## CHAPTER I
### INTRODUCTION

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Problem Identification</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Literature Review</td>
<td>7</td>
</tr>
<tr>
<td>1.3 Objectives of the Study</td>
<td>12</td>
</tr>
<tr>
<td>1.4 Methodology</td>
<td>13</td>
</tr>
<tr>
<td>1.5 Plan of Work</td>
<td>14</td>
</tr>
</tbody>
</table>
Chapter I

Introduction

1.1 Problem Identification

Foreign investments in India are classified into investments in listed companies (i.e. portfolio investments by Foreign Institutional Investors); investments in listed/unlisted companies other than through stock exchanges (i.e. Foreign Direct Investment, Private Equity /Foreign Venture Capital Investment route); investments through American Depository Receipts /Global Depository Receipts (ADR/GDR) or investments by Non Resident Indians (NRIs) and Persons of Indian Origin (PIO) in various forms. International portfolio flows refer to cross border capital flows made by individuals or institutional investors with the objective of creating an internationally diversified portfolio devoid of intent to acquire management control over foreign companies. According to World Bank, portfolio investment includes international investments in equity and debt securities issued by unrelated non-resident entities, excluding any instruments classified as direct investments or reserve assets. Portfolio managers set aside a proportion of their funds for investments in foreign markets based on risk/return assessment, and also as part of their portfolio diversification strategy. If returns from different assets are less than perfectly correlated, then according to portfolio theory an investor can hold an optimal portfolio to maximise expected portfolio return for a given amount of risk, or to minimise risk for a target portfolio return, the potential diversification benefits being greater for combinations of assets with lower return correlation between them. Since the correlation between returns from securities across countries tend to be lower than the correlation between returns from domestic securities of a country, diversifying internationally has long been acknowledged as an effective strategy to reduce the
overall portfolio risk and even earn higher returns. Investors in developed countries can significantly enhance their portfolio performance by inclusion of foreign stocks, particularly those from high growth and politically stable emerging market countries like India and China where stock market returns have relatively low correlations with those in developed countries.

Foreign Institutional Investments, now known as Foreign Portfolio Investments (FPIs) can contribute to the host country’s economy in various ways. The foreign investors’ demand for timely and quality information, minority protection and better market regulations may induce regulatory reforms. Their active participation in the market for corporate control by monitoring managerial activity, and hence ensuring more efficient managerial performance and better investment decisions, uphold the concept of shareholder value creation and increased investor confidence. The FPIs can also complement foreign debt finance and enhance the quality and quantity of international borrowing at the national and firm level. Such better resource mobilisation, in turn, leads to increase in output and higher domestic savings. Besides, opening of capital markets to FIIs generally lead to lowering of cost of equity capital due to global pricing of securities and a wider shareholder base. Issue of American Depository Receipts (ADRs) or country funds (CFs) by domestic firms enhances the quantity and quality of information disclosed by them, reduces the existing informational asymmetries between foreign and domestic investors and home bias thereby bringing down the cost of equity capital. Global participation also ensures more reliable market signals and helps in assessing real domestic investments thereby improving allocation efficiency.

Changes in both global and country specific factors influence international portfolio flows. During the last decade, the information advantage of the local investors or the information asymmetry between local and foreign investors has come down reducing the home bias,
the effect of regional factors or the factors specific to the recipient country have assumed greater importance. The foremost driver behind FII flows is the stock return of the recipient country. Among the other macro factors are the country risk measures which incorporate political and other risks in addition to the usual economic and financial variables. The extent of the co-movement between the world markets and the markets of the recipient countries used to negatively affect the attractiveness of emerging market equities to foreign investors during pre-Asian crisis period, since higher co-movement leads to lower diversification benefit. After the crisis, the riskiness of emerging markets reduced significantly, increasing the potential diversification benefit and hence making portfolio risk less sensitive to variations in the extent of co-movement between the world markets and the markets of the recipient countries. Therefore in post-Asian crisis period, the attractiveness of emerging market equities to foreign investors has become less responsive to changes in such co-movement. Apart from macro factors, various firm specific factors such as dividend yield, firm size, export to total sales and liquidity have been identified to influence FII flows substantially.

During the last two decades, economic activity has dramatically increased in the international dimensions of business operations. Economies all over the world have become more closely linked by growing volume of cross-border transactions in terms of goods, services and financial assets. The abolition of capital and exchange controls has supported an ever growing volume of international financial flows, and investment avenues have widened their horizons. Financial capital can now seek global opportunities with relative ease. According to World Bank data, during 2014 alone the foreign portfolio equity net inflows worldwide and in South Asia were USD 1,116,139.79 million and USD 13,682.80 million respectively, while the average annual net flows from 2001 to 2014 were only USD 619,004.45 million and USD 12,089.32 million respectively.
In its efforts to integrate with global markets to attract funds, India has introduced various liberalisation measures in the fiscal, financial, trade and external sectors. The country witnessed an external payments crisis due to unsustainable macroeconomic balances with extremely low foreign exchange reserves during 1990-91. So, to create a competitive environment and boost the productive potential of entrepreneurs for putting the economy on a higher growth trajectory, Indian government went for extensive decontrol and delicensing during the 90s. The objective behind such revolutionary move was to improve the Balance of Payments (BOP) to sustainable levels by liberalising international trade, finance and capital inflows. The Indian financial market was opened up to Foreign Institutional Investors (FIIs) in 1992 when the Government of India announced the first policy framework permitting foreign institutional investors to invest in the Indian listed entities, which were subsequently incorporated into the Securities and Exchange Board of India (SEBI) (FIIs) Regulations 1995. Presently, foreign investors are allowed to invest in the Indian capital markets through foreign direct investment, portfolio investment scheme and foreign venture capital investment, each having its own regulatory framework, licensing/registration requirements and investment conditions. A Foreign Institutional Investor (FII), now defined as Foreign Portfolio Investor (FPI) by the Indian capital market watchdog the Securities and Exchange Board of India (SEBI), is an entity established or incorporated outside India which proposes to make investments in India. A FPI/FII is entitled to invest in a portfolio of securities in Indian primary and secondary markets including equity, government securities, corporate debt, mutual funds, listed equity derivatives, securities lending and borrowings, interest rate futures, Indian depository receipts (IDRs), security receipts, rupee bonds or units issued by infrastructure debt fund and commercial paper. Since 1992, India has experienced a substantial integration with the world economy. Regulations afforded more flexibility to the foreign portfolio flows as compared to the other forms of capital inflows, and this had a
positive effect on the equity market in terms of availability of equity capital, the development of market liquidity and improved corporate governance. Since late nineties, portfolio investment flows from industrial economies have assumed immense importance for developing economies, and India is no exception in this regard. The FII flows to Indian equity market began in January 1993 and has gradually expanded to an average monthly inflow of INR 92,777.5 million during 2014-15, which was only INR 6,727 million during 2001-02. As on 31st March, 2015 a total of 1,444 FIIs/FPIs were registered with SEBI, and the total amount of FII investment in India had accumulated to a sum of over Rs. 8,489.37 billion. In terms of market capitalisation, the share of FIIs in Indian equities (as cumulative holding) had reached about 8.55% of the total market capitalisation of National Stock Exchange (NSE) and about 29% of the total market capitalisation of stocks included in S&P CNX NIFTY. Investment by the Foreign Institutional Investors (FIIs) in India was jointly regulated by the securities market regulator, the Securities and Exchange Board of India (SEBI), through the SEBI (Foreign Institutional Investors) Regulations, 1995 and by the nation’s financial regulator, the Reserve Bank of India, through the Regulation 5(2) of the Foreign Exchange Management Act (FEMA), 1999. In order to reduce the overall complexity and number of regulations governing inbound investments, SEBI in 2014 has notified the SEBI (Foreign Portfolio Investors) Regulations, 2014 (commonly known as FPI Regulations) which aim to rationalize foreign investments made into India by the portfolio investors such as the FIIs and Qualified Foreign Investors.

Substantially high growth in gross domestic product (GDP) in comparison to the developed economies, political stability, strong institutional capacity and liquidity of the Indian equity market have contributed towards diminishing home bias and attracted foreign investment flows, and hence resulted into a surge in FII flows. India’s shift towards an equity-market-dominated financial system has attributed more economic significance to the openness on
foreign portfolio flows. As FII flows are linking Indian finance to the global financial system, a deeper understanding of India’s financial globalisation calls for intensive analytical understanding of foreign portfolio investment.

Although it is generally held that foreign portfolio flows benefit the economies of recipient countries, policy-makers worldwide have perennial discomfort about such investments. Such portfolio flows are widely termed as “hot money” given its notorious volatility compared to other forms of capital flows, as foreign investors make sudden and concerted withdrawal of portfolio investments at the faintest smell of trouble in the host country thereby accelerating and magnifying the inconspicuous problem of downfall in stock prices, often leading to disastrous consequences to the host economy. Negative market returns decrease stock liquidity especially for high volatility stocks. Also, liquidity is a priced factor in expected asset returns because investors demand premium for expected trading difficulty which, in turn, increases the cost of capital and reduces market efficiency and significantly retards price discovery. Thus the potential danger of destabilisation of equity markets led by sudden huge withdrawals by foreign institutional investors prompted prominent economists to blame FPI flows for mothballing small economic problems and spreading financial crises thereby causing contagion in international financial markets.

The growing importance of FII flows and the problems associated with such flows have made the nature and causation of such fund flows a subject of many studies. A proper understanding of the nature and determinants of these flows is, therefore, essential for a meaningful debate about their effects - significant spikes in returns and volume, liquidity crisis and decline in market efficiency in price discovery even in the absence of substantial fundamental shocks, as well as for predicting the chances of their sudden reversals. It is in this context that the present study is undertaken.
1.2 Literature Review

A large volume of literature documents various aspects of FII flows. Earlier studies have focused mainly on the impact of foreign portfolio flows on stock returns of the recipient country and vice versa, or its effect on stock return volatility. Mukherjee, Bose and Coondoo (2002) have explored the relationship of FII flows to the Indian equity market with its possible covariates based on a daily data set. They have observed that (i) FII flows to and from the Indian market tend to be caused by return in the domestic equity market and not vice versa; (ii) return in the Indian equity market is perhaps the single most important factor that influences FII flows into the country. Working on some developing countries, Agarwal (1997) has observed that higher potential return and scope of diversification have a significant and positive impact on the FII flows. He has also shown that among other determinants of FII flows, real exchange rate, index of economic activity and the share of the domestic market in the world stock market capitalisation positively affect, whereas FDI, inflation rate and volatility in share prices and exchange rates negatively affect FPI in equity. Given the huge volume of investments, foreign investors could play a role of market makers and book their profits, i.e., they can buy financial assets when the prices are declining thereby jacking-up the asset prices and sell when the asset prices are increasing [Gordon and Gupta (2003)]. Hence, there is a possibility of bidirectional relationship between FII flows and the equity returns. Chakrabarti (2001) has found that FII flows are highly correlated with contemporaneous returns in the Indian markets, although this high correlation is unlikely to be the evidence of causal influence of FIIs on returns. He has also observed that any increase in FII flows during the pre-Asian crisis period had a positive impact on the equity returns. But in the post-Asian crisis period, the relationship reversed i.e. change in FII flows occurred mainly due to change in equity returns. Hence, any empirical exercise on FII flows has to take care of this fact.
It is generally acknowledged that one of the most important factors behind efficient price discovery is liquidity. As evident from the works of Amihud and Mendelson (1986), illiquid assets generally trade at lower prices relative to their expected cash flows. Jones (2002), analysing annual time series of bid-ask spreads on Dow Jones stocks, has observed that liquidity predicts future returns and liquidity shocks are positively correlated with return shocks. In the presence of systematically varying liquidity, securities with returns positively correlated with market liquidity earn higher expected returns [Pastor and Stambaugh (2003)]. In emerging markets, liquidity effects are stronger [Bekaert, Harvey and Lundblad (2007)]. Chuhan, in a 1992 survey, has observed that poor liquidity was one of the main reasons that prevented foreign institutional investors from investing in emerging markets.

Among the other possible determinants of FII flows, the returns in the source country financial markets and other fundamental factors in the source country can have greater relative importance. Although some of the existing studies have found that both return in the source country stock market and the inflation rate does not have any impact on the FII flows, Agarwal (1997) has found that world stock market capitalisation has a favourable impact on the FPI in India. With increased globalisation of financial markets, investors in a given market incorporate into their financial decisions not just their own domestic information, but the information of foreign financial markets as well.

Bushee (2004) has provided evidence that stock return volatility is related to institutional ownership. Disproportionate presence of transient institutions, which are characterized by high portfolio turnover and ownership of small stakes in portfolio companies, increases stock return volatility. On the other hand, presence of dedicated holders, which provide stable ownership, take large positions in individual firms and are largely insensitive to short term performance of the firms, reduces stock price volatility. Dennis and Strickland (2005),
examining the time-series and cross-sectional determinants of idiosyncratic volatility of the universe of stocks in the CRSP-Compustat merged database for the period 1984-1997, have found that increase in firm-level volatility in the time series and also in the cross section is positively related to increased institutional ownership, with one standard deviation change in institutional ownership resulting in a 75% increase in idiosyncratic volatility. Although many of the current literature suggests that institutions tend to destabilise prices by increasing turnover levels, there are some good reasons to believe that higher levels of institutional ownership could be negatively related to volatility. Institutions are generally better informed than individual investors. Chiang et al. (2009) have found that institutional investors are sophisticated enough to have an information advantage over individual investors. Also an increase in the information content of prices reduces uncertainty about future stock returns, and thereby the variance of stock returns. Therefore, a higher level of institutional ownership may be associated with more informative prices and hence a reduced volatility in stock returns. Analyzing detailed bidding data from Taiwan’s discriminatory (pay-as-bid) auctions, Lin et al. (2007) have found that, relative to retail investors, institutional investors tend to bid higher in auctions when IPO shares are more valuable, and that underpricing is larger in auctions with relatively higher institutional bids. Their results imply that institutional investors are better informed about IPO value, and that they obtain higher information rents when they bid higher relative to retail investors. Campbell et al. (2009) have contended that institutional investors exploit mispricing in equity markets by taking advantage of their superior information, and hence a higher level of institutional ownership may be related to more intensive information acquisition, more informed trading and consequently more informationally efficient prices.

During the last decade, the intense integration of markets worldwide has ushered in an evolutionary change in the dynamic relationship between FII flows and its determinants.
Market expectations and implied volatility both in the source and the host country may have significant impact on FII flows in recipient country due to such paradigm shift in economic relationships. Implied volatilities derived from option prices represent the market’s assessment of future risk and are likely to be a superior measure to historical realised volatility. Implied volatility should incorporate all relevant information contained in the market information set in explaining future realised volatility. If not, then arbitrage opportunities would arise and option prices would adjust until they reflect all available public information regarding future volatility. Growing importance of modeling and predicting asset volatility to deliver unbiased and efficient forecasts of future realised volatility has made the relevance of implied volatility versus volatility forecasts based on historical returns an important topic in modern finance. Whaley (2000) has referred to volatility Index (VIX) as the ‘investor fear gauge’ since high levels of VIX coincide with high degrees of market turmoil. Based on the observation that high levels of VIX often coincide with market bottoms and seem to indicate “oversold” markets, some traders use VIX as a stock market timing tool. Giot (2005) has suggested that extremely high levels of VIX may signal attractive buying opportunities. Another opinion is that the volatility of the market, as represented by VIX, is a systematic risk factor, and there should be no abnormal returns after adjusting for this factor. Jackwerth and Rubinstein (1996), Coval and Shumway (2001), and Bakshi and Kapadia (2003) have found a negative market price of volatility risk. If investors have aversion to volatility, high levels of volatility will translate to high price risk premiums, since prices and volatility are negatively correlated.

Empirical evidence of recent studies to evaluate the information content of implied volatility versus volatility computed from historical returns is mixed. Although a broad survey of recent papers by Poon and Granger (2003) indicates that, in general, forecasts based on implied volatility beat forecasts based on historical returns. Jorion (1995) has observed that
implied volatility is an efficient but biased forecast of future volatility. Using intraday
returns, Neely (2002) has argued that implied volatility is a biased estimator of future realised
volatility and that volatility forecasts from econometric models should be taken into account.
Canina and Figlewski (1993) have found almost no correlation between implied volatility
and future realised volatility. Christensen and Prabhala (1998) have demonstrated that
implied volatility indeed outperforms past volatility in forecasting future volatility and
features high information content. Analysing the S&P100 index and VIX implied volatility
index, Blair, Poon, and Taylor (2001) have observed that historical returns do not provide
much incremental information compared to the information given by the VIX index of
implied volatility. Ederington and Guan (2002) have found that implied volatility includes
the information in historical volatility and has stronger predictive power than historical
volatility. Many studies show that implied volatility indices can be used as a predictor of
stock market returns. Also in financial literature, there are evidences of causal relationship
between stock market returns and foreign institutional flows. Hence there is a strong
possibility that foreign institutional flows may be forecast by studying implied volatility
indices.

Research Gap
However, in most of the works as discussed in the preceding paragraphs, foreign institutional
investors have been studied as a determinant of stock market volatility in the recipient
country, while very few studies have been conducted to explain the behavior of their flows to
and from Indian equity markets. Hence an extensive analysis of the drivers of FII flows, and
the impacts of FII flows on the dynamics of Indian equity markets assumes significance from
the viewpoint of the Indian economy. However, given the wide scope of the study about
nature and determinants of FII flows, a focused view is taken to examine the three
components of the possible set of determinants and impacts: liquidity, volatility and efficiency of the Indian stock markets, in an attempt to address the lacuna in existing studies.

1.3 Objectives of the Study

The general objective of the study is to examine the influence of foreign institutional flows on Indian equity markets and vice versa. This necessitates an analysis of the factors behind FII flows, and the dynamic relationship between stock market return, volatility, liquidity, efficiency and such institutional flows. More specifically, the study attempts to:

- analyse the nature and causes of FII flows (*Chapter II*);
- assess the relationship between FII flows and economic development (*Chapter II*);
- examine the international trend in FII flows, volatility spillover and contagion (*Chapter III*);
- critically analyse the regulatory framework for Foreign Institutional Investments in Indian context (*Chapter IV*);
- evaluate the speed of price adjustment to new information in Indian stock markets (*Part A of Chapter V*);
- examine the information content of FII holdings in forecasting stock returns, and explore whether such information content varies with varying liquidity and volatility (*Part A of Chapter V*);
- evaluate the contribution of foreign institutional investors on market liquidity (*Part B of Chapter V*);
- analyse the relationship between FII flows, market return and volatility (*Part C of Chapter V*);
• examine the relationship between implied volatility, liquidity and stock returns
  \textit{(Part C of Chapter V)};
• establish the relationship between volatility index in India and FII flows in
  Indian equity market \textit{(Part C of Chapter V)};
• establish the relationship between volatility index in the source nation of FII
  and FII flows in Indian equity market \textit{(Part C of Chapter V)};
• examine the existence of intermediation effect between volatility indices in the
  source nations, India-VIX, market returns and FII flows in Indian equity
  market \textit{(Part C of Chapter V)}, and
• identify unaddressed related areas for further research.

1.4 Methodology

The present study is both \textit{explorative} and \textit{empirical} in nature. The explorative part of the study is based on existing literature on the subject, including the related legislations, and theoretical and empirical works published in India and abroad.

To model FII flows in the empirical part of the study, the causal directions between them and efficiency, liquidity and volatility are ascertained. The other relevant factors like stock return, promoters holding, price-to-book value ratio, market capitalization, daily exchange rate movement of the Indian rupee vis-a-vis the US dollar etc., which might also affect FII flows according to the previous studies, are used as the control variables.

The fifty companies of Standard & Poor CNX Nifty is the basis for sample selection in the study. Secondary data are sourced from the databases of CMIE Prowess, Reserve Bank of India and Bloomberg, over the period 2003-04 to 2014-15 to perform the empirical analysis. Appropriate financial, statistical and econometric tools are used to process data and draw
inferences thereof. The detailed methodology for the empirical part of the study is explained in Chapter V.

1.5 Plan of Work

In order to achieve the objectives mentioned in section 1.3, a comprehensive analysis is made of global FII investments, its effect on Indian stock markets and vice-versa, and accordingly the study is segmented into the following chapters.

Chapter I Introduction (problem identification, objectives, methodology and plan of work)

Chapter II Conceptual Overview of Institutional Flows into Equity Markets

Chapter III International Trend in FII Flows

Chapter IV Regulatory Framework for Foreign Institutional Investments in Indian Context

Chapter V Determinants and Impact of FII Flows in Indian Stock Market

Part A:  
I. FII and Stock Efficiency

II. FII and Informational Efficiency at index level

Part B:  
I. FII and Stock Liquidity

II. FII and Liquidity at index level

Part C:  
I. FII and Stock Volatility

II. FII and Volatility in index return

III. FII and Implied Volatility

Chapter VI Conclusions and Recommendations