institutional Investors (FIIs) are allowed to invest in the primary and secondary capital markets in India through the portfolio investment scheme (PIS).

Under this scheme, FIIs can acquire shares/debentures of Indian companies through the stock exchanges in India. The ceiling for overall investment for FIIs is 24 per cent of the paid up capital of the Indian company. The limit is 20 per cent of the paid up capital in the case of public sector banks, including the State Bank of India. The ceiling of 24 per cent for FII investment can be raised up to sectoral cap/statutory ceiling, subject to the approval of the board and the general body of the company passing a special resolution to that effect. And the ceiling of 10 per cent for NRIs/PIOs can be raised to 24 per cent subject to the approval of the general body of the company passing a resolution to that effect. The ceiling for FIIs is independent of the ceiling of 10/24 per cent for NRIs/PIOs.

The Reserve Bank of India monitors the ceilings on FII/NRI/PIO investments in Indian companies on a daily basis. For effective monitoring of foreign investment ceiling limits, the Reserve Bank has fixed cut-off points that are two percentage points lower than the actual ceilings. The cut-off point, for instance, is fixed at 8 per cent for companies in which NRIs/ PIOs can invest up to 10 per cent of the company's paid up capital. The cut-off limit for companies with 24 per cent ceiling is 22 percent and for companies with 30 per cent ceiling, is 28 per cent and so on. Similarly, the cut-off limit for public sector banks (including State Bank of India) is 18 per cent.

Once the aggregate net purchases of equity shares of the company by FIIs/NRIs/PIOs reach the cut-off point, which is 2% below the overall limit, the Reserve Bank cautions all designated bank branches so as not to purchase any more equity shares of the respective company on behalf of FIIs/NRIs/PIOs without prior approval of the Reserve Bank. The link offices are then required to intimate the Reserve Bank about the total number and value of equity shares/convertible debentures of the company they propose to buy on behalf of FIIs/ NRIs/PIOs. On receipt of such proposals, the Reserve Bank gives clearances on a first-come first served basis till such investments in companies reach 10 / 24 / 30 / 40/ 49 per cent limit or the sectoral caps/statutory ceilings as applicable. On reaching the aggregate ceiling limit, the Reserve Bank advises all designated bank branches to stop purchases on behalf of their FIIs/NRIs/PIOs clients. The Reserve Bank also informs the

general public about the caution' and the 'stop purchase' in these companies through a press release.

#### 1.4 Need for Foreign Capital

The need of foreign investment/ foreign capital arises due to the following reasons:

#### 1. Development of basic infrastructure:

The development of any economy depends on the available infrastructure in that country. The infrastructure facilities such as Roads, Railways, sea ports, warehouses banking services and insurance services are the prominent players. Due to long gestation period naturally individuals will not come forward to invest in infrastructure industries. Government of India could not able to raise necessary investments. To fill the gap foreign capital is highly suitable.

#### 2. Rapid industrialization:

The need for foreign capital arises due to the policy initiatives of the Government to intensify the process of industrialization. For instance the government of India is gradually opening the sectors to foreign capital to expand the industrial sector.

#### 3. To undertake the initial risk:

Many developing countries suffer from severe scarcity of private investors. The risk problem can be diverted to the foreign capitalists by allowing them to invest. As we know the Indians are comparatively risk averse. The same risk can be transferred to foreign investors by allowing their investment where risk is more.

#### 4. Global imperatives:

Globalization is the order of the day. The international agreements between countries are also the reason for the foreign capital. The multinational companies are expanding their presence to many countries; while they are entering into the foreign countries they will bring their capital. The principles of WTO and other regional associations are binding the member countries to allow foreign capital.

#### 5. Comparative advantage:

The variations in the cost of capital like interest rate are also one of the important factors which resulting in approaching foreign capital. For example; Interest rates are high in India compared with developed economies. To reduce the cost of capital, companies/organizations are now looking for foreign capital. In several countries the interest rates are very low as 1% to 3%, where as in some countries the interest rates are very high as 8% to 10% per annum.

#### 6. To remove the technological gap:

The developing countries have very low level of technology compared to the developed countries. However, these developing countries possess a strong urge for industrialization to develop their economies and to wriggle out of the low level equilibrium trap in which they are caught. This raises the necessity for importing technology from the advanced countries. That technology usually comes with foreign capital when it assumes the form of private foreign investment or foreign collaboration.

#### 1.5 Investment in India: Why?

India is one of the fast growing economies of the world with its economy growing at about 6.9% p.a. (2012) and expected to grow at 8-9% p.a. in the long term. Its robust market size is also very attractive. The capacity of the buoyant middle class is also very good. As a result the investors find it attractive to come and invest in India. India's GDP is currently US\$1.6 trillion, making it the 11th largest economy in the world. However, in PPP terms, which recognizes India's low cost base, the GDP notionally can rise to three times this amount (US\$3.8 trillion) which will keep it on a place similar to that of Japan in terms of size of economy and by 2013, it will become the third largest economy in the world (after the USA and China) in PPP terms. However, despite representing 7.5% of Global GDP (on a PPP basis) in 2010, India attracts less than 0.5% of investment inflows.

Further the Indian economy offers investors exposure to a wide range of opportunities from consumer goods and pharmaceuticals to infrastructure, energy and agriculture. With its strong services sector (comprising 50% of

India's economy), particularly in knowledge-based services (IT, software and business services) India has proved that industrialization and the export of commodities and resources is not the only path for rapid economic development. Another reason for attracting foreign investment may be the fact that India is one of the youngest countries in the world, with an average age of 25 and likely to get younger. India's working age population will increase by 240 million over the next 20 years. Indian economy has also another advantage of high savings rate of 37% of GDP which fuels most of its investment and low public debt at 20%.

In addition to above mentioned advantages, India has a highly diversified and well regulated financial sector. It was in fact the result of its strong economic fundamentals that India could overcome the global financial crisis of 2008. Further India can boast of well-regulated banking sector with good quality assets shown in their balance sheets. Last but not the least, India has good quality investment market with BSE the second oldest market (165 Years) operating in the world. These markets offer investment a low cost, highly efficient, modern and well governed environment to prosper from extraordinary economic growth. The Indian stock market has generated investment return of over 15% for the last 10 years and experts expect this return to increase as the decade progress.

#### 1.6 FIIs - Investment Routes

There are generally two ways of investment by FIIs

- EQUITY INVESTMENT: 100% investments could be in equity related instruments or up to 30% could be invested in debt instruments i.e.70 (Equity Instruments): 30 (Debt Instruments)
- 100% DEBT: 100% investment has to be made in debt securities only

#### **EQUITY INVESTMENT ROUTE:**

In case of Equity route the FIIs can invest in the following instruments:

1. Securities in the primary and secondary market including shares which are unlisted, listed or to be listed on a recognized stock exchange in India.

- 2. Units of schemes floated by the Unit Trust of India and other domestic mutual funds, whether listed or not.
- 3. Warrants

#### 100% DEBT ROUTE:

In case of Debt Route the FIIs can invest in the following instruments:

- Debentures (Non-Convertible Debentures, Partly Convertible Debentures etc.)
- 2. Bonds
- 3. Dated government securities
- 4. Treasury Bills
- 5. Other Debt Market Instruments

It should be noted that foreign companies and individuals are not be eligible to invest through the 100% debt route.

#### 1.7 Procedure for Registration

The Procedure for registration of FII has been given by SEBI regulations. It states- "no person shall buy, sell or otherwise deal in securities as a Foreign Institutional Investor unless he holds a certificate granted by the Board under these regulations". An application for grant of registration has to be made in Form A, the format of which is provided in the SEBI (FII) Regulations, 1995.

# The Eligibility Criteria For Applicant Seeking FII Registration Is As Follows:

- Good track record, professional competence and financial soundness.
- Regulated by appropriate foreign regulatory authority in the same capacity/ category where registration is sought from SEBI.
- Permission under the provisions of the Foreign Exchange
   Management Act, 1999 (FEMA) from the RBI.
- Legally permitted to invest in securities outside country or its incorporation/ establishment.
- The applicant must be a 'fit and proper' person.
- Local custodian and designated bank to route its transactions.

#### **Eligible Securities**

A FII can make investments only in the following types of securities:

- Securities in the primary and secondary markets including shares, debentures and warrants of unlisted, to- be-listed companies or companies listed on a recognized stock exchange.
- Units of schemes floated by domestic mutual funds including Unit Trust of India, whether listed on a recognized stock exchange or not, and units of scheme floated by a Collective Investment Scheme.
- Government Securities
- Derivatives traded on a recognized stock exchange like futures and options. FIIs can now invest in interest rate futures that were launched at the National Stock Exchange (NSE) on 31st August, 2009.
- Commercial paper
- Security receipts

#### 1.8 Regulation Relating to FII Operation

- Investment by FIIs is regulated under SEBI (FII) Regulations, 1995 and Regulation 5(2) of FEMA Notification No.20 dated May 3, 2000. SEBI acts as the nodal point in the entire process of FII registration.
- FIIs are required to apply to SEBI in a common application form in duplicate. A copy of the application form is sent by SEBI to RBI along with their 'No Objection' so as to enable RBI to grant necessary permission under FEMA.
- RBI approval under FEMA enables a FII to buy/sell securities on stock exchanges and open foreign currency and Indian Rupee accounts with a designated bank branch.
- FIIs are required to allocate their investment between equity and debt instruments in the ratio of 70:30. However, it is also possible for an FII to declare itself a 100% debt FII in which case it can make its entire investment in debt instruments.
- All FIIs and their sub-accounts taken together cannot acquire more than 24% of the paid up capital of an Indian Company. Indian Companies can raise the above mentioned 24% ceiling to the Sectoral Cap / Statutory Ceiling as applicable by passing a resolution by its

Board of Directors followed by passing a Special Resolution to that effect by its General Body.

Further, in 2008 amendments were made to attract more foreign investors to register with SEBI, these amendments are:

- The definition of "broad based fund" under the regulations was substantially widened allowing several more sub accounts and FIIs to register with SEBI.
- Several new categories of registration viz. sovereign wealth funds, foreign individual, foreign corporate etc. were introduced.
- Registration once granted to foreign investors was made permanent without a need to apply for renewal from time to time thereby substantially reducing the administrative burden,
- Also the application fee for foreign investors applying for registration has recently been reduced by 50% for FIIs and sub accounts.
- Also, institutional investors including FIIs and their sub-accounts have been allowed to undertake short-selling, lending and borrowing of Indian securities from February 1, 2008.

#### 1.9 Influence of FII on Indian Capital Markets

Positive fundamentals combined with fast growing markets have made India an attractive destination for foreign institutional investors (FIIs). Portfolio investments brought in by FIIs have been the most dynamic source of capital to emerging markets in 1990s. At the same time there is unease over the volatility in foreign institutional investment flows and its impact on the stock market and the Indian economy.

Apart from the impact they create on the market, their holdings will influence firm performance. For instance, when foreign institutional investors reduced their holdings in Dr. Reddy's Lab by 7% to less than 18%, the company dropped from a high of around US\$30 to the current level of below US\$15. This 50% drop is apparently because of concerns about shrinking profit margins and financial performance. These instances made analysts to generally claim that foreign portfolio investment has a short term investment horizon. Growth is the only inclination for their investment.

Some major impact of FII on stock market:

- They increased depth and breadth of the market.
- They played major role in expanding securities business.
- Their policy on focusing on fundamentals of share had caused efficient pricing of share.

These impacts made the Indian stock market more attractive to FII & also domestic investors. The impact of FII is so high that whenever FII tend to withdraw the money from market, the domestic investors fearful and they also withdraw from market.

#### 1.10 Influence of FII on Indian Economy

#### **Positive Impact**

**Improving Capital Markets:** FIIs as professional bodies of asset managers and financial analysts enhance competition and efficiency of financial markets. By increasing the availability of riskier long term capital for projects, and increasing firms' incentives to supply more information about them, the FIIs can help in the process of economic development.

Improved Corporate Governance: Good corporate governance is essential to overcome the principal-agent problem between share-holders and management. Information asymmetries and incomplete contracts between share-holders and management are at the root of the agency costs. Bad corporate governance makes equity finance a costly option. With boards often captured by managers or passive, ensuring the rights of shareholders is a problem that needs to be addressed efficiently in any economy. Incentives for shareholders to monitor firms and enforce their legal rights are limited and individuals with small share-holdings often do not address the issue since others can free-ride on their endeavor.

FIIs constitute professional bodies of asset managers and financial analysts, who, by contributing to better understanding of firms' operations, improve corporate governance. Among the four models of corporate control - takeover or market control via equity, leveraged control or market control via debt, direct control via equity, and direct control via debt or relationship banking-the

third model, which is known as corporate governance movement, has institutional investors at its core. In this third model, board representation is supplemented by direct contacts by institutional investors.

#### **Negative Impact**

If we see the market trends of past few recent years it is quite evident that Indian equity markets have become slaves of FIIs inflow and are dancing to their tune. And this dependence has to a great extent caused a lot of trouble for the Indian economy. Some of the factors are:

Potential Capital Outflows: "Hot money" refers to funds that are controlled by investors who actively seek short-term returns. These investors scan the market for short-term, high interest rate investment opportunities. "Hot money" can have economic and financial repercussions on countries and banks. When money is injected into a country, the exchange rate for the country gaining the money strengthens, while the exchange rate for the country losing the money weakens. If money is withdrawn on short notice, the banking institution will experience a shortage of funds.

**Inflation:** Huge amounts of FII fund inflow into the country creates a lot of demand for rupee, and the RBI pumps the amount of Rupee in the market as a result of demand created. This situation leads to excess liquidity thereby leading to inflation where too much money chases too few goods.

**Problem to Small Investors:** The FIIs profit from investing in emerging financial stock markets. If the cap on FII is high then they can bring in huge amounts of funds in the country's stock markets and thus have great influence on the way the stock markets behaves, going up or down. The FII buying pushes the stocks up and their selling shows the stock market the downward path. This creates problems for the small retail investor, whose fortunes get driven by the actions of the large FIIs.

**Adverse Impact on Exports:** FII flows leading to appreciation of the currency may lead to the exports industry becoming uncompetitive due to the appreciation of the rupee.

#### 1.11 FII Investment Framework

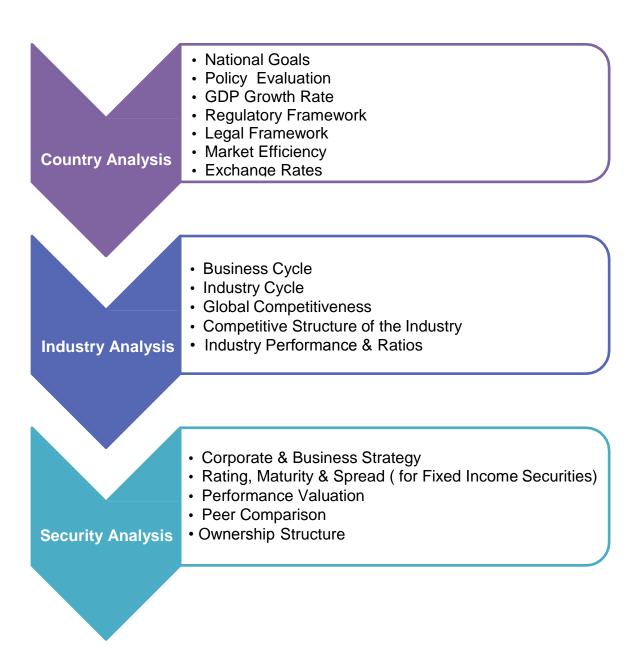


Figure 1.1: FII Investment Framework

#### 1.12 Bombay Stock Exchange (BSE):

Established in 1875, BSE (formerly known as Bombay Stock Exchange Ltd.), is Asia's first & the Fastest Stock Exchange in world with the speed of 6 micro seconds and one of India's leading exchange groups. Over the past 140 years, BSE has facilitated the growth of the Indian corporate sector by providing it an efficient capital-raising platform. Popularly known as BSE, the bourse was established as "The Native Share & Stock Brokers' Association" in 1875. BSE is a corporatized and demutualized entity, with a broad shareholder-base which includes two leading global exchanges, Deutsche Bourse and Singapore Exchange as strategic partners. BSE provides an efficient and transparent market for trading in equity, debt instruments, derivatives, mutual funds. It also has a platform for trading in equities of small-and-medium enterprises (SME).

BSE's popular equity index - the S&P BSE SENSEX - is India's most widely tracked stock market benchmark index. It is traded internationally on the EUREX as well as leading exchanges of the BRCS nations (Brazil, Russia, China and South Africa).

#### 1.13 Bombay Stock Exchange Sensitive Index:

The S&P BSE SENSEX (S&P Bombay Stock Exchange Sensitive Index), also-called the BSE 30 or simply the SENSEX, is a free-float market-weighted stock market index of 30 well-established and financially sound companies listed on Bombay Stock Exchange. The 30 component companies which are some of the largest and most actively traded stocks are representative of various industrial sectors of the Indian economy.

The launch of SENSEX in 1986 was later followed up in January 1989 by the introduction of the BSE National Index (Base: 1983–84 = 100). It comprised 100 stocks listed at five major stock exchanges in India – Mumbai, Calcutta, Delhi, Ahmedabad and Madras. The BSE National Index was renamed BSE-100 Index from 14 October 1996 and, since then, its calculations take into consideration only the prices of stocks listed at BSE.

BSE launched the dollar-linked version of BSE-100 index on 22 May 2006, the "BSE-200" and the "DOLLEX-200" on 27 May 1994, the BSE-500 Index

and 5 sectoral indices in 1999, and the BSE-PSU Index, DOLLEX-300, and the BSE TECk Index (the country's first free-float based index) in 2001. Over the years, BSE shifted all its indices to the free-float methodology (except BSE-PSU index).

The BSE disseminates information on the Price-Earnings Ratio, the Price to Book Value Ratio, and the Dividend Yield Percentage of all its major indices on day-to-day basis. The values of all BSE indices are updated on a real-time basis during market hours and displayed through the BOLT system, the BSE website, and news wire agencies. All BSE Indices are reviewed periodically by the BSE Index Committee. This Committee, which comprises eminent independent finance professionals, frames the broad policy guidelines for the development and maintenance of all BSE indices. The BSE Index Cell carries out the day-to-day maintenance of all indices and conducts research on development of new indices.

SENSEX is significantly correlated with the stock indices of other emerging markets.

# **CHAPTER 2: LITERATURE REVIEW**

The extent of relationship between FIIs and Sensex was studied. They also analyzed the variation between these two variables. They found that when the significant relationship between Sensex vs. Total turnover & Sensex vs. Net investment exists it produces a direct and positive impact on Sensex. Sensex will move up when the relationship is positive else will be on lower side. (Joshi, V. K., & Saxena, R., 2012)

The sensitivity index (Sensex) of Bombay stock exchange and studied the contribution of foreign institutional investment (FIIs) among the companies which constitute Sensex was analyzed. He also studied the relationship between foreign institutional investment and characteristics of firm in terms of ownership structure, financial performance and stock performance. Researcher observed that foreign investor show much confidence in companies where high volumes of shares are owned by general public. (Prasanna, P. K. 2008)

The reasons for indifferent response of BSE Sensex due to the inflows of FIIs and the behavioral pattern of FIIs in India were analyzed. Researchers computed the correlation between investment and turnover of individuals groups at BSE Sensex. They also concluded that there is a positive correlation between FII investment and stock market. In the year 2005 and 2008 it was observed that positive and negative movement of foreign institution investors investment shift the sentiments of domestic investor in market. (Bohra, N. S., & Dutt, A. 2011)

Impact of FIIs on Indian stock market was analyzes and it found that the FII and movement of Sensex and Nifty are closely correlated in India. The movement of FIIs influences the movement of Sensex and NIFTY. When there is upward trend due to greater buying the Indices also move in upward direction. (Mohanamani, P., & Sivagnanasithi, T. 2013)

Impact of FIIs on Indian stock market was analyzed and it was found that most of FIIs are entering into Indian market because of its liberalized trade policy, large size of market, stable political scenario and better technology and infrastructure which provide conductive environment for FIIs. It can be

seen that the inflow of FIIs has marked a new height in the last 22 years (1993-2014). It may be concluded that FIIs were not the only cause of volatility in Indian stock markets there may be multiple reasons for that. (Mohan, V. K., & Prasad, K. S. 2015)

In the paper 'Volatility of Indian Stock Market and FIIs' performance of Sensex vs. was analyzed. FIIs they also analyzed the movement of Sensex with respect to the FIIs starting with the secondary market summary of each year. He also concluded that the FIIs are having significant role in determining the volatility and liquidity of stock price in the Indian stock market. It was also seen that the volatility and liquidity were highly influenced by the FIIs inflows. (Chittedi, K. R. 2008)

# **CHAPTER 3: RESEARCH METHODOLOGY**

#### 3.1 Need of the study

Foreign Institutional Investment (FIIs) has got importance many fold time since the beginning of liberalization. Foreign capital flow is known as one of the important source of funding for any economy. Foreign capital likely to grow at a higher rate compared to the domestic savings rate. This integrated the entire global financial markets, which resulted in the flow of capital across national boundaries for higher rate of return. In spite of many political differences and lack of infrastructure Indian is considered a good investment option. Foreign investors are continuously attracted by the Indian market which offers a vast potential. In the year 2009 the net FIIs inflows were around \$15bn. On 21 January 2008 BSE Sensex saw the largest even fall in the history; Sensex fell by 2000 points in a day. For this everyone's query was that whether FIIs position were the reason for downfall of Sensex or vice versa. Investment through FIIs in India is important from every perspective especially when it has emerged as one of the most attractive destination in Asia. This project makes an attempt to understand whether there exists a relationship between FII investment and Indian stock market with reference to BSE Sensex in India.

#### 3.2 Objectives of the Study

- To get the knowledge of stock market.
- To analyze the trend in FII investment in India during the sample period \*\*.
- To analyze graphically, movement of Sensex and FIIs in the sampling period \*\*.
- To study the relationship and impact of Foreign Institutional Investment
   (FII) on BSE Sensex cumulative and during the sampling \*\*.

<sup>\*\*</sup>Sampling Period: 2006 to 2015

#### 3.3 Data Collection

In order to identify the required factors and for analysis of identified factors secondary data was used. The secondary data were collected from Websites. Data related to various Indian stock indexes were collected from www.bseindia.com and data on FIIs investment was collected from sebi.gov.in and fpi.nsdl.co.in.

	Net FII Investments (INR Crore)									
FII Investment	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
January	2,756.00	-1,681.90	-11,081.90	-3,443.00	8,412.60	5,363.50	26,328.70	25,006.00	13,323.00	33,688.00
February	7,436.20	8,195.10	4,230.10	-3,124.40	4,363.00	-3,269.80	35,227.70	28,440.00	12,741.00	24,564.00
March	6,430.40	360.6	-1,010.10	-5,890.00	29,437.50	6,882.90	1,792.50	14,919.00	31,663.00	20,723.00
April	770.4	7,721.50	-626.9	8,998.50	12,393.10	7,196.10	-4,896.70	10,748.00	418.00	15,333.00
May	-6,647.40	5,319.80	-5,174.40	17,405.80	-6,986.10	-4,276.00	3,221.90	28,138.00	33,778.00	-14,272.00
June	875.1	1,101.70	-11,094.50	4,898.30	11,249.10	4,883.30	1,180.50	-44,162.00	30,705.00	-1,608.00
July	1,297.40	22,609.40	1,782.10	13,181.70	24,724.00	10,652.90	13,664.20	-18,124.00	36,046.00	5,323.00
August	5,447.60	-7,162.10	46.1	4,523.30	14,686.30	-7,902.50	11,068.70	-15,695.00	22,134.00	-17,524.00
September	6,133.40	18,788.40	-5,073.90	20,572.70	32,668.00	-1,865.70	19,883.80	7,379.00	20,972.00	-5,784.00
October	8,669.60	23,090.40	-17,205.40	15,972.60	24,302.60	3,078.80	19,215.50	2,128.00	16,732.00	22,350.00
November	10,186.50	-6,319.20	1,616.70	6,181.40	21,210.70	-3,263.20	9,869.20	2,133.00	25,476.00	-10,826.00
December	-2,766.00	8,891.10	2,376.60	8,710.70	3,213.80	21,872.50	26,791.90	21,376.00	12,225.00	-8,304.00
Total	40,589.20	80,914.80	-41,215.50	87,987.60	179,674.60	39,352.80	163,347.90	62,286.00	256,213.00	63,663.00
Source: Sec	urities and	Exchange l	Board of In	dia						

Table 3.1: Net FII Investments in India (2006–2015)

	SENSEX									
FII Investme nt	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
January	9919.89	14090.92	17648.71	9424.24	16357.96	18327.76	17193.55	19894.98	20513.85	29182.95
February	10370.24	12938.09	17578.72	8891.61	16429.55	17823.4	17752.68	18861.54	21120.12	29361.5
March	11279.96	13072.1	15644.44	9708.5	17527.77	19445.22	17404.2	18835.77	22386.27	27957.49
April	12042.56	13872.37	17287.31	11403.25	17558.71	19135.96	17318.81	19504.18	22417.8	27011.31
May	10398.61	14544.46	16415.57	14625.25	16944.63	18503.28	16218.53	19760.3	24217.34	27828.44
June	10609.25	14650.51	13461.6	14493.84	17700.9	18845.87	17429.98	19395.81	25413.78	27780.83
July	10743.88	15550.99	14355.75	15670.31	17868.29	18197.2	17236.18	19345.7	25894.97	28114.56
August	11699.05	15318.6	14564.53	15666.64	17971.12	16676.75	17429.56	18619.72	26638.11	26283.09
September	12454.42	17291.1	12860.43	17126.84	20069.12	16453.76	18762.74	19379.77	26630.51	26154.83
October	12961.9	19837.99	9788.06	15896.28	20032.34	17705.01	18505.38	21164.52	27865.83	26656.83
November	13696.31	19363.19	9092.72	16926.22	19521.25	16123.46	19339.9	20791.93	28693.99	26145.67
December	13786.91	20286.99	9647.31	17464.81	20509.09	15454.92	19426.71	21170.68	27499.42	26117.54
Source : ht	tp://www.bs	seindia.com	1/							

Table 3.2: BSE Sensex data (2006–2015)

#### 3.4 Analytical tools and technique

In order to analyze the data collected the statistical tools such as regression, t-test, F test and correlation was used. Correlation coefficient is a statistical measure that determines the degree of association of two variable's movement. Its value ranges from -1 to 1.Positive value indicates that if one variable increases other value also increase, Increase in both the variables will be in same direction. Negative value indicates if one variable increase it will lead to decrease in other variables. To study the linear relationship between two variables regression was applied. Regression analysis is used to find out the effects of independent variable on single dependent variables. In this project F-test was used for testing significance of regression model and t-test was used to find out whether there exits any relationship between FII and Sensex or not.

In order to reach the decisions, hypothesis testing was used. It begins with specifying the null hypothesis against an alternative hypothesis. The F value calculated from regression analysis with its associated p value was used to find out whether one has to accept or reject the null hypothesis.

If the associated p-value was less than 0.05, we can say that at 5% significance level one may reject the null hypothesis and accept the alternate hypothesis. On the other hand if the associated p-value was greater than 0.05 one may accept the null hypothesis and reject the alternate one.

#### 3.5 Limitation of the study

Availability of time is less and the subject of study is very vast, so study was mainly focused on two objectives

- Identifying whether there exist a relationship between net FIIs and Indian stock market and
- 2. To study is there any significant variation between these two variables.

The study was mainly based on secondary data available on various websites. The impact or influence is purely based on the past 10 years of performance.

# CHAPTER4: Data analysis and Findings

#### 4.1 FII Investment Trends in India

Over the past 15 years, the FIIs investment in the Indian stock markets has saw high extent of volatility. While the investments started to gain strong indication in 2004, the investments have been adversely affected by the global economic scenarios. In 2008, many FIIs withdrew heavily from the Indian stock market which results into outflow for the year, and it was due to the US subprime crisis. In the year 2011, the FIIs stayed away from the Indian stock market due to the tensions surrounding the crisis in the European region. From the year 2006, the FIIs again started to invest in Indian stock market specially debt market and in 2010 it gained a new height which continue till the year 2012. Due to the government policy and investor confidence in the Indian stock market the FII investment in 2015 is the highest till now.

Year	Equity	Debt	Net FII Investment (INR Crore)	SENSEX Value
2006	36,540.20	4,049.00	40,589.20	13,786.91
2007	71,486.30	9,428.50	80,914.80	20,286.99
2008	-52,987.40	11,771.90	-41,215.50	9,647.31
2009	83,424.20	4,563.40	87,987.60	17,464.81
2010	133,266.30	46,408.30	179,674.60	20,509.09
2011	-2,714.20	42,067.00	39,352.80	15,454.92
2012	128,360.50	34,989.40	163,349.90	19,426.71
2013	113,135.00	-50,850.00	62,285.00	21,170.68
2014	97,054.00	159,156.00	256,210.00	27,499.42
2015	17,808.00	45,857.00	63,665.00	26,117.54

Source: SEBI

Table 4.1: FII Investments in India and Corresponding Sensex (2006–2015)

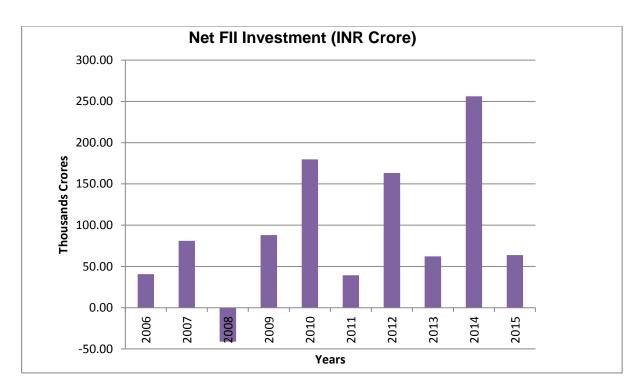


Figure 4.1: Net FII Investments in India (2006–2015)

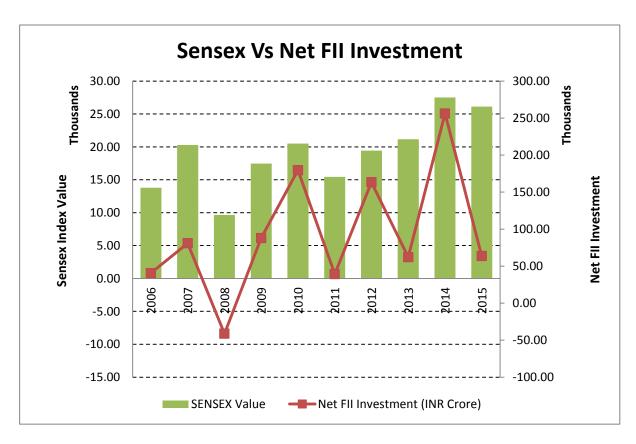


Figure 4.2: Sensex Vs. FII Investments year wise

#### 4.2 Hypothesis

Hypothesis 1: There exists a relationship between BSE SENSEX & FII.

**Hypothesis 2:** The variation between BSE SENSEX & FII is significant.

#### **HYPOTHESIS PART I:**

H0: There exists is no relationship between BSE Sensex and FII.

H1: There exists a relationship between BSE Sensex and FII.

#### **HYPOTHESIS PART II:**

H0: The variation between BSE Sensex and FII is not significant.

H1: The variation between BSE Sensex and FII is significant.

#### **SUMMARY OUTPUT**

Regression Statistics					
Multiple R	0.72567534				
R Square	0.52660469				
Adjusted R					
Square	0.46743028				
Standard Error	3930.81391				
Observations	10				

#### **ANOVA**

					Significance
	df	SS	MS	F	F
Regression	1	1.38E+08	1.38E+08	8.899196	0.017516
Residual	8	1.24E+08	1545129		
Total	9	2.61E+08			

Standard						
	Coefficients	Error	t Stat	P-value	Lower 95%	95%
Intercept	14836.5245	1903.355	7.794931	5.26E-05	10447.38	19225.67
X Variable 1	0.04609618	0.015452	2.983152	0.017516	0.010463	0.081729

Table 4.2: Regression Analysis of Sensex and FII Investment for year 2006-2015

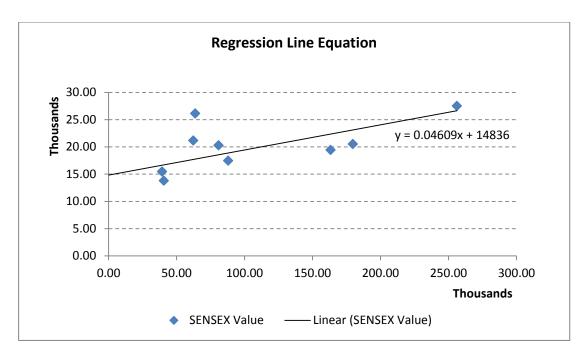


Figure 4.3: Regression Line equation Sensex vs. FII Investments

The slope of the above regression analysis is 0.04609 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs4.60 FIIs increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.52 which is comparatively moderate. Thus it can conclude that, the independent variable (Net FII Investment) explains only 52% influence on the fluctuation in BSE Sensex so it is a relatively a moderate measure for Sensex. Correlation coefficient is high and positive i.e. 0.7256 which show high movement of FII and Sensex move in same direction.

#### Hypothesis Part I

The relationship between net FIIs investment and Sensex is tested using t statistic. From data available above t statistics comes out to be 7.794. The tabulated value of t for 9 degrees of freedom at 5% significance level is 2.262. Thus, t calculated > t tabulated for 9 degree of freedom and 5% significance level. So we reject H0 and accept H1. Thus, we conclude that there exists a relationship between Sensex & FIIs.

#### **Hypothesis Part II**

F statistic is used to test the relationship between FIIs and Sensex. From the above table F values comes out to be 9.273. From table F value for (1, 9) degree of freedom at 5% significance level comes out to be 5.117. F calculated > F tabulated, so we reject H0 and accept H1. Thus we conclude that the *variation between FII and BSE Sensex is significant*.

#### 4.3 Variation of FII and Sensex during the sample period (2006-2015)

Case 1: Year 2006

#### SUMMARY OUTPUT

Regression Statistics						
Multiple R	0.28797368					
R Square	0.08292884					
Adjusted R Square	-0.0087783					
Standard Error	1337.76366					
Observations	12					

#### ANOVA

	df	SS	MS	F	Significance F
Regression	1	1618309	161830	0.90428	0.36405
Residual	10	1789611	178961		
Total	11	1951442			

	Standard						
	Coefficients	Error	t Stat	P-value	Lower 95%	95%	
Intercept	11400.7681	474.885	24.007	3.6E-10	10342.7	12458.9	
X Variable 1	0.07769954	0.08170	0.9509	0.36405	-0.1044	0.25976	

Table 4.3: Regression Analysis of Sensex and FII Investment for year 2006

The slope of the above regression analysis is 0.0776 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs7.76 Flls increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.08 which is comparatively low. Thus it can conclude that, the independent variable (Net FII Investment) explains only 8% influence on the fluctuation in BSE Sensex so it is a relatively a weak measure for Sensex. Correlation coefficient is very low and positive i.e. 0.2879 which show low movement of FII and Sensex move in same direction.

#### Hypothesis Part II

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 0.9042. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated < F tabulated, so we accept H0 and reject H1. Thus we conclude that the *variation between FII and BSE Sensex is not significant*.

Case 1: Year 2007

#### **SUMMARY OUTPUT**

Regression Statistics							
Multiple R 0.2785716							
R Square	0.07760215						
Adjusted R	0.0146276						
Square	-0.0146376						
Standard	2659.7578						
Error	2039.7378						
Observations	12						

#### **ANOVA**

	df	SS	MS	F	Significance F
Regression	1	5951680.92	5951680.9	0.84130885	0.380612109
Residual	10	70743115.8	7074311.6		
Total	11	76694796.7			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	15422.8251	928.337007	16.61339	1.3051E-08	13354.36133	17491.289
X Variable 1	0.07098095	0.07738629	0.9172289	0.38061211	-0.101446463	0.2434084

Table 4.4: Regression Analysis of Sensex and FII Investment for year 2007

The slope of the above regression analysis is 0.0709 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs7.09 Flls increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.077 which is comparatively low. Thus it can conclude that, the independent variable (Net Fll Investment) explains only 7.7% influence on the fluctuation in BSE Sensex so it is a relatively a weak measure for Sensex. Correlation coefficient is very low and positive i.e. 0.2785 which show low movement of Fll and Sensex move in same direction.

#### **Hypothesis Part II**

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 0.8413. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated < F tabulated, so we accept H0 and reject H1. Thus we conclude that the *variation between FII and BSE Sensex is not significant*.

Case 3: Year 2008

#### **SUMMARY OUTPUT**

Regression Statistics					
Multiple R	0.114824				
R Square	0.013185				
Adjusted R Square	-0.0855				
Standard Error	3268.488				
Observations	12				

#### **ANOVA**

	df	SS MS		F	Significance F	
Regression	1	1427322	1427322	0.133607	0.722335	
Residual	10	1.07E+08	10683013			
Total	11	1.08E+08				

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	14215.35	1072.768	13.2511	1.14E-07	11825.08	16605.63
X Variable 1	0.054326	0.148625	0.365523	0.722335	-0.27683	0.385482

Table 4.5: Regression Analysis of Sensex and FII Investment for year 2008

The slope of the above regression analysis is 0.0543 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs5.43 FIIs increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.013 which is comparatively very low. Thus it can conclude that, the independent variable (Net FII Investment) explains only 1.3% influence on the fluctuation in BSE Sensex so it is a relatively a weak measure for Sensex. Correlation coefficient is very low and positive i.e. 0.1148 which show very low movement of FII and Sensex move in same direction.

#### Hypothesis Part II

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 0.1336. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated < F tabulated, so we accept H0 and reject H1. Thus we conclude that the *variation between FII and BSE Sensex is not significant*.

Case 4: Year 2009

Regression Statistics					
Multiple R	0.746396				
R Square	0.557106				
Adjusted R Square	0.512817				
Standard Error	2230.132				
Observations	12				

#### ANOVA

	Df	SS	MS	F	Significance F
Regression	1	62560442	6256044	12.57878	0.005298
Residual	10	49734895	4973490		
Total	11	1.12E+08			

	Coefficie nts	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	11898.38	863.8911	13.77301	7.92E-08	9973.51	13823.25
X Variable 1	0.278644	0.078565	3.546658	0.005298	0.10359	0.453699

Table 4.6: Regression Analysis of Sensex and FII Investment for year 2009

The slope of the above regression analysis is 0.2786 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs27.86 FIIs increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.5571 which is comparatively high. Thus it can conclude that, the independent variable (Net FII Investment) explains only 55.71% influence on the fluctuation in BSE Sensex so it is a relatively a strong measure for Sensex. Correlation coefficient is high and positive i.e. 0.7463 which show high movement of FII and Sensex move in same direction.

#### **Hypothesis Part II**

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 12.57. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated > F tabulated, so we reject H0 and accept H1. Thus we conclude that the *variation between FII and BSE Sensex is significant*.

Case 5: Year 2010

Regression Statistics					
Multiple R	0.523922				
R Square	0.37971				
Adjusted R Square	0.097681				
Standard Error	1382.673				
Observations	12				

#### **ANOVA**

	df	SS	MS	F	Significance F
Regression	1	4188366	4188366	5.190815	0.169638
Residual	10	1911784	1911785		
Total	11	2330621			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	17426.73	661.524	26.3433	1.43E-10	15952.76	18900.69
X Variable 1	0.05215	0.035233	1.48014	0.169638	-0.02635	0.130654

Table 4.7: Regression Analysis of Sensex and FII Investment for year 2010

The slope of the above regression analysis is 0.0521 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs5.21 FIIs increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.3797 which is comparatively low. Thus it can conclude that, the independent variable (Net FII Investment) explains only 37.97% influence on the fluctuation in BSE Sensex so it is a relatively a moderate measure for Sensex. Correlation coefficient is moderate and positive i.e. 0.5239 which show moderate movement of FII and Sensex move in same direction.

#### **Hypothesis Part II**

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 5.190. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated > F tabulated, so we reject H0 and accept H1. Thus we conclude that the *variation between FII and BSE Sensex is significant*.

Case 6: Year 2011

Regression Statistics					
Multiple R	0.01513893				
R Square	0.00022919				
Adjusted R Square	-0.0997478				
Standard Error	1335.56685				
Observations	12				

#### ANOVA

	df	SS	MS	F	Significance F
Regression	1	4089.037	4089.037	0.002292	0.96275543
Residual	10	17837388	1783739		
Total	11	17841477			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	17732.1459	418.2536	42.39568	1.28E-12	16800.2188	18664.07
X Variable 1	-0.0023673	0.049444	-0.04788	0.962755	-0.11253464	0.1078

Table 4.8: Regression Analysis of Sensex and FII Investment for year 2011

The slope of the above regression analysis is -0.0023 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs0.23 Flls increase BSE Sensex will decrease by 100 points. The value of R<sup>2</sup> comes out to be 0.0002 which is comparatively very low. Thus it can conclude that, the independent variable (Net FII Investment) explains only 0.02% influence on the fluctuation in BSE Sensex so it is a relatively a weak measure for Sensex. Correlation coefficient is very low and positive i.e. 0.0151 which show low movement of FII and Sensex move in same direction.

#### Hypothesis Part II

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 0.0022. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated < F tabulated, so we accept H0 and reject H1. Thus we conclude that the *variation between FII and BSE Sensex is not significant*.

Case 7: Year 2012

Regression Statistics					
Multiple R	0.40422495				
R Square	0.16339781				
Adjusted R Square	0.07973759				
Standard Error	927.314827				
Observations	12				

#### **ANOVA**

	df	SS	MS	F	Significance F
Regression	1	1679506	1679506	1.953112	0.192482418
Residual	10	8599128	859912.8		
Total	11	1027863			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	17399.0584	410.9707	42.33649	1.3E-12	16483.35855	18314.7
X Variable 1	0.03201461	0.022908	1.397538	0.192482	-0.01902729	0.08305

Table 4.9: Regression Analysis of Sensex and FII Investment for year 2012

The slope of the above regression analysis is 0.0320 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs3.20 FIIs increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.1633 which is comparatively low. Thus it can conclude that, the independent variable (Net FII Investment) explains only 16.33% influence on the fluctuation in BSE Sensex so it is a relatively a weak measure for Sensex. Correlation coefficient is very low and positive i.e. 0.4042 which show low movement of FII and Sensex move in same direction.

#### **Hypothesis Part II**

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 1.953. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated < F tabulated, so we accept H0 and reject H1. Thus we conclude that the *variation between FII and BSE Sensex is not significant*.

Case 8: Year 2013

Regression Statistics					
Multiple R	0.1762134				
R Square	0.0310511				
Adjusted R Square	-0.0658437				
Standard Error	907.99481				
Observations	12				

#### **ANOVA**

	df	SS	MS	F	Significance F
Regression	1	264206.7	264206.7	0.320462	0.583809223
Residual	10	8244546	824454.6		
Total	11	8508753			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	19690.379	270.0118	72.92414	5.74E-15	19088.75611	20292
X Variable 1	0.0070696	0.012488	0.566094	0.583809	-0.02075644	0.03489

Table 4.10: Regression Analysis of Sensex and FII Investment for year 2013

The slope of the above regression analysis is 0.0070 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs0.70 Flls increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.0310 which is comparatively very low. Thus it can conclude that, the independent variable (Net Fll Investment) explains only 3.10% influence on the fluctuation in BSE Sensex so it is a relatively a weak measure for Sensex. Correlation coefficient is very low and positive i.e. 0.1762 which show low movement of Fll and Sensex move in same direction.

#### **Hypothesis Part II**

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 0.3204. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated < F tabulated, so we accept H0 and reject H1. Thus we conclude that the *variation between FII and BSE Sensex is not significant*.

Case 9: Year 2014

Regression Statistics					
Multiple R	0.25735631				
R Square	0.06623227				
Adjusted R Square	-0.0271445				
Standard Error	2795.12699				
Observations	12				

#### **ANOVA**

	df	SS	MS	F	Significance F
Regression	1	5541583	5541583	0.709301	0.419362
Residual	10	78127349	7812735		
Total	11	83668932			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	23526.9275	1862.84	12.6296	1.8E-07	19376.26	27677.5
X Variable 1	0.06622951	0.078639	0.8422	0.419362	-0.10899	0.24144

Table 4.11: Regression Analysis of Sensex and FII Investment for year 2014

The slope of the above regression analysis is 0.0662 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs6.62 FIIs increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.0662 which is comparatively low. Thus it can conclude that, the independent variable (Net FII Investment) explains only 6.62% influence on the fluctuation in BSE Sensex so it is a relatively a weak measure for Sensex. Correlation coefficient is very low and positive i.e. 0.2573 which show low movement of FII and Sensex move in same direction.

#### Hypothesis Part II

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 0.7093. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated < F tabulated, so we accept H0 and reject H1. Thus we conclude that the *variation between FII and BSE Sensex is not significant*.

Case 10: Year 2015

Regression Statistics					
Multiple R	0.657806				
R Square	0.432709				
Adjusted R Square	0.37598				
Standard Error	919.143				
Observations	12				

#### **ANOVA**

	df	SS	MS	F	Significance F
Regression	1	6444002	6444002	7.62762	0.020067
Residual	10	8448239	844823.9		
Total	11	1489224			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	27149.4	278.4805	97.49121	3.16E-16	26528.9	27769.89
X Variable 1	0.044017	0.015938	2.761816	0.02006	0.008506	0.079529

Table 4.12: Regression Analysis of Sensex and FII Investment for year 2015

The slope of the above regression analysis is 0.0440 units. As Sensex is a stock index measured in hundreds, it implies that for each Rs4.40 Flls increase BSE Sensex will increase by 100 points. The value of R<sup>2</sup> comes out to be 0.4327 which is comparatively low. Thus it can conclude that, the independent variable (Net FII Investment) explains only 43.27% influence on the fluctuation in BSE Sensex so it is a relatively a moderate measure for Sensex. Correlation coefficient is high and positive i.e. 0.6578 which show high movement of FII and Sensex move in same direction.

#### **Hypothesis Part II**

F statistic is used to test the relationship between FIIs and Sensex. From the above table it comes out to be 7.627. From table F value for (1, 10) degree of freedom at 5% significance level comes out to be 4.9641. F calculated > F tabulated, so we accept H0 and reject H1. Thus we conclude that the *variation between FII and BSE Sensex is significant*.

### 4.4 Findings

	Sensex vs Net Investment							
Year	Correlation	Variation						
2006	0.2880	0.0829	Exists	Not Significant				
2007	0.2786	0.0776	Exists	Not Significant				
2008	0.1148	0.0132	Exists	Not Significant				
2009	0.7464	0.5571	Exists	Significant				
2010	0.5239	0.3797	Exists	Significant				
2011	0.0151	0.0002	Exists	Not Significant				
2012	0.4042	0.1634	Exists	Not Significant				
2013	0.1762	0.0311	Exists	Not Significant				
2014	0.2574	0.0662	Exists	Not Significant				
2015	0.6578	0.4327	Exists	Significant				

Table 4.13: Comparative Analysis

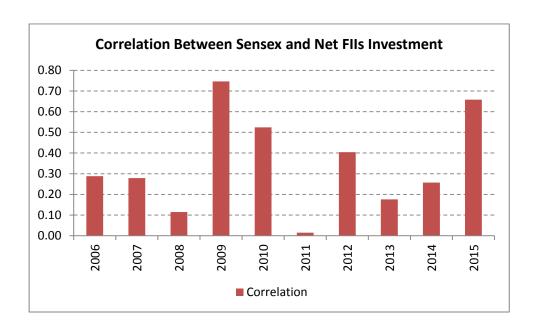


Figure 4.4: Correlation between Sensex and Net FIIs Investment

The following inferences are drawn on the basis of the comparative analysis table given above.

- 1. For the Year 2006 (SENSEX vs. FII Net Investment), the R<sup>2</sup> comes to be 0.0829 or 8.29% which is relatively low. The relationship and variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between two during the year comes to be not very significant. Thus during year 2006, we are getting low value of R<sup>2</sup> and correlation 0.2880 comparatively on low. The reason for such trend in Sensex due to FII is that low amount of FII invested in the country and the independent variable (net FII Investment) is relatively a weak measure of Sensex as it explains 8.29% influence on the fluctuation in the Sensex and is unable to determine 91.71% influence of the other external variables.
- 2. For the Year 2007 (SENSEX vs. FII Net Investment), the R<sup>2</sup> comes to be 0.0776 or 7.76% which is relatively low. The relationship and variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between two during the year comes to be not very significant. Thus during year 2007, we are getting low value of R<sup>2</sup> and correlation 0.2786 also comparatively on low. The reason for such trend in Sensex due to FII is that low amount of FII invested in the country and the independent variable (net FII Investment) is relatively a weak measure of Sensex as it explains 7.76% influence on the fluctuation in the Sensex and is unable to determine 92.24% influence of the other external variables.
- 3. For the Year 2008 (SENSEX vs. FII Net Investment), the R<sup>2</sup> comes to be 0.132 or 1.32% which is relatively low. The relationship and variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between two during the year comes to be not very significant. Thus during year 2008, we are getting low value of R<sup>2</sup> and correlation (0.1148) also comparatively on low. The reason for such trend in Sensex due to FII is that negative amount of FII invested in the country and the

independent variable (net FII Investment) is relatively a weak measure of Sensex as it explains 1.32% influence on the fluctuation in the Sensex and is unable to determine 98.68% influence of the other external variables.

- 4. For the Year 2009 (SENSEX vs. FII Net Investment), the R<sup>2</sup> comes to be 0.5571 i.e. 55.71% which is relatively moderate. The relationship and variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between two during the year comes to be significant. Thus during year 2009, we are getting low value of R<sup>2</sup> and correlation (0.7464) also comparatively on high. The reason for such trend in Sensex due to high amount of FII is invested in the country and the independent variable (net FII Investment) is relatively a strong measure of Sensex as it explains 55.71% influence on the fluctuation in the Sensex and is unable to determine 44.29% influence of the other external variables.
- 5. For the Year 2010 (SENSEX vs. FII Net Investment), the R² comes to be 0.3797 i.e. 37.97% which is relatively moderate. The relationship and variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between two during the year comes to be significant. Thus during year 2010, we are getting moderate value of R² and correlation (0.5239) also comparatively on medium. The reason for such trend in Sensex due to moderate amount of FII is invested in the country and the independent variable (net FII Investment) is relatively a strong measure of Sensex as it explains 37.97% influence on the fluctuation in the Sensex and is unable to determine 62.03% influence of the other external variables.
- 6. For the Year 2011 (SENSEX vs. FII Net Investment), the R<sup>2</sup> comes to be 0.0002 i.e. 0.02% which is relatively very low. The relationship and variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between

two during the year comes not to be significant. Thus during year 2011, we are getting low value of R<sup>2</sup> and correlation (0.0151) also comparatively on lower side. The reason for such trend in Sensex due to less amount of FII is invested in the country and the independent variable (net FII Investment) is relatively a strong measure of Sensex as it explains 0.02% influence on the fluctuation in the Sensex and is unable to determine 99.98% influence of the other external variables.

- 7. For the Year 2012 (SENSEX vs. FII Net Investment), the R<sup>2</sup> comes to be 0.1634 or 16.34% which is relatively low. The relationship and variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between two during the year comes to be not very significant. Thus during year 2012, we are getting low value of R<sup>2</sup> and correlation (0.4042) also comparatively on low. The reason for such trend in Sensex due to FII is that high amount of FII invested in the country and the independent variable (net FII Investment) is relatively a weak measure of Sensex as it explains 16.34% influence on the fluctuation in the Sensex and is unable to determine 83.66% influence of the other external variables.
- 8. For the Year 2013 (SENSEX vs. FII Net Investment), the R<sup>2</sup> comes to be 0.0311 or 3.11% which is relatively low. The relationship and variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between two during the year comes to be not very significant. Thus during year 2013, we are getting low value of R<sup>2</sup> and correlation (0.1762) also comparatively on low. The reason for such trend in Sensex due to FII is that high amount of FII invested in the country and the independent variable (net FII Investment) is relatively a weak measure of Sensex as it explains 3.71% influence on the fluctuation in the Sensex and is unable to determine 96.29% influence of the other external variables.
- 9. For the Year 2014 (SENSEX vs. FII Net Investment), the R<sup>2</sup> comes to be 0.0662 or 6.62% which is relatively low. The relationship and

variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between two during the year comes to be not very significant. Thus during year 2014, we are getting low value of R<sup>2</sup> and correlation (0.2574) also comparatively on low. The reason for such trend in Sensex due to FII is that moderate amount of FII invested in the country and the independent variable (net FII Investment) is relatively a weak measure of Sensex as it explains 6.62% influence on the fluctuation in the Sensex and is unable to determine 93.38% influence of the other external variables.

- 10. For the Year 2015 (SENSEX vs. FII Net Investment), the R<sup>2</sup> comes to be 0.4327 or 43.27% which is relatively high. The relationship and variation between net FII investment and Sensex was tested and was concluded that relationship between two exits and variation between two during the year comes to be significant. Thus during year 2015, we are getting low value of R<sup>2</sup> and correlation (0.6578) also comparatively on high. The reason for such trend in Sensex due to FII is that high amount of FII invested in the country and the independent variable (net FII Investment) is relatively a moderate measure of Sensex as it explains 43.27% influence on the fluctuation in the Sensex and is unable to determine 56.73% influence of the other external variables.
- 11. From the above comparative analysis, it can be concluded that, when there exists a relationship between Sensex and Net FII investment and it is significant, Sensex varies directly with net FII investment i.e. as FII investment increases Sensex will increase and as FII investment will be take out it will fall to lower side. As evident from the tabular data above when FIIs are taken away from to a large extent it causes the Sensex to fall as it happened in case of year 2006 and 2008 but when FIIs are pumped into the market it prevent the BSE Sensex from falling as evident from the case of year 2010 and 2015.

Years	Probable Reasons with respect to FIIs Investment
2006	Govt has not approved any policy in this period so average amount of net FIIs Investment in the Country. Average amount of FIIs gives low rise in Sensex. Net FII investment was limited to the corporate debts which are listed. Limit in government debt raised to \$2 Billion and in corporate debt it was raised to \$.15 Billion.
2007	The average FII holding rose to 13.2% from 13.1% at the end of the December quarter, It was highest since the end of December 2007. It was just an average Investment all together.
2008	The BSE Sensex fell almost 50% due to the global financial meltdown, wiping out the gains of 2007.
2009	The markets were flat during the first three months of 2009 as FIIs stayed away. After that, governments across the globe implemented plans to boost their economies. India, helped by robust economic growth, became a preferred destination for investors. This shows 85% was the surge in the Sensex in 2009 with FIIs investing a net Rs 84,000 cr.
2010	In 2010, the trend continued and FIIs pumped in \$30 billion (Rs 1.3 lakh crore) into Indian equities, helping the Sensex gain 25%. Between December 2007 and July 2011, the number of FIIs registered in India rose from 1,024 to 1,730.
2011	1. the debt crisis in the Euro zone and faltering US economy have pushed investors towards safe assets. Investors around the world are moving out of emerging economies and putting money in safe assets, such as US Treasuries and the dollar. This, in fact, has weakened the rupee against the dollar, making FIIs nervous and jittery as the value of their rupee income has fallen. The rupee fell 6% in September 2011, coinciding with a 6% fall in the Sensex, a double blow for foreign institutional investors.
2012	After effect of debt crisis and faltering US economy continues putting money in safe custody such as US Treasuries and the dollar.
2013	In the fiscal year 2013 the GDP growth of India slowed to 5%, It was slowest pace in a decade, from 6.7% in the year 2012. It was due to high inflation, delayed project approvals and elevated borrowing costs forced indian companies to put hold on investment.
2014	FIIs permitted only in dated securities those were having residual maturity of 1 year and above. Other factors are unknown
2015	FIIs have invested a net of \$43.5 billion so far in 2014-15. Which is expected to be the highest investment in any fiscal year? Of this, a huge chunk—\$26.3 billion—was invested in debt and it is their record investment in the asset class, while equities absorbed \$17.2 billion.

Table 4.13: Probable Reasons with respect to FIIs Investment

# CHAPTER 5 RECOMMENDATIONS AND CONCLUSIONS

#### 5.1 Conclusions

From the above study conclusion can be drawn that the net FIIs investment and the Sensex movement are quite closely related in India and the FIIs put significance influence on the Sensex movement. There is no doubt that FII inflow has grown significantly over the last years. It can be concluded from the data that there is a positive correlation between the FIIs and BSE Sensex and FIIs have high direct significant impact on the Sensex of Indian stock market. However there are other major factors also that influence the movement of the stock market, but FII is definitely one of the factors. This signifies that market rise is directly proportional to the FIIs; the market will rise with the increase in FIIs and decrease when FIIs are withdrawn from the market. The level of control is very high in the companies that constitute the BSE Sensitivity Index commonly known as Sensex. Shareholding data pattern indicates that the FIIs are the most influential non-promoter shareholder in most of the BSE Sensex companies and most of the tradable shares in Sensex are controlled by the them than any other investor groups.

#### 5.2 Recommendations

#### **A-For the Regulatory Authority**

FIIs investment flows are invariably short term in nature and are often not related to economic fundamentals but rather the sudden notion that prevalent in international financial markets.

From the analysis following policy implication has emerged.

- Both the size and the composition of capital flow should be taken in account for any decision.
- India should be more focus towards strengthening the banking sector rather than promoting financial markets. This sector can be trusted vehicle for the long-term growth and industrialization.

- In India financial market are for long term so government should try to shield the real economy from their unexpected fluctuations.
- A new policy has proposed in India to remove the distinction between long-term investments and short-term investments on the basis of the length of holding of the assets.so there is no incentive to stay for long term.
- Government should set a minimum and maximum limit, within which FIIs must invest in India. This will help to avoid volatility in Indian stock market.
- Government should allow more than 10% limit in LIC, Bank, Mutual Funds, Pension Fund & other small companies to invest in India
- There must be implementation of act in order to escape from seasonal variation. Rules & regulation should be strictly implemented and follow up must be there.

#### B. For the Retail Investors

FII investment is a testimony of investor confidence in a particular economy and stock market apart from the money they brought in the country. Brought in money by FIIs can be used to import oil, machinery and other necessary items which will further adds to foreign reserves. When the FII investment in the country increase it will increase the investor confidence in the economy and FDI (Foreign Direct Investors) will follow suit.

## How anyone can analyze FII investment in the Indian stocks and benefit from it?

While analyzing FII investment, one must check the following things:

#### 1. Find out the % holding of FIIs in the stocks you are interested.

FIIs are not the root cause of a growth of any company in fact they come only after the growth has actually started. So invest in only that Companies which are fundamentally strong and has good future prospects.

#### 2. Look for the number of FIIs in a company.

If the number of FIIs in any company is in large number then it's easier for any investor to move out from the stock which would impact the stock very badly and stock price of company will become volatile and risky. So, investing in a company which has smaller number of FIIs could be a safer investment option.

FII is one of the important economic indicators which can help anyone to analyze a particular stock and the whole market in a much better way.

#### Who will be impacted from this study?

- 1. Many in the **middle class** invest in the stock markets. For those of them, fluctuation in Sensex often corresponds to a direct increase/decrease in their wealth.
- 2. When the **stock investors or speculators** "feel wealthy" because the Sensex is moving up, they tend to spend more. This can cause multiplier effects in the economy.
- 3. When the stock markets go good, there would be lot of **foreign money** coming in and that would push up the rupee. That means your imported goods [from oil to machinery] will be cheaper.
- 4. Small Industries.
- 5. Foreign Investors

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## **ANNEXURE**

### 1. Net FIIs Investment year wise data from 2006 to 2015

Net I	Net Investments - 2006 (in INR crore)							
	Equity	Debt	Total					
Jan	3,677.60	-921.6	2,756.00					
Feb	7,587.80	-151.6	7,436.20					
Mar	6,688.80	-258.4	6,430.40					
Apr	521.9	248.5	770.4					
May	-7,354.20	706.8	-6,647.40					
Jun	479.5	395.6	875.1					
Jul	1,145.20	152.2	1,297.40					
Aug	4,643.10	804.5	5,447.60					
Sep	5,424.70	708.7	6,133.40					
Oct	8,013.10	656.5	8,669.60					
Nov	9,380.10	806.4	10,186.50					
Dec	-3,667.40	901.4	-2,766.00					
Total	36,540.20	4,049.00	40,589.20					

Net Investments - 2007 (in INR crore)						
	Equity	Debt	Total			
Jan	492.1	-2,174.00	-1,681.90			
Feb	7,239.60	955.5	8,195.10			
Mar	-1,082.00	1,442.60	360.6			
Apr	6,679.20	1,042.30	7,721.50			
May	3,959.70	1,360.10	5,319.80			
Jun	1,643.10	-541.4	1,101.70			
Jul	23,872.40	-1,263.00	22,609.40			
Aug	-7,770.50	608.4	-7,162.10			
Sep	16,132.60	2,655.80	18,788.40			
Oct	20,590.90	2,499.50	23,090.40			
Nov	-5,849.90	-469.3	-6,319.20			
Dec	5,579.10	3,312.00	8,891.10			
Total	71,486.30	9,428.50	80,914.80			

Net Investments - 2008 (in INR crore)						
	Equity	Debt	Total			
Jan	-13,035.70	1,953.80	-11,081.90			
Feb	1,733.30	2,496.80	4,230.10			
Mar	-130.4	-879.7	-1,010.10			
Apr	1,074.80	-1,701.70	-626.9			
May	-5,011.50	-162.9	-5,174.40			
Jun	-10,095.80	-998.7	-11,094.50			
Jul	-1,836.80	3,618.90	1,782.10			
Aug	-1,211.70	1,257.80	46.1			
Sep	-8,278.10	3,204.20	-5,073.90			
Oct	-15,347.30	-1,858.10	-17,205.40			
Nov	-2,598.30	4,215.00	1,616.70			
Dec	1,750.10	626.5	2,376.60			
Total	-52,987.40	11,771.90	-41,215.50			

Net Investments - 2009 (in INR crore)					
	Equity	Debt	Total		
Jan	-4,245.30	802.3	-3,443.00		
Feb	-2,436.60	-687.8	-3,124.40		
Mar	530.3	-6,420.30	-5,890.00		
Apr	6,508.20	2,490.30	8,998.50		
May	20,117.20	-2,711.40	17,405.80		
Jun	3,830.00	1,068.30	4,898.30		
Jul	11,066.30	2,115.40	13,181.70		
Aug	4,902.70	-379.4	4,523.30		
Sep	18,344.30	2,228.40	20,572.70		
Oct	9,077.00	6,895.60	15,972.60		
Nov	5,497.00	684.4	6,181.40		
Dec	10,233.10	-1,522.40	8,710.70		
Total	83,424.20	4,563.40	87,987.60		

Net Investments - 2010 (in INR crore)						
	Equity	Debt	Total			
Jan	-500.3	8,912.90	8,412.60			
Feb	1,216.90	3,146.10	4,363.00			
Mar	19,928.00	9,509.50	29,437.50			
Apr	9,361.30	3,031.80	12,393.10			
May	-9,436.70	2,450.60	-6,986.10			
Jun	10,508.40	740.7	11,249.10			
Jul	16,617.40	8,106.60	24,724.00			
Aug	11,687.20	2,999.10	14,686.30			
Sep	24,978.50	7,689.50	32,668.00			
Oct	28,562.90	-4,260.30	24,302.60			
Nov	18,293.10	2,917.60	21,210.70			
Dec	2,049.60	1,164.20	3,213.80			
Total	133,266.30	46,408.30	179,674.60			

Net Investments - 2011 (in INR crore)						
	Equity	Debt	Total			
Jan	-4,813.20	10176.7	5,363.50			
Feb	-4,585.50	1315.7	-3,269.80			
Mar	6,897.80	-14.9	6,882.90			
Apr	7213.3	-17.2	7196.1			
May	-6,614.40	2338.4	-4,276.00			
Jun	4572.2	311.1	4883.3			
Jul	8,030.10	2622.8	10,652.90			
Aug	-10,833.60	2931.1	-7,902.50			
Sep	-158.30	-1707.4	-1,865.70			
Oct	1,677.40	1401.4	3,078.80			
Nov	-4,197.90	934.7	-3,263.20			
Dec	97.90	21774.6	21,872.50			
Total	-2,714.20	42067	39,352.80			

Net Investments - 2012 (in INR crore)						
	Equity	Debt	Total			
Jan	10,357.70	15971.2	26,328.90			
Feb	25,212.10	10015.8	35,227.90			
Mar	8381.1	-6,588.60	1,792.50			
Apr	-1,109.10	-3,787.50	-4,896.60			
May	-347.10	3,569.10	3,222.00			
Jun	-501.30	1,681.80	1,180.50			
Jul	10,272.70	3,391.70	13,664.40			
Aug	10,803.90	265.2	11,069.10			
Sep	19,261.50	622.50	19,884.00			
Oct	11,364.00	7,851.70	19,215.90			
Nov	9,577.20	292.1	9,869.30			
Dec	25,087.80	1704.4	26,792.20			
Total	128360.5	34,989.40	163,350.10			

Net Investments - 2013 (in INR crore)					
	Equity Debt		Total		
Jan	22,059.00	2947	25,006.00		
Feb	24,439.00	4001	28,441.00		
Mar	9124	5,795.00	14,919.00		
Apr	5,414.00	5,334.00	10,748.00		
May	22,169.00	5,969.00	28,138.00		
Jun	-11,027.00	-33,135.0	-44,162.00		
Jul	-6,086.00	-12,038.0	-18,124.00		
Aug	-5,923.00	-9773	-15,695.00		
Sep	13,058.00	-5,678.00	7,380.00		
Oct	15,706.00	-13578	2,128.00		
Nov	8,116.00	-5984	2,133.00		
Dec	16086	5,290.00	21,376.00		
Total	113,136.00	-50,848.0	62,288.00		

Net Investments - 2014 (in INR crore)					
	Equity	Debt	Total		
Jan	714.00	12609	13,323.00		
Feb	1,404.00	11337	12,741.00		
Mar	20077	11,586.00	31,663.00		
Apr	9,602.00	-9,185.00	418.00		
May	14,006.00	19,772.00	33,778.00		
Jun	13,991.00	16715	30,705.00		
Jul	13,110.00	22935	36,046.00		
Aug	5430	16,704.00	22,134.00		
Sep	5,103.00	15,869.00	20,972.00		
Oct	-1,172.00	17,903.00	16,732.00		
Nov	13,753.00	11723	25,476.00		
Dec	1,036.00	11188	12,225.00		
Total	97054	159,156.00	256,213.00		

Net Investments - 2015 (in INR					
	Equity	Debt	Total		
Jan	12,919.00	20769	33,688.00		
Feb	11476	13,088.00	24,564.00		
Mar	12,078.00	8,645.00	20,723.00		
Apr	11,721.00	3,612.00	15,333.00		
May	-5,768.00	-8504	-14,272.00		
Jun	-3,344.00	1737	-1,608.00		
Jul	5,319.00	4	5,323.00		
Aug	-16877	-647.00	-17,524.00		
Sep	-6,475.00	692.00	-5,784.00		
Oct	6,650.00	15,701.00	22,350.00		
Nov	-7,074.00	-3752	-10,826.00		
Dec	-2,817.00	-5488	-8,304.00		
Total	17,808.00	45857	63,663.00		

#### 2. BSE Sensex data from 2006 to 2015

	SENSEX									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Jan	9919.89	14090.92	17648.71	9424.24	16357.96	18327.76	17193.55	19894.98	20513.85	29182.95
Feb	10370.24	12938.09	17578.72	8891.61	16429.55	17823.4	17752.68	18861.54	21120.12	29361.5
Mar	11279.96	13072.1	15644.44	9708.5	17527.77	19445.22	17404.2	18835.77	22386.27	27957.49
Apr	12042.56	13872.37	17287.31	11403.25	17558.71	19135.96	17318.81	19504.18	22417.8	27011.31
May	10398.61	14544.46	16415.57	14625.25	16944.63	18503.28	16218.53	19760.3	24217.34	27828.44
Jun	10609.25	14650.51	13461.6	14493.84	17700.9	18845.87	17429.98	19395.81	25413.78	27780.83
Jul	10743.88	15550.99	14355.75	15670.31	17868.29	18197.2	17236.18	19345.7	25894.97	28114.56
Aug	11699.05	15318.6	14564.53	15666.64	17971.12	16676.75	17429.56	18619.72	26638.11	26283.09
Sep	12454.42	17291.1	12860.43	17126.84	20069.12	16453.76	18762.74	19379.77	26630.51	26154.83
Oct	12961.9	19837.99	9788.06	15896.28	20032.34	17705.01	18505.38	21164.52	27865.83	26656.83
Nov	13696.31	19363.19	9092.72	16926.22	19521.25	16123.46	19339.9	20791.93	28693.99	26145.67
Dec	13786.91	20286.99	9647.31	17464.81	20509.09	15454.92	19426.71	21170.68	27499.42	26117.54