IMPACT OF FOREIGN PORTFOLIO INVESTMENT ON INDIAN CAPITAL MARKETS

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By

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CERTIFICATE

Certified that this written account on **"Impact of Foreign Portfolio Investment on Indian Capital Markets"** is a bonafide record of research work done by Miss Thushara George under my supervision. This thesis has not been submitted earlier for any other degree or diploma.

Place : Thrissur
Date :

Dr. D. Prabhakaran Nair.

DECLARATION

I, Thushara George, do hereby declare that this written account entitled "**Impact of Foreign Portfolio Investment on Indian Capital Markets**" is a bonafide record of research work done by me under the guidance of Dr. D. Prabhakaran Nair, Professor of Economics, University of Calicut.

I also declare that the thesis has not been submitted by me fully or partly for the award of any degree, diploma, title or recognition before.

Place: Thrissur **Thushara George**

Date:

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Words of gratitude, inept and ineloquent, fails to capture what heart and soul feels. Still attempting to precipitate some thoughts into the raven black print…….

To the all powerful Almighty

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dispelling the storms and anchoring the remnants ,
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Thushara George.

CONTENTS

LIST OF TABLES

LIST OF CHARTS

CHAPTER 1

INTRODUCTION

The word capital stimulated the interest of economists because the phenomenon of capital accumulation is the base of development. Capital accumulation transforms the mode of production giving rise to new system of production. Since the early 17th century, at the very beginning of systematic economic thinking, Antonio Serra identified investments in manufacturing as the source of riches that could accrue to kingdoms where gold and silver mines were absent. At the end of the next century, Adam Smith fully developed the role of capital in economic growth. Since then capital accumulation has always gained a central role in the growth theories. For example Rostow emphasizes that for an economy to reach the take off stage capital accumulation is a necessary ingredient.

During 1950's growth theory became concentrated around the term foreign capital. Its role was emphasized in the investment equation of developing countries as these countries lacked capital, due to low income, saving and other hurdles to development. Hence in the developing world capital accumulation and capital flows assumes a greater importance.

Academic and financial communities have extensively debated on the debt crisis of 1980's (affected regions: Latin America, Africa and some countries of Eastern Europe and Asia).During the period from the crisis to the early 90's the capital flows to the developing world slowed down- these were

the years of debt negotiations and rescheduling. Between 1990 and 1997capital flows to developing economies surged again but soon it gave way to a series of international financial crisis E.g. South East Asian crises. This raised doubts regarding the benefits of such flows. Think tanks raised the question; is this surge part of the developed world ploy to bring about the neo colonization and neo imperialism via capital flows (Financialization of capital)? The question remains unanswered.

The crisis of 1991 and the New Economic Policy had metamorphosised the Indian economy. With the globalization and opening up policy the ripples of international events could be felt in our economy too. The capital inflows and outflows emerged as a strong factor determining the growth of the economy. Capital flows may be classified into Foreign Direct investment and Foreign Portfolio investment. It is the Foreign Portfolio investment, which is more volatile and unstable that I am concentrating my attention on.

The question as to why this particular field was selected and its importance is answered in an ordered procedure henceforth starting with the review of literature.

REVIEW OF LITERATURE

Review of existing literature is a precondition to any model formulation, theorizing or research analysis. It helps to identify the research problem and stimulates new thoughts and ideas on the same .

Large number of studies has been made about the capital flows and their impact on economic development. Based on the nature of the studies the reviews in this case are divided into three categories (i) studies on

international capital flows, capital markets and crises (ii) studies on capital flows, stock market development and economic growth (iii) capital market studies in the Indian context

I: Studies on international capital flows, capital markets and crises

Collier et. al (2001)[1] sets flight capital in the context of portfolio choice, focusing on the proportion of private wealth held abroad. They explain cross country differences in portfolio choice using variables that proxy differences in the risk adjusted rate of return on capital. Estimates of the stock of private flight capital and the stock of total private real wealth for 50 countries in the Sub Saharan Africa, Latin America, south Asia, East Asia and Middle East are made using residual regressions. The study reveals that there are large regional differences in the proportion of portfolio held abroad, ranging from 5 percent in South Asia to 40 percent in Africa. East Asia had only 6 percent of its wealth abroad. However the independent country wise regressions are absent in their study and this may lead to errors as internal factors influencing capital flows differ from country to country.

Agenor and Hoffmaister (2001)[2] have studied the relationship between capital inflows and real exchange rate. They have provided an analytical framework and econometric evidence. The Granger causality between capital inflows and real exchange rates showed that the real exchange rate Granger caused the capital inflows. The neoclassical model of capital movements is modified by using the country specific factors like country creditworthiness and rate of interest (domestic and international). The application of the model too suggests the fact that there is a causal relationship between real exchange rate and capital inflows.

Green (2001)[3] makes a cross-country study on the capital account liberalization. Capital account liberalization (CAL) remains one of the most controversial policies today. One reason is that different theoretical perspectives have very different implication for the desirability of liberalizing capital flows. Another is that empirical analysis has failed to yield extensive results. He analyses the impact of CAL on capital mobility across countries. It is a theoretical discussion based on past studies and experiences. He generalizes his study and points out that microeconomic foundation have to be searched thoroughly for answering the big question of capital account convertibility. However the article uses abstract methodology which is a combination of methodologies of previous studies.

Levine and Zervos (1996)[4], Rodrick (1998) [5], and Kraay (1998) [6],have conducted studies on the capital account liberalization and growth. Levine and Zervos in their article examine whether there is a strong empirical association between stock market development and long run economic growth. Cross country growth regression suggest that the pre determined component of stock market development is positively and robustly associated with long run economic growth. Rodrick and Kraay in their independent studies using IMF Index, Quinn Index, Gross Inflows and Outflows as alternative measures of financial openness finds no impact on GDI as a share of GDP as a result of capital account liberalization while Levine and Zervos finds that for 16 developing countries the stock markets became larger and more liquid after the opening of the capital account.

Calvo, Leiderman and Reinhart (1993)[7] have argued in a series of papers that while domestic factors were undoubtedly attracting inflows, such factors cannot explain why inflows occurred in countries that had not undertaken reforms or why the inflows did not materialize till 1990. Hence they have emphasized on the role of the external factors .Through principal component analysis they established a significant degree of co-movement among foreign reserves and real exchange rates for 10 Latin American countries during 1990-91 than in 1988-89. Co movement with the rate of inflation diminished in the more recent period. Large bivariate correlation was also found between capital flows and US financial variables. For individual countries Granger causality showed that reserves were causing real exchange rates than the reverse. Structural VAR's, variance decomposition and impulse response functions indicated that foreign factors played a large role in accounting for reserve and real exchange rate movement

Chuhan, Claessens and Mamingi (1993)[8] attempted to disentangle the roles of domestic and external factors in motivating portfolio capital inflows. Using monthly bond and equity flows to nine Latin American and nine Asian countries from January 1988 to July 1992, they estimated separate panel regressions. These regressions explained bond and equity flows as functions of country specific variables (country credit rating, price of debt on secondary market, price earnings ratio in the domestic stock market and the black market premium. They found that bond flows (not equity flows) responded strongly to the country credit rating while P/E ratio was important in both cases. To assess the relative importance of domestic and foreign variables they computed the sum of standardized coefficients and found that in Asia

domestic variables had an upper hand while in Latin America both were equally significant in attracting bond and equity flows.

Fernandez Arias (1994)[9] studied capital flows using data that measured capital flows directly rather than on proxies in the form of reserve and real exchange rate changes. He decomposed post 1989 portfolio bond and equity inflows for 13 developing countries into country credit worthiness adjustment factor, expected return on projects and creditor country financial conditions using the fixed effect panel estimates. He found that for the developing countries changes in international interest rates proved to be the dominant force in explaining surges in capital inflows (accounts for 60 percent of the deviations in such flows since 1989). 25 percent changes were accounted for by changes in creditworthiness and 12 percent to be explained by improvements in the domestic investment climate.86 percent of the surge in inflows were accounted by movements in external interest rates when secondary market debt price was used as the creditworthiness indicator .

Dooley, Fernandez Arias and Kletzer (1994)[10] They follow the same decomposition of creditworthiness into domestic and foreign components but instead of explaining capital flows directly they attempt to account for the behavior of secondary market prices on debt since 1989, which has increased markedly. Their major finding says that all increases in prices can be accounted for by reductions in the face value of debt and international interest rates .However the effect of improvements in domestic environment amounts to almost nil.

S. Schadler, Carkovic, Bennet and Khan (1993)[11] in a theoretical appraisal points out that push factors cannot always predominate because of

the following reasons (i) External shocks /changes did not coincide with the timing of the inflows (ii) Timing persistence and intensity of inflows has varied considerably across countries that have received inflows ,suggesting that investors have responded to changes in country specific factors overtime (iii)External creditors exercise cross country discrimination in the allocation of funds.

Hernandez and Rudolph (1994)[12] examined the extend to which standard credit worthiness indicators could explain long term capital inflows for a sample of 22 developing countries over the period 1986 to 1993.They splitted the sample of countries into groups of high capital inflow recipients (HCIR) and low capital inflow recipients based on domestic savings, investment as percentage of GDP, level of fiscal deficits, inflation rates and debt stock. Arranging data into a panel of annual observations capital flow equations were estimated for a broad category of long term flows as a function of lagged domestic consumption and investment rates, external interest rates and the ratio of net external debt to GNP, the variability of real exchange rate and the presence of a Brady bond deal . They found that domestic creditworthiness played a statistically significant role in attracting the flows. However no role was found for the external rate of interest which is questionable because in reality it is a major factor influencing the capital flows to developing countries.

World bank (1997)[13] adopted the Calvo, Leiderman and Reinhart methodology and suggested that the factors driving inflows have been changing overtime .Domestic factors have played a more prominent role

during 1994-95. Quarterly flows from the US to 12 emerging markets in East Asia and Latin America were characterized by a substantial amount of co-movement during 1993-95(measured by the proportion of the variation captured by the first principal component). First principal component of these series was highly negatively correlated with the first principal component of a set of representative US asset returns. During 1993-95 these movements became much weaker (dropped from 75 percent to 45 percent) and correlation with US asset returns reversed signs.

Luis F de la Calle (1991)[14] tests the arbitrage pricing theory in the context of the unstable macroeconomic years in Mexico (1977-87) using information on returns on assets available to domestic investors –primarily stocks traded at the local stock exchange. An attempt is made to ascertain the extend to which these assets have offered premia for a set of proposed sources of risk. A residual market factor is obtained using Mc Elroy and Burmeister model. The Asset Pricing Theory is applied to the relative prices of securities held by Mexicans. They found that (i) Mexican economy had paid excess premia because of unstable macroeconomic conditions (ii) Mexican capital market is not well integrated with international capital markets (iii) Mexican economy is not well diversified with respect to oil shocks.

Stephany Griffith Jones *et al* (ed)(2003)[15] analyses the financial crisis of late 1990's and draws attention to the types of lenders and investors that triggered and deepened the crisis. They concentrates on institutional investors and banks and provides detailed analysis of the countries most affected by the 1997-98 Asian financial crises as well as that in Czech Republic and Brazil.

It also suggests necessary international financial reforms to make crisis less likely. It scrutinizes the type of lender and investors that triggered and deepened the crisis, focusing on institutional investors and banks, allocation of theirs assets; the criteria used in the process and the impact of the nature of the investor on the volatility of different types of capital flows. They conclude by examining the asymmetries in the financial architecture discussions and implementation and by offering policy proposals.

Carlos M. Corea & Nagesh Kumar (2003)[16] concentrates on the FDI flows and WTO regime. They analyze the trend and pattern of FDI flows to the developing countries in the context of the WTO agreements. The TRIPS, TRIMS and many other much debated issues are examined to find out how they affect the inflows of capital. They conclude that the WTO regime has made FDI movement much easier among the economies where there are less trade barriers. Their study however does no justice to the analysis of the FDI flows as they have failed to account for the role of domestic infrastructure and environment in attracting FDI flows.

Sebastian Edwards (2000)[17] points out that the 1990's witnessed several acute currency crises among developing nations that invariably spread to other countries. These episodes (Mexico, Thailand, South Korea, Russia and Brazil) were in every case exacerbated by speculative foreign Investments and high volume movements of capital in and out of these countries. Insufficient domestic controls and a sluggish international response further undermined these economics, as well as the credibility of external oversight agencies like the IMF. They examine the correlation between volatile capital mobility,

currency instability and the threat of regional contagion focusing particular attention on the emergent economies of Latin America, South East Asia and Eastern Europe. These studies offer an important new understanding of the empirical relationship between capital flows, international trade and economic performance. It also affords key insights into realms of major policy concern, including the fundamental usefulness of capital controls and trade restrictions.

In his work on Capital flows and crises, Green (2003)[18] analyses the implications of capital mobility for growth and stability. He discusses, historical, theoretical and empirical and policy aspects of the effects, both positive and negative of capital flow. He focuses on the connections between capital flows and crises as well as on those between capital flows and growth. He argues that international financial liberalization like other forms of economic liberalization, can positively affect the efficiency of resource mobilization and the rate of economic growth. But analysis of both recent and historical experience also shows an undeniable association between capital mobility and crises, especially when domestic institutions are weak and the harmonization of capital account liberalization and other policy reforms is inadequate. In his conclusion Eichengreen makes suggestion for policy design to maximize the benefits of international financial liberalization while minimizing the risk of financial instability.

David Woodward (2001)[19] says that FDI and to a lesser extend portfolio equity investment have been widely heralded as the key benefit that globalization now offers the south and the principal mechanism to kick start economies into rapid growth. He argues that the 1990's have seen a dramatic

increase in foreign capital invested in some developing countries. David Wood ward analyses various impacts of capital flows and the benefits of such flows. He assesses the scale of the flows involved, their systematic undervaluation in official statistics, their geographically skewed distribution, the very high rates of return, the risks of substantial out flows of resources and the massive shift towards foreign ownership required to avoid them, the potentially depressive effects of over investment on the prices of many third world exports , the adverse implications for national sovereignty social welfare and the democratic right of third world people to use the governments they elect to act in ways they want them to do. He points out that FDI may have actually contributed to the Asian financial crises and could in future lead to a new wave of similar financial crises throughout the developing world.

Stephany Griffith Jones *et al* (2001)[20] Says that the currency crisis that engulfed East Asian Economies in 1997 and Mexico in 1994 and their high development costs raise a serious concern about the net benefits for developing countries of large flows of potentially reversible short term international capital. The studies are based on comparative case studies of key emerging economies of the East Asian, Latin American, African and Europe. The financial and real effects of financial flows and between private and public responsibilities in managing financial Markets in these economies are analyzed in detail. The selected essays analytically identify the weaknesses in both domestic and international capital market regions. The recommendations derived from this analysis apply to the development of financial markets in developing countries, the monitoring and regulation of mutual funds in source countries and the future development of international

capital markets. It makes an important contribution both to the discussion of national policies and of a new international financial architecture.

Karel Jansen and Rob Vos Ed (1997)[21] opine that external finance has been essential to the development of many developing countries. They analyze how different types of capital flow have generated different types of adjustment problems in developing countries of Asia and Latin America and examines the key features of their economic structures and economic policy responses that have determined their success or failure in employing external finance as a catalyst of development. They conclude that adjustment policy failures have been strongly linked to inadequate recognition of the importance of institutionally determined market imperfections and rigidities, both at home and abroad. However the volatility in the flows of finance to the developing countries has also posed major policy problems, particularly in recent decades. This aspect is not paid much attention by the authors.

Mary Ann Haley (2001)[22] tackles and conclusively refutes a crucial tenet of the contemporary international liberalizers. Their claim is that laissez faire international capital flows promote freedom in developing countries. Her careful study demonstrates that capital account liberalization, demanded from abroad, severely constrains the economic policy options of elected leaders in emerging market countries. She explores how the private capital sourcing in particular, portfolio capital, effects democratization in developing countries. A probe into investor's co-ordination, asset concentration, political preferences and investor activation provides a frame work for understanding the international financial constraints on developing countries.

Stefano Manzocchi (1999)[23] evaluates the pattern and function of the foreign capital in developing countries using a long run perspective. The main conceptual instruments employed are the theory of economic growth and the techniques associated with recent advances in growth econometrics. The experience of the whole 1960-88 foreign capital shows that foreign capital moved according to the growth potential of developing countries over 1960-82, but its actual contribution to growth was manifest only up to 1972 .This is disappointing as after 1972 a substantial surge in capital flows towards developing countries is observed. The enhanced availability of foreign resources was associated with excessive consumption or (alternatively) external borrowing led to an over financing of high risk, low return investment projects, with perverse effects on the sustainability of foreign debts. The empirical work points out that there is no mechanical trade off between the short term dangers and the long run gains from capital markets integration, but the growth benefits of foreign capital in transforming economies are conditional as an effective destination of the resources. Over borrowing and exclusive consumption are the main pitfalls in both the short and long term.

L. Reuber et al (1973)[24] describes and evaluates some of the main characteristics and economic effects of Private Direct Investment in manufacturing industries in the developing countries so that these central features may be seen in perspective. Considerable attention is also given to the supply characteristics of FDI, to alternative sources of capital and to the auxiliary factory and market access associated with investment. They say that FDI have shown a mixed impact in some developing countries while in some

others it has shown a negative impact with the concentration around unproductive activities and import of obsolete technology.

Walther P. Michael (1971)[25] constructs integrated accounts of international capital flows, including grant between individual countries by type of capital. He demonstrates that it is feasible to reconstruct international capital transactions in matrix form showing the flows by sources and destinations. Descriptive statistics is used to account for the trend and pattern of the flows from north to south. He says that during the 80's Latin America was the major destination of US equity and debt flows while in the 90's south Asia became the favorite destination. He fails to account for the major factors which lead to these changes and what was the impact of these flows on their domestic economy.

Brendan Brown (1987)[26] covers contemporary history of international money moments from the collapse of the old order in summer 1931 to the present day. By relating the behavior of currencies to the investor's perception of economic and political turning points, it provides a fascinating critique of market performance. The author traces six main periods in the history of the international capital flows. The Franc – Dollar axis 1931-36 - The waves of capital flight to the U.S.A in the lead up to World War II - The period up to the late 1950's when only the dollar and the Swiss Franc survived as hard monies - The emergence of the mark-dollar axis up to the floating of the mark in May 1971- The huge flows of the hot money out of the dollar in years 1971-73 and Finally the experience of floating exchange rates since spring 1973.From the historical experiences described, Dr. Brown is

able both to establish patterns in currency behavior and draw lessons for the modern investor.

Donald R. Lessard and John Williamson (1986)[27] outline the proceedings of a conference held in October 1986 to assess the problem of capital flight and its role in perpetuating the third world debt crises and discusses policy measures that might help to stem and reverse the exodus of capital from capital short countries. They point out that a better understanding of the push and pull factors facilitates the cause of these outflows. Political instability and huge inflationary pressure coupled with the burst of the stock market bubble lead to the outflows from the south East Asian countries.

Uri Dadush et al (2000)[28] points out that in the second half of 1997, Thailand, Malaysia, Korea and Indonesia experienced an outflow of foreign capital of more than 100 billion. The effects of this outflow rival the worst years of the Latin American debt crisis and the early years of the great depression. The Asian Crisis demonstrates how inter connected the global economy has became and they try to understand the Asian financial crisis by taking into account the dynamics of private capital flows. They point out that capital account liberalization, inadequate policy framework and weak governments perpetuated these crises. The timing of the reforms was also not suited to these economies.

Paul Krugman Ed (2000)[29] addresses the following fundamental issues. What drives currency crisis? How should government behavior be modeled? What are the actual consequences to the real economy? His analysis points out that apart from the capital flight there are various internal and external elements

which perpetuates crises. However all the blame suddenly falls on the capital flows, which though triggers off the crises, does not alone contributes to the currency crises. The factors like the degree of capital account liberalization, real effective exchange rates, disinvestment policies etc plays a significant role in it. Weak governments face pressure from the creditors to manipulate the liberalization policies in their favor. This act as a serious constraint in the working of the government. Taking the examples of Mexico Thailand, Philippines and Indonesia he argues that the currency crises leads to the collapse of the real as well the monetary sectors of the economy.

Magnus Blom Storm (1989)[30] opines that the spill over effects of MNC's is a matter of much controversy and theorizing at present. The assumption that the host countries can be expected to enjoy spillovers-improvements in the Balance of payments, in the inflow of foreign currency and in other sectors of the economy not directly affected by the multinational has not been necessarily corroborated in practice. He comes to very different conclusions which can be drawn about spillovers, reporting on much original research on Latin America and contrasting this with findings from earlier studies. He finds that contrary to the common belief the developing world does not enjoy the spillover benefits. However he fails to give satisfactory explanations and empirical evidences for the factors which prevent the spill over.

Dilip K. Ghosh and Edgar Ortiz Ed (1994)[31] examine the emerging issues, the basic questions and analytical structures-arising from increasingly globalized financial markets of the south Asian countries from 1986-1994.

They analyze foreign exchange market long run equilibrium, refinance and fluctuations vis a vis government intervention. Various issues from capital flows to balance of payments, international reserves, foreign debt, and country risk analysis and equity market quotations systems are examined in detail. They discuss integration of Municipal finances, optimum tax structures in closed and open economies, the issue of trade liberalization, off shore banking and the role model of global banking. They conclude that the policy frame work of the developing countries is inadequate and insufficient to meet the needs of the globalized financial markets.

Swoboda (1976) [32], says that Argy (1969) , Polak and Argy(1971) , and Swoboda (1972) have explored the long term equilibrium condition of capital flows by examining implications of monetary and fiscal policies on income and international reserves, given the long-run constraint that the balance of payments must be restored to equilibrium. He outlines the models by McKinnon and Oates (1966), Oates (1966), Levin (1970), and Whitman (1970) which assume perfect capital mobility by considering that asset holdings by the private sector consist of both domestic and foreign bonds, which are treated as perfect substitutes. In these models, money supply is determined exogenously, implying that the monetary authorities sterilize the effect of disequilibrium in the balance of payments. Consequently, the equilibrium in this kind of model is satisfied when a surplus or deficit on the current account is offset by a deficit or surplus in the asset market.

II: Studies on capital flows, stock market development and economic growth

Gurley and Shaw (1955)[33] opine that as countries develop, self financed capital development will be increasingly replaced by intermediated debt finance and later equity markets for raising external funds emerge and develops. The financial structure i.e. financial intermediaries and markets changes as countries develop. Asli Demirguc Kunt and Ross Levine (1996) have brought out evidences in support of the Gurley and Shaw theory.

In 1970's Mckinnon(1973) [34] and Shaw (1973)[35] studied the relationship between financial development and economic growth. They argued that government manipulation of interest rates and allocation of resources causes distortions in the economy. This in turn leads to negative effect on allocative efficiency and saving investment in less developed countries. Hence they point out that financial liberalization is essential for the removal of distortions. But the study fails to incorporate the role of capital markets in the context of liberalization. They also remain silent on the trickle down effect of unplanned and unfocussed liberalization.

Cho (1960)[36] developed the Mckinnon Shaw ideology by introducing the role of stock markets. They found that banks fail to achieve efficient capital market allocation due to imperfect credit market information. Equity markets have superior information and hence they fare better than banks in capital allocation. They suggest that equity market development is desirable and necessary for complete financial liberalization. The drawback of the study

emerges from the fact that it focuses on the allocative function only and ignores the impact of the financial markets on the real economy.

Mayer (1989)[37] made studies using the corporate balance sheets to examine the amount of funds raised from the securities market and compared it with the internal sources of funds raised by firms .He found that for the developing as well as the developed countries retained earnings are the most dominant source of finance .However there are variations in the retained earnings across countries .He argued that in no countries companies raise substantial amount of finance from the securities market and banks are the main sources of external finance in all countries. Another finding was that the expenditure financed from retentions are inversely proportional to the bank credit . Mayer also pointed out that small and medium sized firms rely more on external finance than large ones. The World Bank severely criticizes the views of Mayer and says that his views are utopian in nature. One thing is clear he fails to take into account the changing scenario in the financial markets.

Tesar and Werner (1995) [38] and Bohn and Tesar (1996)[39] examine U S equity flows to emerging stock markets in Asia from 1978 to 1991 using descriptive statistics ,cumulated real US net purchases of foreign equity and correlation coefficients . They examined the factors that drive the US portfolio investment into foreign markets and they draw three main conclusions. First despite the recent increase in U S equity investment in emerging stock markets, the U S portfolio remains strongly biased toward domestic equities. Second the fraction of the US portfolio that is allocated to

foreign equity investment, the share invested in emerging stock markets is roughly proportional to the share of the emerging stock markets in the global market capitalization value. Third, the volatility of U S transactions in emerging market equities is higher than in other foreign countries.

Haluk Ak dogan, (1995)[40] examines the integration of international capital Markets, propelled by the information technology revolution and the creation of variety of new financial instruments which is central to the major economic changes taking place throughout the world. This key issue in global finance is theoretically and empirically addressed in Ak dogan's innovative study using asset prizing theories to test the status of international capital market integration. His study differs fundamentally from other studies of integration in two respects.

(i) It is based entirely upon financial theory rather than the pure theory of international trade.

(ii) It develops several different empirical models of capital market integration. These models are empirically tested using the modern capital asset pricing approach and drawing on data taken from 26 stock markets all over the world.

The study fails to draw attention on the spill over effects of international capital market integration. Dogan remains silent on this crucial issue which is very essential for policy formulation

Razia and Sadka (2000)[41] combine elements from the seemingly disjoint parts of economies and presents them in a consistent analytical framework. It lays the ground work for the integration of capital, labor and

finance into a unified treatment of globalization. Using the growth theories and empirical models of international factor movements they argue that it is essential to develop an integrated framework for all these variables. They say that if this does not happen then economies will remain isolated sectors unable to reap the benefits of globalization.

Charles Oman (1984)[42] researches on new forms of investment in developing countries. He draws to a considerable extend on his research carried out in 1980-82 on the basis of collaborative agreements with researchers and their institutes in 10 developing host countries. He concludes that the emerging markets in these countries (Philippines, Thailand etc) , are becoming more and more diversified . New debt instruments are floated and considerable public interest is generated .He fails to account for the impact of these instruments in a long run perspective on the investment and saving in the economy .

Bruno Solnik (1991)[43] presents the international environment and provides both a theoretical and empirical analysis of the basic economic aspects of the international capital markets. He also analyses the international investment's pros and cons, the major investment vehicles, the instruments, the markets as well as the concepts and the techniques used to analyze those investments. He provides a detailed account of the international capital account pricing theory and how it is used in evaluating the securities. He also tests for the co movement between the interest rate and securities market performance. He concludes by saying that the capital markets – both bond and equity – show high degree of correlation with the US interest rates.

Kenneth Midgley and Ronald Burns (1977)[44] examine the role of the capital market, different classes of security and reasons for their issue. The requirements and circumstances of various fund raisers, including public corporations and government as well as private industry are analyzed with regard to the personal factor institutional investors, loans and specialist suppliers, such as Finance for Industry. Factors influencing the demand for capital are technological innovations, spread of equity cult, favorable industrial environment, relaxation of tax rates and tax concessions. His explanation of procedure and means of regulation within the capital market, criticisms on the working of the capital market, its effectiveness and adaptability cannot be applied in a highly globalized environment.

E. Victor Morgan and Richard Harrington. (1977)[45] present the findings of their study on Capital Markets in the EEC (1950-1975) by covering the volume of saving and investment in relation to National Income for individual countries in the EEC .They use a series of comparative studies among these countries to deal with major issue of public interest. Using the descriptive statistics, capital market turn over, market capitalization, volatility and liquidity the capital markets are analyzed and found that the capital markets of these countries need a revision of policies and instruments to function effectively.

Brain Scott Quinn (1975)[46] sets the markets in a theoretical frame work and looks at the question of currency of denomination of Eurobonds and the relationship of this to the interest rate – a question of practical importance yet one which has not previously been dealt with any depth. He makes a study of

the borrowers in the markets in preference to domestic markets and how the different features of the Eurobonds and Euro currency markets might lead a particular borrower to use one rather than the other. He finds that when the interest rates are high in the bond market external borrowers prefer euro currencies as debt instruments. His study however fails to give empirical evidence in support of his arguments.

Jan Mossin (1973)[47] provides a unified theoretical framework, based on general equilibrium theory, for the analysis of valuation of securities, the financing and investment decisions of a firm and the competitive financial markets distributing investment capital among firms and in allocating the risk of return among investors. He places special emphasis on the normative aspects of capital market theory. The price earning ratio, asset valuation, interest rate spread etc are explained in detail. He thus presents the various methods for understanding the capital market functioning.

James A. Hanson and Sanjay Kathuria (Ed) (1999)[48] analyse the new dilemmas arising from the expanded role of the financial sector, and proposals for the second phase of reforms. It deals with complex international problems and provides international comparison of capital markets.. Two broad themes emerge from the discussions. An improved incentive framework, prudential regulation and supervisors are needed to deal with the increasing complexity of finance while discouraging excessive risk taking.

Branson (1968)[49] examined the case where traders were assumed to operate simultaneously as arbitrageurs, hedgers, and speculators. He concluded that an increase in the foreign interest rate (generating a shift in the

arbitrage schedule) would cause a decrease in the forward foreign exchange rate but that the direction of induced capital movements could not be determined. This unusual result is contradicted by the empirical work, which clearly supports the conventional view that an increase in a given country's interest rate will have a positive effect on the short term capital inflow

III: Studies on capital market, capital flows and policy issues in the Indian context

S.S Tarapore (1999)[50] covers various vital aspects of financial policy including monetary and credit policy, development of the money market, regulation and supervision in the financial section, fiscal issues, exchange rate policy and the debate on capital account convertibility. He attempts to contribute meaningfully to the ongoing debate on financial sector reform of 90's. He argues that full account convertibility would invite the danger of financial crises in India.

Gopinath (1997)[51] makes a revision of the policy issues on foreign investment. He also analyses the flow of foreign investment by dividing it into different phases. The methodology used consist of secondary data, the study is mainly descriptive in nature without much statistical and empirical analysis to support the arguments. Still it helps in providing a critical overview of major policy issues

Chakraborty(1999)[52] attempts to explain the effects of inflows of private foreign capital on some major macro economic variables in India using quarterly data for the period 1993-99.Using VAR and co integration models she points out that co-integration exists between foreign currency

assets and money supply and between nominal effective exchange rates and exports. An important drawback of the study is that she fails to detect the causal factors behind this co integration

Avadhani (1997)[53] gives a comprehensive treatise on capital markets in India. It is a manual of entire spectrum of law procedures and practices relating to issue management, capital markets, listing, stock exchanges analysis and portfolio management and SEBI guidelines (issued up to 30th Jan 1997). He is able to provide the basic understanding on capital markets from a literary perspective only.

Vyuptakesh Sharan & Indra Nath Mukherji(2001)[54] argues that before the onset of the reforms in India, the foreign trade, investment and debt scenario was in a state of serious distress with retrogressive consequences for the pace of development. This initiated the process of economic reforms and liberalization in the country. Of the gamut of reforms introduced in the early 1990's they focuses exclusively on those in the external sector and examines the reform measures in this area and evaluates their adequacy and effectiveness. They provide an analysis of improvements, in the size and structure of foreign trade with the ultimate goal of reducing the current account deficit. They give the following suggestions

- Increase in direct portfolio foreign investment to meet the deficit.
- Alleviation of the external debt burden.
- Strengthening of the BOP position through Indian Ventures abroad.

The picture that emerges does much to demystify the subject and unravel interrelated issues with clarity.

Kvalijit Singh (1997)[55] critically investigates and analyses the main reasons and motives of German investments in India during the post liberalization period (1991-96). According to him there are three major Reasons for German corporations to invest in India (I) Availability of cheap labor and toothless labor laws (II) India's huge domestic market for goods and services (III) Least environmental and public health regulations with their ineffective implementation by state machinery. He argues that it is becoming economically unviable for the German corporations to continue their manufacturing in Germany and they are shifting their manufacturing plants to India. He documents cases of illegal and unethical practices committed by German corporations in India. It calls for immediate action by the Indian authorities to take steps to enforce regulatory mechanism and legislations.

Vathsala Mani (1978)[56] identifies the causes for the inadequacy of the traditional theory of capital movements. She tries to improve upon the predictability of these theories by introducing new assumptions of Economies of Scale and Transfer Costs and by focusing on the features of the economy which have a close bearing in its capacity to absorb the inflow of foreign capital.

Shah and Thomas (1997)[57] strongly advocate stock market reforms in India. They studied the capital markets using VAR, Efficiency indexes and other econometric techniques on the various stock market indicators like market capitalization, volatility etc from 1991-1996 . Through a comparative analysis of banks and stock markets they find out that banks and stock markets compete in two dimensions i.e. to maximize the quality of their

information processing and to minimize the transaction costs. In India stock markets are more efficient than banks in both dimensions; also stock markets have more freedom to process information. The stock market development plays a key role in assisting the banking sector reforms. Efficient stock markets contribute to the long run growth of the real economy through efficient allocation of scarce savings and improving fund utilization efficiency. Analyzing the effect of FPI on the real economy they have concluded that it has a positive impact via the asset effect and lower cost of capital. They point out that the transaction costs in the stock markets have declined considerably.

Ajith Singh (1998)[58] believes in just the opposite ideology of Shah and Thomas. He argues that the real economy did not benefit from the stock market boom. Stock market boom did not lead to an increase in the domestic savings of households in India .Households merely shifted from bank deposits to corporate securities as an investment avenue. He pointed out that variations in corporate investments cannot be attributed to variations in resources raised from the stock markets. Increased productive use of investment resources was also absent.

Nagraj (1996)[59] examines empirically the long term trends in India's capital markets. He then links these trends to the structural changes that have taken place in the economy's saving pattern. The variables used are the amount of capital raised, share of financial saving in GDS, Gross fixed capital formation, corporate GFCF as percentage of GDCF, corporate profitability etc for 1960-1995 .He finds out that the growth of Indian capital market was

infact financial disintermediation (household portfolio substitution effect). No correlation was found to exist between growth rate of capital mobilization and aggregate saving rate as well as between corporate physical investment and value added. In the 1980's statistically significant correlation did not exist between annual growth rate of external capital and corporate fixed capital formation (it was present earlier). Though the ratio of corporate tax to gross profit showed a decline, the contribution of internal finance to corporate fixed investment did not show a long term increasing trend (declining trend). In the 1980's the growth of the real value added in the corporate manufacturing sector was found to be less than that of the registered manufacturing sector as a whole, suggesting that in the case of small corporate firms with no access to stock market funds growth rate exceeded than that of the large corporate firms.

Nagraj's finding regarding the corporate GFCF is questionable because the corporate GFCF as percentage of GFCF and GDP doubled in1990's when compared to 60's and 70's. Similarly the idea of financial disintermediation is unrealistic because if it was so there would have been huge decline in bank deposits, which did not happen according to the RBI statistics.

Prantab Basu and Mathew R Morey(1998)[60] analyzed the impact of economic policy reforms on stock market prices in India (1957-1996).They tested the random walk hypothesis using Famas efficient market hypothesis . Their study points out how the reforms since 1984 affected the market structure and efficiency of major stock markets in India (BSE and NSE). They found that from mid 1980's equity prices in India behaved like a random walk suggesting that the market obeyed Fama's efficient market hypothesis till the

scam of 1992. After 1992 the equity prices were influenced by external factors and whether the market still obeyed the hypothesis (if yes why? if no why?) the questions remain unanswered in their study.

Shah and Thomas (2001)[61] offer some conceptual insights into the problem of obtaining liquid securities markets in small countries. They used cross country data sets and case studies of India, Mauritius and Middle East financial Network .The analysis of the turnover ratio with the log models and the market capitalization leads to the following conclusions .Small countries do appear to have limitations in supporting the modern securities industry since they trade in small securities which has less liquidity . Shah and Thomas suggest that these countries can think of two innovative policy options. First is the unification of all organized financial trading into a single securities market and the second is exploiting the international linkages through outsourcing of IT functions of core exchange institutions or listing on markets outside the country.

Lalitha (1995) [62] examined the problems and prospects of new issue markets in India .She has focused on the new issues by the private corporate sector in 1998. Public issues were analyzed based on (a) type of industry (b) size of firm (c) age of firm and (d) size of issue. Much of the work focuses on the policy incentives of the government and how it influenced the public issues E.g. introduction of new securities increasing interest rate on debentures had increased the activity in the new issue market. Lalitha emphasizes the need for spreading equity cult throughout the country. However the study lacks any theoretical or

mathematical conclusion with regard to the impact of reforms on the new issue market.

Parthapratim Pal (2006)[63] examines the impact of FPI on India's economy (1991-2005) and industry. Using the market capitalization ratio, resource mobilization from the primary market, composition of household saving in financial assets etc he finds that the perceived benefits of FPI have not been realized in India. The supposed linkage effects between the secondary market boom and the real economy have not worked in the way the main stream model predicted. Instead it has lead to increased uncertainty, skepticism and serious problems of macroeconomic management for policy makers.

Shah and Thomas (2001)[64] presents the results of their descriptive study on policy issues in the Indian securities market .They make a critical analysis of the policies adopted by RBI and SEBI and what are the implications of these policies for the securities market . They find that the reforms have transformed the capital market in India and had a positive impact on the market. Still a more detailed analysis shows that we have to again make adjustments in our policies so that we have better enforcement, compatible institutional mechanisms and more internationally integrated market.

These reviews present a very interesting picture. Most of the reviews acknowledge the linkages between capital flows and internal and external factors. In the Indian context one could say that compared to the studies on capital markets their institutional structure and reforms, very

few studies have been made on the capital flows to India. Also among those studies which concentrate on the capital flows major focus has been on the factors which influence these flows rather than on their impact. This gives rise to a research gap i.e. how these capital inflows affect the capital markets and the real economy once they flow without any barriers in a globalized environment? Or to be precise what are the impact of these flows? The exact nature of this research problem is explained in the section on statement of the problem.

STATEMENT OF THE PROBLEM

During the late 80's and early 90's Foreign Portfolio Investment emerged as an important form of capital inflow into developing countries. After the East Asian crises of 1997 FPI's importance declined in many developing economies. However this did not hold true in the case of India, for the period 1993-2006 more than 50 percent of the foreign investment in India came in the form of FPI .This high dependence necessitates to assess whether and how FPI has contributed to the development of the capital market and the economy. These speculative capital flows can seriously disrupt the economic prospects of a developing country by imposing huge fiscal costs and by reducing the policy options available to the policy makers in managing these flows. . It needs to be investigated whether the benefits of FPI has trickled down to the real economy. It is also important to examine whether the supposedly beneficial aspects of a stock market based financial systems are actually being realized in India.

OBJECTIVES:

The objectives of the study which were framed to facilitate answers to the problem under study are

1) To analyze the trend and pattern of Foreign Investment from (a) 1984-85 to 1993-94 and (b)1994-95 to 2005-06.
2) To examine the trend and pattern of FPI from 1994-95 to 2005-06.
3) To analyze the impact of FPI on Primary and Secondary capital markets as well as on selected Macroeconomic indicators of India from 1994-95 to 2005-06.

HYPOTHESIS

Pertaining to the statement of the problem and theoretical and methodological frameworks discussed in the review the main hypothesis and sub hypothesis of the study are as follows.

Main Hypothesis

H_0: FPI has no impact on the Indian capital market.

$H_{1:}$ FPI has an impact on Indian capital market.

Sub Hypothesis

H_0: FPI has no impact on the volatility and market capitalization of BSE and NSE.

H_1: FPI has an impact on the volatility and market capitalization of BSE and NSE.

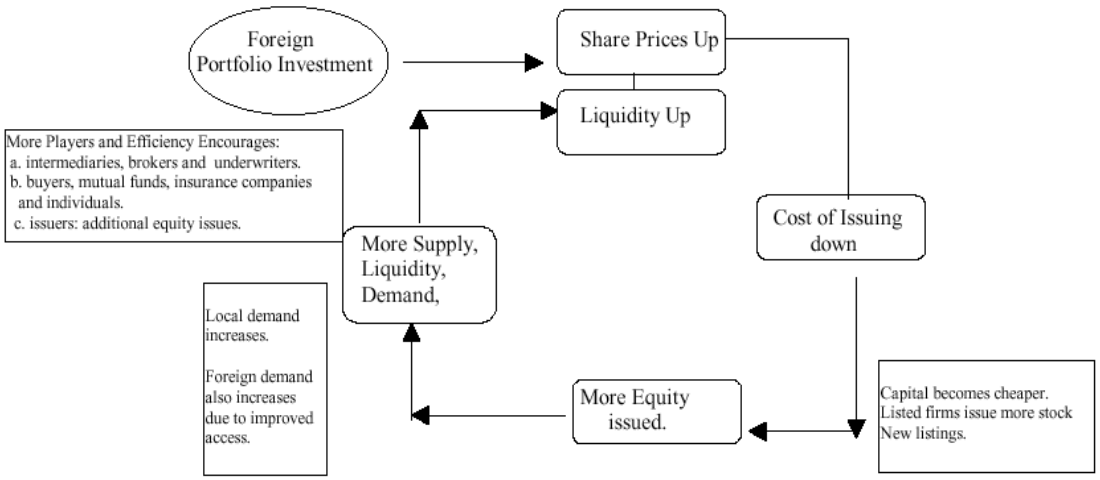
IMPORTANCE OF THE STUDY

An economy's degree of financial integration with the rest of the world is a key determinant of many of its most important macroeconomic properties. The phenomenon of globalization thus attracted much attention to the capital flows across nations because of the following reasons. First during the past three decades private capital inflows to developing economies have led to an almost equal increase in domestic investment. Second the private capital flows have strengthened productivity growth over time. Third and the most important concern for policy makers is that capital flow volatility significantly dampens economic growth and it contributes to widening of income differentials between developing countries.

The inflow of capital in the Indian economy is interesting when analyzed in two phases, the *pre* and *post* globalization periods. The inflow of capital comprises mainly of FDI, aids and loans till FPI was allowed in 1993. In an economy like India which has huge potential for development but remains non tackled due to the financial constraints the inflow of FPI has serious implications .FPI affects the economy through its many linkage effects via the domestic capital markets. It gives an upward thrust to the domestic stock market prices .This leads to higher P/E ratio of firms which in turn leads to a lower cost of finance and higher amount of investment. The competition from foreign financial institutions stimulates the domestic stock market and leads to import of new financial technology which requires greater investment in information processing and financial services. This result in overall enhancement of efficiency of the capital market, leads to derivatives

trading, encourages more savings in equity related instruments and thus raises the domestic savings rate as well as capital formation. It thus provides a non debt creating source of capital to the developing economies.

Diagrammatic representation of FPI's impact on the domestic secondary and primary markets.



However despite all these celebrated virtues of FPI in 1997 the Southeast Asian crisis led to a rethinking on the major policy proposals with respect to FPI. The hero and villain of this Asian Drama were the huge capital inflows and quick outflows. Though the crisis weakened the inflow of capital to India it couldn't seriously affect the Indian economy as a whole. Now the question arises is India vulnerable to such a crisis? Though the Indian economy moves congruent with the rest of the world it exhibits certain trends and patterns of its own. Hence it is important to understand the nature of the volatile FPI flows to India. The review of the existing literature shows that there exists research gap in analyzing the FPI inflows and their economic impact on the capital markets as well

as on the real economy as most studies concentrate on the determinants of capital flows. As the policy makers challenge would be to prepare their economies to best absorb the potential benefits of capital flows while reducing the risks of sudden capital outflows it becomes essential to analyze the impact of these flows on the domestic capital markets and the real economic variables.

METHODOLOGY AND DATA

The study relies on secondary data (Time series) collected from various sources like RBI publications, SEBI publications, CMIE publications, as well as the data collected from the research and analysis wing of BSE. The period of analysis was taken as 1984-85 to 2005-06 with special thrust from 1994-95 to 2005-06

For analyzing the first objective linear trend, graphs, pie charts averages, compound Growth rate and percentage analysis was used. This helped to reveal the trend and pattern of Total foreign investment, FPI and FDI during the pre and post liberalization period.

The second objective was investigated with the help of capital market ratios, simple linear regressions on FPI and selected Macroeconomic indicators, correlation matrix between FPI and selected macroeconomic indicators and Granger causality analysis of FPI and selected capital market indicators. As a precondition for testing the causality the tests for stationarity (unit root test) and tests for co integration was applied to the selected capital market variables and FPI.

ABBREVIATIONS

The following abbreviations are used in the study.

TFI- Total Foreign Investment

FPI- Foreign Portfolio Investment

FDI- Foreign Direct Investment

FII –Foreign Institutional Investment

ADR/GDR- American /Global Depository reciepts

GDP- Gross Domestic Product

GFCF- Gross Fixed Capital Formation

REER- export based Real Effective exchange Rate

NEER- export based Nominal Effective exchange Rate

FOREX- Foreign Exchange Reserves

BSE- Bombay Stock Exchange

NSE- National Stock Exchange

PLAN OF THE STUDY

The study is divided into 7 chapters. Chapter one deals with introduction, review, importance of the study and research problem, objectives, methodology, abbreviations used in the study and limitations of the study. Chapter two analyses the theoretical frame works involved in international capital flows. The trend and pattern of international capital flows are analyzed in chapter three. The impact of globalization and policy reforms

in the Indian capital markets are discussed in chapter four. In chapter five and six the first and second objectives of the study are analyzed in detail using statistical and econometric models .Finally chapter seven summarizes the findings and conclusions of the study.

LIMITATIONS

One major difficulty encountered during the study was lack of availability of data segregations (only aggregate values were disclosed in the case of many variables). It is important to note that the general data on capital markets is available in plenty and is made use in the study as well. However certain information (data) which would have been more helpful in the study while analyzing the impact of FPI were either undisclosed or published irregularly. Many of these items like the sector specific analysis of funds, information on FII sub accounts etc which were initially provided by SEBI were soon withdrawn realizing their influence on volatility and capital flight. Hence even SEBI and RBI do not publish certain crucial information for reasons of nation's financial security.

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CHAPTER 2

INTERNATIONAL CAPITAL MOVEMENT: THEORETICAL OVERVIEW

The phenomenon of capital inflows can be better understood theoretically by starting the analyses with the saving- investment -capital accumulation theories as they are considered to be the basic economic variables behind these flows.

2.1 Theories of Saving, Capital Accumulation and Investment

Adam Smith's theory: According to Adam Smith the rate of investment depends upon the rate of saving. The ability to save and invest is limited by the income of a person. As long as there are profits over and above the compensation for risk of investing, capital accumulation will continue.

i.e. $dk/dt = k (r-r^*, y)$

$dk/dt>0$, r = rate of profit at time t, r^* = minimum profit needed to cover risk.

Adam Smith also agrees that as capital accumulations increases the marginal efficiency of capital decreases. [Negatively sloping Marginal efficiency curve]

Smiths theory states that the fundamental economic determinant of growth is the rate of capital accumulation.

Ricardo's theory: He believes that capital accumulates due to (a) an increase in income and (b) a reduction in consumption. The rate of capital

accumulation is determined by two factors – the ability to save and the willingness to save. Saving depends on profit. Ricardo postulates that when profit declines overtime savings decline and as a result capital accumulation slows down and reaches zero when r = $\bar{\mathbf{r}}$.

Where r = rate of profit $\bar{\mathbf{r}}$ = minimum profit.

Marxian theory: Marx believes that the surplus value produced by labour leads to accumulation of profit which in turn leads to capital accumulation. Hence the capitalists exploit the labourers for more profit. Overtime this leads to overproduction, unemployment and downfall of capitalism. Thus capital accumulation is the major factor behind the rise and fall of capitalism.

Harrod –Domar Model: Harrod and Domar addressed the conditions required for smooth growth in real national income. They assign key role to investment in the process of economic growth. They opine that capital accumulation has got a dual role (i) income generation through investment and (ii) increasing the productive capacity of the society by enlarging the capital stock. Thus they consider both demand and supply side of investment.

Kaldors Model: Kaldors approach to saving plays a central role in his model of economic growth. He believes that National income consists of wages and salaries and that the saving out of profit is greater than saving out of wage. The profit output ratio depends upon the multiplier and the level of investment. He showed that the rate of profit is determined by the ratio of natural growth rate to saving out of profit.

Lewis Model: Prof. Arthur Lewis asserts that many underdeveloped countries conform to classical model in which the supply of labour is

perfectly elastic at current wage level. He says that economic development takes place when capital accumulates as a result of withdrawal of surplus labour from subsistence sector to the capitalist sectors. The rate of profit stimulates the incentive to invest and the process of reinvestment continues.

Other Models

FeiRani's model, Nurkse's Balanced growth theorem, Hirshman's unbalanced strategy of economic development, Nelsons low level equilibrium trap and Rodan's Big push strategy points out the importance of saving, investment and capital accumulation in the development process of an economy.

While Malthus and Mill propounded International trade as an escape route from economic stagnation Myrdal argues that international trade retarded the economic growth by strengthening the dualistic nature of the developing and underdeveloped economies. In the UDC's the backwash effects and circular causation, along with the underdeveloped money and financial markets create hurdles for growth and development. Nurkse argues that in an underdeveloped economy low real income is a reflection of low productivity which arises out of lack of capital. Lack of capital evolves from small capacity to save. All these theoretical discussions reveal that the question of development for an underdeveloped or developing economy centers on how to bridge the gap of lack of capital i.e. how to find the necessary amount of capital for perpetuating growth and development.

By the late 70's and early 80's many developing and underdeveloped economies started facing the BOP crises. Nations began importing capital to

face these crises and under the guidance of the World Bank many started structural adjustment programmes in their countries.. The end result was globalization and the phenomenon of capital flows across nations. Slowly these flows began playing a crucial role in the macroeconomic environment of the host countries. These prompted researchers to conduct studies and formulate theories about the capital flows.

The theories on capital flows draw from the linkages between the theories of macroeconomics, financial markets and capital markets. Section 2.2 discuss some such important theories.

2.2 Linkages between Macroeconomics, financial and capital markets

According to Hicks new technological inventions did not ignite the industrial revolution in England in the 18th century. Most of the innovations that characterized the early phases of the industrial revolution had been invented much earlier. Rather, more liquid financial markets made it possible to develop projects that required large capital injections for long period before the projects ultimately yielded profits. The industrial revolution therefore had to wait for the financial revolution.

Gurley and Shaw have developed a theoretical framework which states that as economies develop, self financed capital investment first gives way to bank-intermediated debt finance and later to the emergence of equity markets as an additional instrument for raising external funds. They believe that Financial structure (Financial intermediaries and markets) changes as countries develop. *Goldsmith* supports the view of Gurley and Shaw. He points out that the size of the financial intermediaries as a share of GDP tends

to rise with percapita income. When a country grows faster than normal, the ratio of financial system assets to GDP also tends to experience above average growth.

McKinnon states that appropriate financial sector reforms expediate growth-inducing financial development. In 1993 King and Levine came out with the idea that financial development is a good predictor of economic growth. Economists like Bencivenga, Smith and Starr says that stock markets affect macroeconomic activity through the creation of liquidity. Liquid equity markets make investments less risky and more attractive because they allow savers to acquire an asset and sell it quickly in times of need. This leads to more saving and investment.

Alternative views on the effect of liquidity in long term economic growth points out that

i) By increasing returns to investment greater stock market liquidity may reduce saving rates through income and substitution effects.

ii) By reducing the uncertainty associated with investment greater stock market liquidity may reduce saving rates because lesser uncertainty also lowers demand for savings.

iii) Greater stock market liquidity adversely affects corporate governance by encouraging market myopia. Dissatisfied investors can sell quickly, liquid markets may weaken and reduce investor's incentives to exert corporate control by overseeing managers and monitoring firm performance and potential.

Obstfeld proves that stock markets can affect economic growth by risk diversification through internationally integrated stock markets. Thus better functioning, more internationally integrated stock markets boost economic growth by shifting society's savings into high return investments. However greater risk sharing may lead to reduction in precautionary saving.

Kyle propounds that larger and more liquid stock markets increase incentives to research firms, the improved information will improve resource allocation and accelerate economic growth. *Stiglitz* argues that developed stock markets quickly reveal information through price changes. This may create a free rider problem, as investors can now obtain information about firms by observing prices.

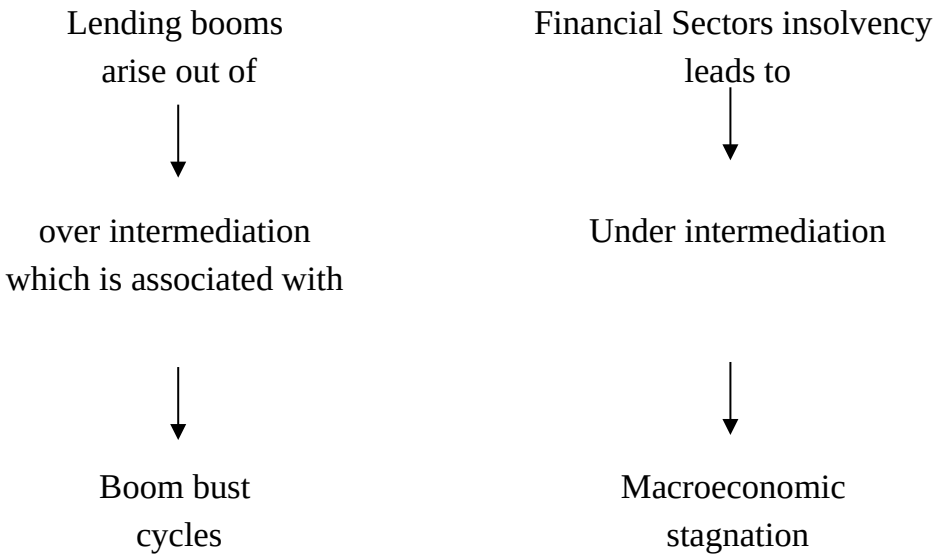
The functioning of the domestic financial system may magnify the scale of the short term flows, as well as determine the extend of macro economic disruption created by a given degree of short term capital volatility.

The distortions in the domestic financial system can be divided into two.

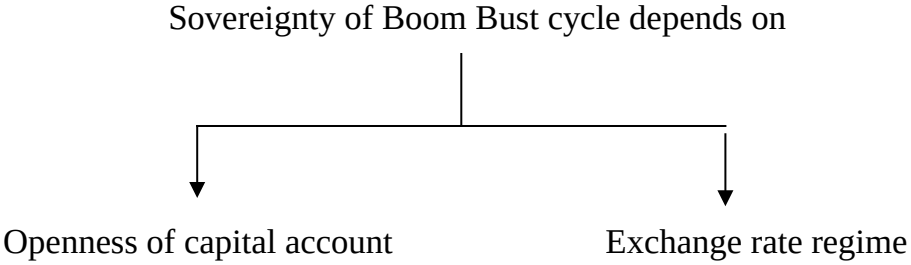
a) **Under intermediation:** A situation in which the volume of domestic resources channeled through the domestic financial system is less than optimal.

b) **Over Intermediation:** This situation arises in liberalized financial system when savers receive excessively high returns on their placements in the domestic financial system. i.e. the returns offered to savers by the domestic financial system exceed the social rates of return that financial institutions can generate from their portfolios.

Shocks which originate in the financial sectors can have macroeconomic effects through a variety of mechanisms. Two such mechanisms have been of importance recently (i) emergence of lending booms and (ii) existence of unresolved financial sector insolvency.



Minsky, Gavin and Hausman states that financial crises are typically preceded by lending booms. They argue that the rapid growth of the bank portfolios causes the average quality of these portfolios to deteriorate. This may lay the seeds of a future reversal of the cycle. i.e. a boom bust pattern is implied rather than a transitory boom.



The macro economic effects of the financial insolvency or the domestic debt overhang problem are similar to that of the overhang external debt. But Minsky Gavin and Hausman are silent in this regard. Also if the economy is opened up in the midst of a debt overhang problem it is likely to trigger capital outflows. From the perspective of macroeconomic stability this could directly lead to a BOP crisis. If the exchange rate is flexible it may lead to a collapse of the value of the domestic currency. These aspects are neglected by Gavin.

Thus it is evident that there are strong interlinkages between financial markets capital markets and macroeconomic elements in the growth and development of a country. The capital flows, especially the portfolio flows are associated with the stock markets. How these flows affect the host countries and what factors attract these flows are discussed in section 2.3.

2.3 Short term capital movement in the international adjustment mechanism.

When compared with the theories of International trade, the analysis of international capital movement is still in an infant stage. However since the 1950's more attention has been paid to the role of short term capital flows in (i) the BOP adjustment process and (ii) the impact of capital flows on the domestic monetary and fiscal policies of industrial countries. Short term capital movement plays a much more important role in the domestic and international adjustment process of industrial countries because of the existence of highly developed foreign exchange market and short term capital market.

Model 1:

Frame work : Classical price specie flow theory and modern quantity theory of money applied to an open economy.

Assumption : Highly flexible

a) Prices b) production costs

The model analyzed

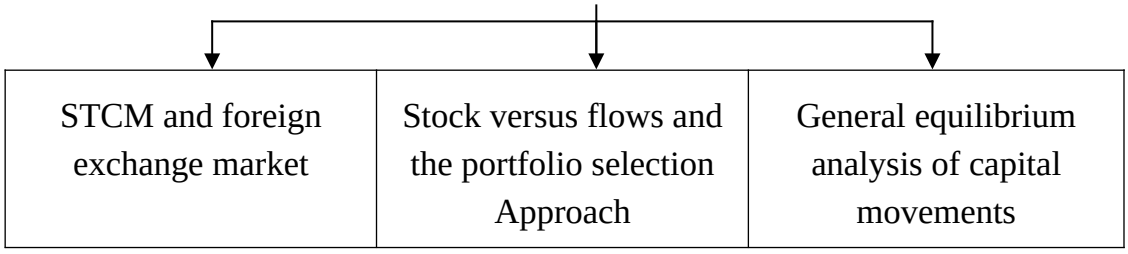
i) Effect of reserve movement on the domestic money supply

ii) Adjustments between relative interest rate changes, adjustments between prices and reserve movement.

In the model short term capital movement are determined by difference in yields. These flows were called as equilibrating movements by Nurkse because they helped to restore a temporary equilibrium in the BOP.Under the Gold standard capital movements also responded to expectations of exchange rate adjustments. These movements were called as disequiliberating movements by Nurkse as they tended to aggravate BOP disequiliburium.

This mechanism (classical) assumed a passive role for the central banks.

Here we deal with 3 theories



I. Short term capital movements (STCM) and foreign exchange markets

Tsiang (1959-60) Pioneered a rigorous theoretical system that showed how hedging, speculation and interest arbitrage on the one hand and activities on the spot exchange market on the other hand, jointly played a role in an equilibrium, determining both the spot and forward rates. This integration of the spot and forward markets was a key to the explanation of international short term capital movement.

a) Arbitrage

The greater the arbitrageurs risk and the higher his past commitments the larger will be differences between the forward premium and the interest rate differential needed to induce him to enter into new forward commitments. For an individual arbitrageur risk in different markets is determined by his own subjective valuation.

b) Speculation

Speculation on the foreign exchange markets results from an open position in a foreign currency following either a spot transaction of a forward contract. Important motives influencing the behaviour of an individual speculator in the forward exchange market are: (i) the difference between the expected spot rate at some future time and the current forward rate for a contract maturing at that same future time.

ii) Speculators estimate of risk attached to the realization of his expectations.

Assuming that the effect of past commitments on the risk estimate diminishes exponentially. Tsiang obtains the following linear expression.

$r_t = \alpha D_t + \lambda r_{t-1}$

D = Current speculative forward position

λ = length of the effective time horizon of the speculative expectations.

c) Trade Hedging

Tsiang assumed that all traders hedge so that all Trade that is not financed by long term credit would generate capital movements. The direction of the movements would be determined by the condition for interest arbitrage.

The participation in the forward exchange market by traders as hedge – speculators is determined by the size of their short term contracts and by a mean variance analysis. This analysis balances possible exchange gains from the risk of credit transactions not covered by hedging.

Market Equilibrium

Tsiang's analysis shows that in the process of achieving a full equilibrium on the exchange markets (when market behavior of arbitrageurs and speculators is considered), the forward exchange rate is an endogenous variable. This is also true for the spot rate when flexibility of the exchange rate parities (either with the band of intervention points or in the freely flexible exchange rate system) is allowed for. Although individual participants in the exchange rate market take both spot and forward rates as data, the equilibrium can be achieved only when through the market mechanism the mutual adjustment of forward and spot rate is such as to satisfy the conditions just outlined.

II. Stocks versus flows and the portfolio selection approach

Another aspect analyzed by the theory of short-term capital movements was whether financial flows in general, and short term capital movements in particular, respond to absolute interest rate differentials or whether they respond to a change in these differentials.

Rhomberg, Kenen and *Black* followed the classical view restated by Nurkse, Ohlin and Iverson that an arbitrageur's activity will generate financial flows whenever the gap between the interest rates exceeds the internal differences in risk.

Originally attempts were made to test the validity of the flow or stock approaches by econometric techniques. However, it was soon realized that the stock approach is consistent with the Tobin-Markowitz theory of portfolio selection. *Grubel* and *Wiollett* have suggested that applying the portfolio selection theory to international distribution of assets and also international capital movement can explain the international distribution of assets and also international flows of capital. Any change of interest rate or in the degree of risk of some of these assets will generate international flows of capital, until the reallocation of capital induced by these changes results in a new international distribution of assets.

Another important aspect of the portfolio selection theory as applied to international capital movements, raised by *Floyd* and *Willett and Forte* consists in the role played by a comparative growth of total assets as variables influencing asset reallocation among countries. A change in the interest rate differential among growing economies generates a stock adjustment effect and a flow adjustment

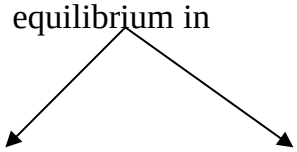
effect on capital movements. While the former effect is temporary and, ceteris paribus, is completed after a given period of time, the latter effect causes smaller, but more sustained, adjustments in the flow of capital.

The early model of an open economy developed by *Polak* used a quantity theory framework, where capital flows were treated as entirely exogenous but the money supply was allowed to respond to the balance of payments. The main interest of the model was to examine the relationship between changes in the credit creation of the banking system and the balance of payment. In this model, *Polak* has shown how an exogenous change in capital movements has an impact on the domestic money supply, which in turn influences both income and imports until equilibrium in the balance of payments is restored again.

Later Models

Frame work : Keynesian open economy

Area of Analysis : Macro economic policies for simultaneous equilibrium in



Domestic full employment BOP

Mundell (1964), Johnson (1966), Argy (1969), Helliwell (1969), Buguley, Courbis (1971), Basevi (1973) assumed capital movements to be

i) endogenous

ii) Sensitive to relative interest rates → This factor was a key element in determining a feasible policy mix for internal-external balance.

Exogenous variable in the model was interest rate. i.e. capital movements did not influence interest rates.

iii) Monetary authorities used sterilization policies to counteract BOP developments.

There were also other models which treated money supply as endogenous. These models assured either partial or no sterilization policies by the monetary authorities.

The appropriateness and relevance of these alternative Keynesian models are quite dependent on the extent or degree of sterilization by monetary authorities. *Argy and Kouri* suggest that in fact there may be only partial sterilization, but the issues are complicated and not easy to test empirically. More important, the feasibility of sterilization depends largely on the degree of capital market integration. The more financially integrated an economy, the larger the reserve volatility. If capital mobility is perfect, the domestic interest rate, and hence the domestic money supply, is completely at the mercy of developments in allied foreign markets.

Short term equilibrium can be interpreted as an "impact effect' of the change in an independent variable in which behavioral relations in the model are satisfied but the balance of payment is not necessarily in equilibrium; the actual surplus or deficit caused by such a change in an independent variable is equal to the ex ante surplus or deficit. Long-term or 'full' equilibrium implies that the adjustment process in the model has worked itself out in such a way as to eliminate any payments imbalance.

In formal two-country macro models developed by *Floyd* and *Allen* a neutralization of the effect of capital movements on domestic money supply is assumed. Allen assumes a single type of asset in both countries and thus perfect capital mobility, Floyd considers the case of imperfect capital mobility with different interest rates in the two countries. Floyd's Keynesian model is addressed to a comparative static analysis of effects of changes in the money stock and output in one country on international capital movements and the balance of payments. Allen's model exhibits dynamic properties that enable her to distinguish between short run market equilibrium, when all markets are cleared, and a long-run portfolio equilibrium reached gradually through a sequence of short run equilbria, when the additional condition of unchanged desired holdings of assets by participants is also met.

Allen reaches an interesting conclusion that a change in one country's liquidity preference or in money supply, will have no long-run effect on the balance of payments. The distribution of assets between countries achieved during this process depends on which country had a temporary balance of payments surplus; the surplus country will gain wealth. Finally, whether these disturbances in the liquidity preference or money supply are expansionary or contractionary in both countries will depend on their relative wealth effects on the demand for assets.

Kouri and *Porter* treat the money supply as endogenous but treats the real sector as exogenous to the model. By specifying demand and supply functions for money and domestic and foreign bonds, Kouri and Porter are able to solve the model for changes in the domestic interest rate and net

capital flows as a function of the same set of exogenous variables. In particular, the capital flow equation that they obtain enables them to directly estimate the effect of changes in domestic monetary policy on capital movements, under the assumption that the monetary authorities do not sterilize the effects of payment imbalances. Girton and Henderson have also developed a two-country financial portfolio model; however, the advantage of the Kouri-Porter approach is in the ability to use their reduced forms for quantitative analysis.

The relevance of all these models unfolds itself only when analysed in the context of growth theories hence the section 2.4 discusses the growth theory approach to capital flows.

2.4 Growth theory Approach to Capital flows in Developing Countries

Foreign capital is in principle beneficial for a developing economy whose capital requirement exceeds its saving capacity. But several dangers are connected with the external capital. At the same time one need to recognize the short term benefits from capital inflows. The models of capital mobility come to our aid here as they act as an instrument for the allocation of resources to the most productive investment opportunities.

i) The Neoclassical Growth Model: Implications for capital movement.

The model says that by focusing the attention to the central features of production technology, we can arrive at an adequate analytical treatment of the predictions concerning capital movements.

The basic Solow model is

$Y_t = A\ K_t^{\alpha}$

Y = Output of homogenous good

K = Physical capital

A = Technical coefficient

t = Time index

The rate of growth of per capita income is an increasing function of the growth rate of K.

$$\frac{\dot{y}}{y} = (d \log y)/d_t \ = \alpha[(d \log k)/d_t] \quad 0 < \alpha < 1$$

The main result of the Solow model is that there exists an exogenous steady state growth rate (equal to zero in the simplified version) which does not depend on taste nor is affected by policy variables.

Implications of Solow model for international capital movements. The arbitrage condition

$r^* = r_d$ reflects the assumption of perfect capital mobility.

r^* and r^d = international and domestic interest rate.

If $r_d > r^* \rightarrow$ There will be net inflow of capital

$r_d < r^* \rightarrow$ There will be net outflow of capital

Whenever interest parity conditions are fulfilled, net capital flows do not occur.

Thus the Solow model predicts that the amount of capital inflow is inversely related to K i.e. capital should move from capital rich to capital poor countries.

But this has not been so, particularly with respect to the volatile portfolio flows. During the crisis of 1997 the south East Asian economies experienced a large outflow of capital which collapsed their economy.

2. Augmented Neoclassical Model

Proponents : Mankiw, Romer and Weil (1992)

`The augmented neoclassical model predicts that countries with low levels of physical capital and high levels of human capital will benefit from net capital inflows and that capital movement will persist until :

$r^* = r_d$

and $r_d = \propto A K^{\propto-1} h^{\gamma}-\delta$ or $r_d = \propto A^{1/2} Y^{\frac{\alpha-1}{\alpha}} h^{\gamma/\propto}-\delta$

However in reality the developing economies could not reap much benefit from the capital inflows, because of the underdeveloped capital and money markets. They are yet to develop a mechanism which will enable them to sponge up the benefits from these flows to other sectors of the economy.

3) International capital flows in models of Endogenous growth

i) Romers Model

$$Y_t = A K_t L_t^{\beta}$$

Where $\alpha = 1$, $0<\beta<1$, $\gamma = 0$

Implications of Romer's model for international capital movements

Larger economies will benefit from net capital inflows, regardless of this relative capital endowment.

ii) Modified Lucas Model (1988)

Lucas model predicts that as far as capital movements are concerned, countries with low levels of physical capital and high levels of human capital will benefit from net capital inflows. [Provided physical capital is the only internationally mobile input (partial capital mobility)]

Domestic interest rate is given by

$$r_d = \alpha A^{1/\alpha} Y^{\alpha - 1/n} h^{\gamma/\alpha} L^{\frac{\alpha+\beta+\gamma-1}{\alpha}} - \delta$$

Where $0<\alpha, \beta<1; \alpha + \beta + \Upsilon > 1$

$\hat{r} = \gamma_p + \gamma_{\in} > \gamma$

iii) Rebelo's Model (1991, 1992)

Rebelo's linear Model is derived from the general set up with the following restrictions.

$\beta = 0; \alpha + \gamma = 1; h \equiv K \equiv Z$

Where z = a single type of capital good (a composite good of human and physical capital)

Rebelo provides a peculiar prediction – There exists no incentives for capital movements under the standard assumptions on technology transaction costs and saving behaviour. The domestic interest rate in the Rebelo model is given by

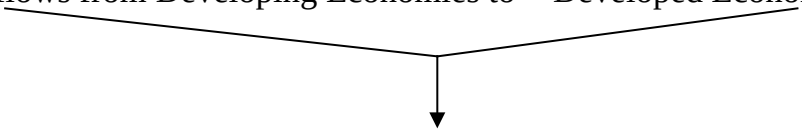
$r_d = A - \delta$

δ = depreciation rate.

Rebelo argues that if the marginal tax rate on capital is larger in

developing countries than in industrial countries or the average tax rate is expected to be higher in future for the developing countries then,

Capital flows from Developing Economies to→ Developed Economies.



Phenomenon called as capital flight.

This will occur even in the presence of capital controls.

All the models rely on the partial correlations between the marginal product of 'K' and the economic fundamentals. He says that

If partial correlation is positive then

a) larger values of explanatory variable increase MPK and result in net inflows of capital

b) Smaller value of explanatory variable decrease MPK and result in net outflows of capital.

The exact opposite happens when partial correlation is Negative.

Capital flows in a Neoclassical Model with Restricted Capital Mobility.

Manzocchi-Martin (1997) Model

They elaborated on the open economy version of the augmented Solow model featuring partial capital mobility.

$Y = AK^{\alpha} H^{\beta} L^{1-\alpha-\beta}$

Where Y = Output

L = labour

K = Physical Capital

H = Human Capital

The model predicts that international capital flow favors conditional convergence rather than absolute convergence.

Demography and international capital movements

Let us analyse the basic structure of OLG Model (Overlapping generation Model)

If only young individuals work and save, (while the old generation does not dissaves), aggregate, saving (of the young) is given by

$S_t = K_{t+1}-B_{t-1}$

Where S_t = aggregate saving

K = Capital stock

B = Net foreign debt

Implication of the model

- A rise in population tends to improve the current account and reduces per capita net foreign borrowing (vice versa). Because higher the number of young high will be the saving in the economy.
- A larger growth rate of population negatively affects the MPK.

Growth and Convergence in Neoclassical Model with Capital Mobility.

Mankiw, Romer and Weil distinguish between absolute and conditional convergence in capital mobility.

Absolute convergence: Narrowing of income differentials among economies so that all are moving towards a unique steady state.

Conditional Convergence: Here rate of growth of an economy is proportional to the distance in different steady states and their income levels may not converge.

Absolute convergence in a closed economy is conditional on the evolution of physical and human capital, as well as other variables. *Barro and Mankiw, Romer and Weil* following the Solow Model stressed on the investment rate as far as physical capital was concerned. They believed that investment rate positively influences the convergence of income levels among countries.

Open economy version of the neoclassical growth model (with one capital good)

Prediction :

1) If there is full capital mobility and no adjustment costs convertibility will occur immediately
2) Recent empirical studies reject the hypothesis that capital mobility is absent in Developing countries.
3) Limited capital mobility.

Barro, Mankiw and Sala-i-Martin (1995) shows that the speed of capital mobility is substantially lower, if mobility is limited to only a sub-set of capital assets. (Partial capital mobility).

The speed of convergence is inversely related to the capital share 'α' i.e. larger the capital share the less effective are diminishing returns to capital

accumulation. Hence the transition to steady state takes a longer time period.

When

$\alpha = 1 \rightarrow$ endogenous growth takes place .

The speed of convergence is larger in an open economy, than in the closed economy.

The empirical testing of the model with the data from 50 developing countries gave the following result.

1) A developing country gains from international integration as the speed of convergence is enhanced.
2) The speed of convergence is always finite.

An overlapping generation model with restricted capital mobility

Obstfeld and Reogoff (1996) in their two period OLG model reach some what similar conclusion as in the partial mobility model of Barro and others.

Condition: A country's net foreign debt should not exceed a fraction of current wage income

$(S+_{\eta})\ W_u < K_u$

Where S = Young generation saving rate

η = Positive parameter less than unity

W_u = Wage rate of unconstrained equilibrium

K_u = Capital stock of the unconstrained equilibrium

Obstfeld and Reogoff show that under some conditions unlimited

capital mobility can be consistent with absolute convergence even if preferences differ among countries.

A co-ordination failure Model of sectoral change and foreign borrowing

Cross country economic studies of growth stress two relevant features of development.

1) Absolute convergence in percapita income occurs only between those countries which have overcome some 'threshold' level of development and the industrial countries. The poor countries lag behind.
2) Industrialization comes along with a strong increase in average factor productivity, a true peak in the rate of change of output per worker that partly account for the solow residual of growth accounting studies (Total Factor Productivity).

Here we analyse capital mobility in a simple two sector model of resource allocation and industrialization.

Questions that we address

In a developing country what are the effect of capital inflows for the development process?	Under what conditions can the amount of foreign borrowing of a developing country be sub optimal?

The amount of external borrowing of a poor country is bounded by

a) The inability of the individual agents to co-ordinate themselves. [problem of co-ordination failures]
b) Occurrence of positive production externalities.

Main conclusion: It is contrary to the neo-classical Model. Even full capital mobility may not be a sufficient condition for conveyance whenever there exists a co-ordination deficit.

The Model with No capital Mobility

Here we analyze two cases

Case I	Domestic discount factor less than ratio of the unit cost of adjustment to the average productivity advantage of the modern industry when all the workers move away from the traditional industry.
Finding (Result):	Productive specialization of a developing country is necessarily static.
Case II :	Where it is convenient for an industrial worker to enter the modern sector if at least l_2 of the other agents do the same.
Result :	Coordination failure can prevent the structural change associated with the average increase in factor productivity, in a decentralized economy.

The case of perfect financial integration and sub-optional borrowing.

Analyzing the conditions of perfect financial integration i.e. the small economy is perfectly integrated with the financial markets the conclusions that we arrive at are.

i) A developing economy may get stuck in the inferior equilibrium as a consequence of co-ordination failure.

ii) Foreign borrowing cannot by itself remove the second type of bottleneck – i.e. co-ordination failure.

iii) The amount of capital inflows depends on the co-ordination of individual agents in an economy.

iv) The co-ordination failure is associated with a sub-optional level of foreign borrowing.

v) Higher the amount of co-ordination higher will be the inflow of capital.

Solution for co-ordination failure

i) Introduce a central planner ii) Introduction of Industrial Trusts

2.5 Capital Market Theory

It deals with asset pricing based on optimal portfolio selection (diversification of portfolio). The following theories deal with stock price movements and its impact.

I. Fundamental and Technical Analysis

Fundamental analysis explains stock price movements in terms of the fundamentals of the company, the industry and the economy.

Fundamentals of company	Industry specific indicators	Economy specific indicators
EPS, GPM, NPM, RONW, PE Ratio payout Ratio etc.	Sunrise industry Sunset industry Cyclical downturn or Cyclical upturn	Growth rate of GDP, Sector specific growth rate, inflation rate, interest rate, fiscal and current account status, exchange rate, foreign exchange reserves etc.

In technical analysis price and volume movements reflects the decisions of thousands of investors and speculators who play with fundamental information. Technical analysts called chartists study the price and volume movements in the market and try to find patterns in them. Based on these future trends are predicted. However these predictions may lack accuracy as stock market trends are influenced by external stocks also.

II. Dow Theory

Formulated by Charles H.Dow. The theory says that the trends in the stock market shape the general direction of the market. Hence by following these trends the general market direction can be predicted.

Basic tenets of the Dow Theory are

i) Averages like prices and volumes discount every known and forcible factor.

ii) The market moves in three trends – primary, secondary and minor trends. They have a general direction.

Primary trends: Long range cycles that moves the market up and down (extensive movements) .Duration: Up to 7 years. They bring about 20 percent up or down in prices.

Secondary trends: Interruptions in primary trends which bring about opposite movements. Duration: 3 months to 3 weeks.

Minor trends: Day to day fluctuations lasting for a few days

Minor trend1 + Minor trend 2 + Minor trend $_n$ = short term trends.

iii) Trading volume has a directly proportional relationship with the price trends.

iv) Lines sometimes substitute for secondary trends. Lines are sideward movements that last for 2 or 3 weeks to 8 months (range of price fluctuations amount to 5 percent)

The drawback of the theory comes from the fact that it fails to predict the crises because large outflows occur on rumor and it takes only a few

seconds to withdraw funds via the internet services.

III. Portfolio Theory

Portfolio = package of securities. The theory is based on risk diversification. i.e. Investing in securities of diverse industries. The theory believes in spreading the risk.

IV. The Markovitz Model (Modern approach)

It was developed by Harry Markovitz (1951). He introduced optimal portfolios based on risk return relationship. Efficient portfolios are those portfolios when

a) one cannot have a higher portfolio return with the same risk.

   R = maximum R = Return

b) one cannot have a lower risk with the same return

   r = minimum r = risk

c) One cannot have a higher portfolio return with a lower risk.

V. The sharp Index model (1963)

Sharp tried to simplify the Markowitz Model by simplifying the process of data inputs and data tabulation.

The return for each security

$$R_i = a_i + B_i I + e_i$$

R_i = expected return on security i.

a_i = intercept of a straight line or alpha coefficient

B_i = Slope of a straight line or β coefficient.

I = expected return on Index

e_i = error term with a mean of Zero and a standard deviation which is constant.

VI. The Efficient Market Model

Fama (1969) examines the relationship between (i) historical stock prices and rate of return and (ii) future stock prices and rates of return. This Efficient market hypothesis has 3 forms.

a) Weak form : The Random Walk theory

It says that the current stock prices already fully reflect all the information contained in the historical sequences of prices. It thus repudiates the analysis of historical sequences of prices (i.e. technical analysis).

b) Semi-strong form

This form says that current prices of stocks reflect the following.

i) Information on historical prices.

ii) All publicly available knowledge about the firms e.g.: corporate reports, announcements of dividends, bonus, stock splits etc. are absorbed by the public and reflected in stock prices.

iii) Price adjustments need not be always correct i.e. there may be over and under price adjustments.

iv) Adjustments need not take place immediately.

v) Analysts need not get superior returns.

Hence, it is difficult to develop a trading strategy based on publicly

available information.

c) Strong form : This hypothesis argue that all information is useless i.e. No information – public or inside – helps in earning constant superior return.

The general efficient market model recognizes market imperfections eg: transaction cost, information costs and delays etc. These imperfections eg. Transaction cost, are not adequate to yield superior return to the analysts who develop trading strategies to exploit these imperfections.

VII. The Capital Asset Pricing Model

It is a relationship which explains the pricing of assets in capital markets.

Assumptions

i) Investors are risk averse.

ii) Individuals have homogenous expectations on returns, variance of returns and co-variance between securities.

iii) Individuals can borrow and lend at a risk less return

iv) The quantity of risky securities is given.

v) There are no transactions costs: the market is perfect.

The return on portfolio

$$R_p = X\ R_m + (I\text{-}X)\ R_f$$

X = Percentage of funds invested in risky portfolio

R_m = Return from risky portfolio

I-X = Percentage of funds invested in risk free asset

R_f = risk free returns

This is the most commonly used model for evaluating the international portfolios.

VIII. Arbitrage pricing theory

Ross (1976) recognizes that security returns depends on several systematic factors.

The actual return of a security or portfolio

$$R = E + bf + e$$

E = expected return on security

b = security's sensitivity to change in the systematic factor

f = the actual return on the systematic factor

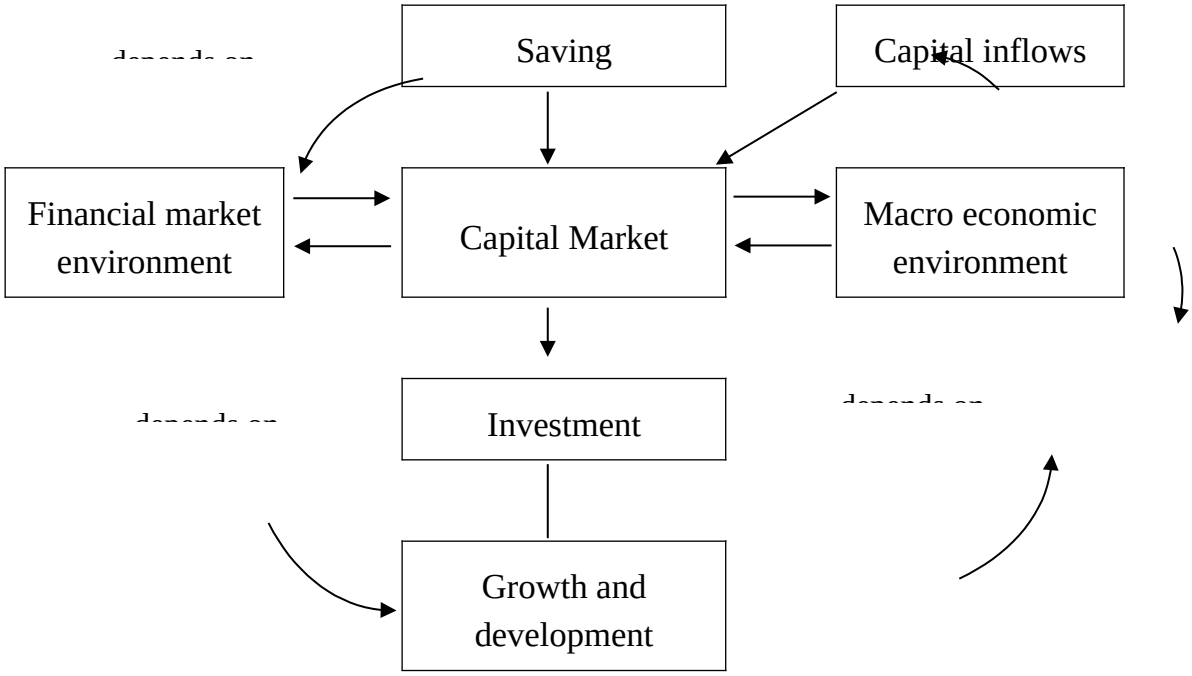
e = return on the unsystematic, idiosyncratic factors.

i.e. actual Return = expected return + (factor sensitivity x factor movement) + residual risk.

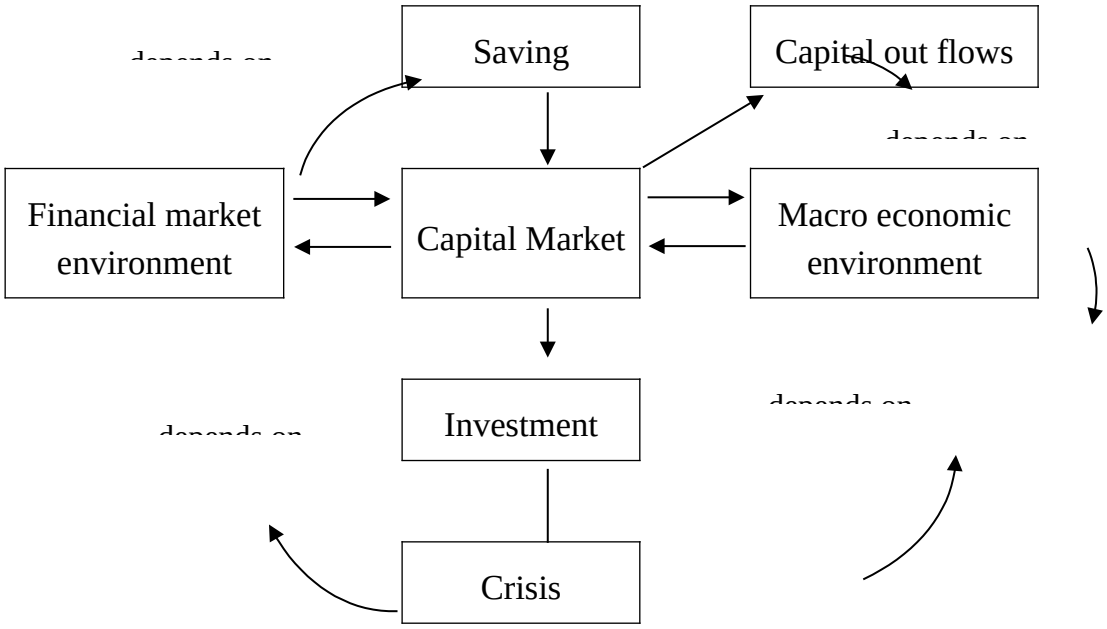
Many World Bank studies rely on this model for analyzing the determinants of capital flows across countries.

The theoretical analysis of the various aspects of capital flows reveals a close knitted and highly sensitive structural relationship between the capital market, financial markets, macro economic environment, growth and development which can be represented diagrammatically as follows.

I. When capital inflow occurs



II. When capital outflow occurs



Various theories discussed reveal the following

- Saving, Investment and capital accumulation triggers off growth and development.
- Capital markets act as channels for mobilizing the savings.
- The integration of spot and forward markets act as a key to explanation of international short term capital movement.
- The effect of capital movements on domestic money supply lacks a clear theoretical explanation.
- Solow model, Augmented Neoclassical model and modified Lucas Model believes that capital movements will benefit the developing economies while Romer believes that it will benefit the larger and developed economies.
- Rebelo links tax rate with the capital flows and say that if the tax rate is high in developing countries than the developed ones then capital outflow takes place.
- OLG model traces out negative links between population growth and MPK.
- Manzocchi and Martin believe in conditional convergence. While Obtfeld says that unlimited capital mobility can be consistent with absolute convergence even if preferences differ among countries. However gross country studies say that absolute convergence takes place only in the case of developed economies while poor countries lag behind.
- Existence of co-ordination failure and lack of productive specialization negatively affects capital inflows.

- The theories on capital market stresses various aspects of capital market efficiency, risk return relationship, stock prices and rates of return.

Thus from the theoretical discussion it is clear that the phenomenon of capital flows is complex and affects numerous economic variables. These variables differ from country to country. Also 90 percent of the theories concentrate on what attracts capital flow rather than how these flows affect the capital market and the economy. This gives rise to a research gap especially in the Indian context. i.e. we are faced with two questions:

(i) Has the capital inflows benefited the Indian economy? Is the impact positive or is it negative?

(ii) Has the impact of these flows trickled down to the monetary and real sectors of the economy?

Chapters 3, 4, 5 and 6 try to find answers to these questions.

CHAPTER 3

CAPITAL FLOWS TO DEVELOPING COUNTRIES

Globalisation unveils a panorama of issues to be dealt with; it beckons to the growing power of free markets and the corresponding degeneration of the developing country government's calibre to manage their own economies.

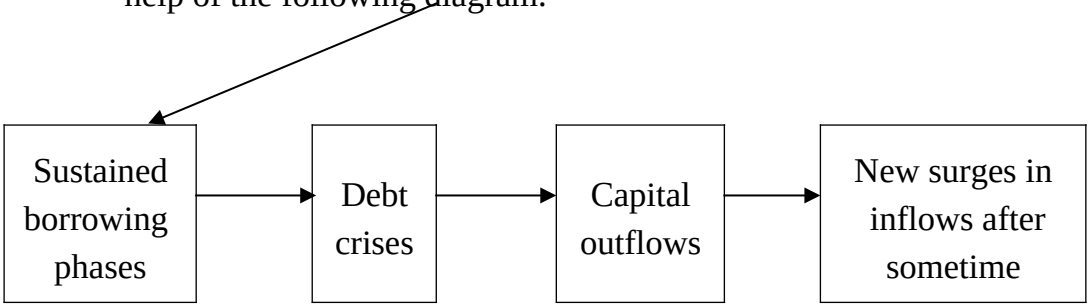
In order to understand the phenomenon of capital flows to developing countries, an understanding of the historical pattern of capital flows is necessary.

Historical patterns of capital movements to Developing Countries

The history of foreign capital transfers to developing countries has been a part of international lending and borrowing. A few features of these activities are

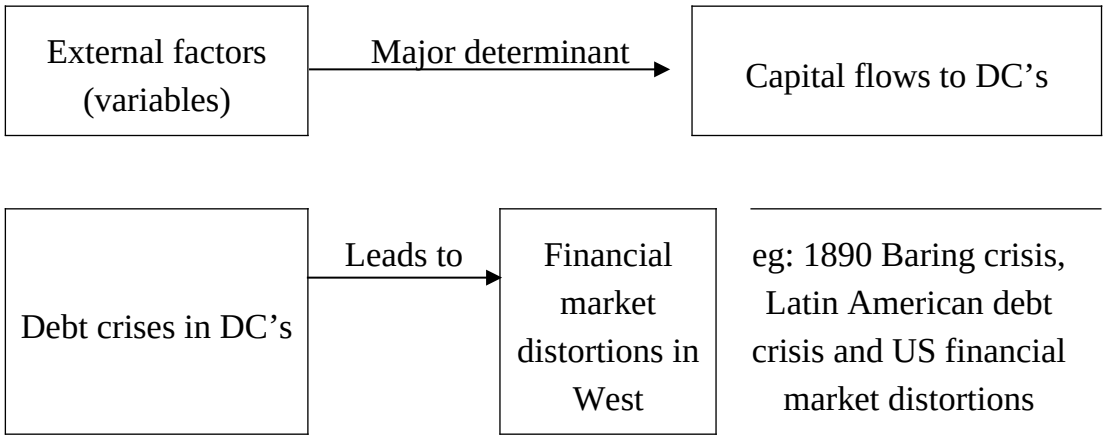
i) DC's (including colonies) have usually been net borrowers from the rest of the world.

ii) The nature of external finance in DC's[1] can be explained with the help of the following diagram.



iii) Conditions of financial activity in the western world has a causal relationship with the solvency and liquidity position of DC's

[1] DC's Developing Countries



. The cyclical performance of capital flows to DC's is evident in the data (Table 3.1); what is more controversial is the interpretation of these cycles. A combination of favourable external conditions and improvements in the borrowing economies may trigger a lending boom. Domestic fundamentals and policies matter, as even during a lending phase different countries or regions do not receive the same amount of resources, and can even be cut off from the flows.

Table 3.1 – Gross value of foreign capital stock in developing countries, 1870-1995 (billion dollars at year-end).

Foreign capital stock in developing countries	1870	1900	1914	1938	1950	1973	1985	1995*
Total in current prices	5.3	11.4	22.7	24.7	13.6	172	1118	2355
Total in 1980 prices	33.2	109.3	179.2	143.4	46.6	319.1	944	--
Total as a percentage of world GDP (1980 prices)	--	10.4	12.5	--	1.6	3.7	7.0	--
Total as a percentage of Asian and Latin American countries' GDP (1980 prices)	--	32.4	45	--	7/9	16.5	22.6	--

Source: World Bank ,Global Development Finance, various issues

The net inflow of foreign resources is compatible with a range of alternative performances in DC's both with respect to the use of foreign resources and the impact on growth and macroeconomic management. Not all indebted DC's in the past have run into insolvency and have eventually defaulted as external conditions have changed and a debt crisis has occurred. Foreign finance may or may not be associated with growth in different periods or regions, while domestic policies can contribute in many respects to the creation, or removal, of the circumstances leading to an external crisis.

Capital flows to DC's during the nineteenth century were mainly associated with the function of London as the world financial centre. Latin American government issues covered the largest share of foreign government securities sold on the London Stock Exchange between 1822 and 1825, that is at the time of Latin American independence. Peru suspended payments on external debt in 1826, followed by Chile, Argentina, Mexico and others. A new surge in capital flows to Latin America occurred in the 1850s and 1860s, but ended at the dawn of the so-called 'First Great Depression' (1873-96) when a number of DC's defaulted again. The securities floated on the London market were mainly issued by the railway and public utility sectors, although part of them were used for rolling over old debts or for speculative purposes. The final stage of the international gold standard before the First World War witnessed a new upturn in capital inflows, in both absolute and relative terms, which led to the highest ever ratio of gross foreign capital to GDP in developing economies, colonial territories included (see Table 3.1). During this period, total net capital outflows from Britain represented about 9 percent of GDP, while comparable figures for France, Germany and the Netherlands were almost as high.

A geographical breakdown of the new foreign issues on the London Stock Exchange shows that African and Asian countries became important destinations of foreign capital after 1890, while the debt crisis in Argentina in 1890 had negative effects on Latin America. The 1914 financial crisis in London and the outbreak of the First World War reshaped the pattern of world capital movements: net foreign lending to DC's shrank, and some major developing economies became net capital exporters during the war years. eg: Argentina. While inflows of foreign capital vanished during the First World War and capital flight mounted in DC's, the terms of trade of several commodity exporters improved, leading to improvements in their net external positions. In the aftermath of the First World War, the world financial community was engaged in the resolution of the joint problems of German reparations and of inter-Allied loans: meanwhile New York gradually established its predominance over London as the leading international financial centre. Foreign lending stagnated until the Dawes Plan of September 1924 established a schedule for the compensation due by Germany to the Western allies, and generated the illusion that post-war problems were solved. In the second half of the 1920s there was a recovery in capital transfers to DCs, with loans to Asia and Africa mainly issued in London and New York which were mainly engaged in lending to Europe and Latin America.

Although the debt crisis of the 1930s is commonly associated with the 1920 crash of the New York Stock Exchange, financial conditions were already deteriorating in some debtor countries in the years before 1929 as a consequence of the decline in some commodity prices (sugar, rubber, coffee among others) and of bad harvests in Argentina and Australia. The collapse of the New York Stock Exchange and the restrictive stance of monetary

policy in several industrial and developing countries made access to financial markets difficult and expensive for many debtors and unleashed a wave of defaults and debt negotiations in the 1930's. Evaluated at 1980 dollar prices, the decline in the stock of gross foreign capital in DC's with respect to the peak of 1914 was remarkable in 1938 and almost dramatic in 1950.

Thus capital flows to the developing economies have been unpredictable and volatile from the very beginning. The first lending cycles began in the 19th century and the announcement of the US debt reduction plan witnessed a surge in the capital flows to developing economies. In central and Eastern Europe with the collapse of communism, foreign investments made its mark there as well.

The working of international financial markets during the nineteenth and the first three decades of the twentieth century partly explains the mechanics of foreign debt crises in DC's before the Second World War. International capital transfers were mainly accomplished through bond finance, particularly bonds issued by foreign entities: the role of banking houses was to lend to foreign borrowers at a discount and then sell the obligations to individual investors.

For example in the 1920's the US bond market initiated portfolio capital flows from industrial to developing countries. During the late twenties a large secondary market developed for bonds of industrial and industrialising economies. For every country it was essential to establish a relationship with a reputed investment bank to arrange a bond flotation and gain foreign capital. For retaining access they had to ensure that the bonds were subsequently traded at prices close to their par value.

TABLE 3.2 COMPOSITIONS OF NET RESOURCE FLOWS TO DEVELOPING COUNTRIES BY REGION (AS PERCENTAGE **OF TOTAL) 1978-1998**

	All Developing Countries	East Asia and Pacific	Latin America and the Caribbean	Europe and Central Asia	South Asia	Sub Saharan Africa	Middle East and North Africa
SOURCES OF NET FLOWS							
1.Net long term resource flows	89	87	92	94	98	90	89
2. Private flows	55	60	70	55	29	27	42
3. Bank loans	20	31	29	15	9	15	15
4.Portfolio flows	20	15	28	22	10	4	6
5.FDI	8	10	8	10	9	2	9
6.Other flows	7	4	5	8	1	6	12
7.Official flows	34	28	22	32	69	63	47
8.Net short term flows	11	13	8	6	2	10	11
USES OF NET FLOWS							
1.Net external finance	54	45	66	67	74	68	25
2.Current account deficit	34	22	49	66	65	67	-27
3.Change in reserves	19	23	19	1	9	1	52
4. Capital outflows E&O*	46	55	34	33	26	32	75

*Errors and Omissions

Source : World Bank ,World development finance 2001

The defaults of the 1930s, the protracted negotiations (some lingering into the 1950s) and above all the collapse of the world trade financial system, prevented substantial capital inflows into the DC's for almost three decades. It was only in 1958, when the convertibility of national currencies was reintroduced in Western Europe that a seed of new international financial relations was set up. At the end of the 1950s, American financial institutions had gained an extraordinary advantage over their overseas competitors. First, the reconstruction of the international payment system around the dollar had been completed, as clearly shown by the experience of the European Payments Union of 1950-58 when balance of payments imbalances among European countries were regulated in dollars. Second, USA was the only industrial country with a large and persistent current account surplus, and hence the only one that could afford prolonged capital transfers to the rest of the world. Immediately after the war, the main channels of capital transfers had been grants (the Marshall Plan provides an example) and export credits. In the 1950s American direct investment abroad recovered, though it was mainly directed to DC's and especially to Europe. Restrictions on financial capital flows were widespread, and regulations and controls increased until the mid-1960s. The attitude in the USA with respect to foreign capital transactions had been very prudent after the Second World War, and under the Kennedy and Johnson administrations a restrictive stance was adopted leading to the approval of measures intended to discourage international

short-term flows.

Capital transfers to the DC's were slowly revived in the 1960s; official development assistance (ODA), foreign direct investment (FDI) and export credits were the main components of the flows at the beginning of the decade, but by 1970 bond lending had almost reached the amount of FDI.

A lending boom oriented towards the DC's occurred in the 1970s and lasted for a decade until Mexico and Brazil suspended the service of external debt in 1982 and 1983 respectively. In this case, syndicated bank loans were the bulk of private capital flows to DCs, and the boom was focused on Latin America and to a lesser extent Asia. It is commonly argued that a combination of rising oil prices during 1973-74, which generated a huge current account surplus in oil-exporting countries and the weak business cycle in major industrial economies in the mid-1970s, was at the heart of the lending boom to DCs. Oil revenues were invested in highly liquid assets such as Western bank deposits, so the international banking network redirected an increasing supply of credit towards non-oil DCs. Banking regulations and capital controls were overcome through the basically unregulated Eurocurrency market.

From second half of the 1960's Commercial banks started lending huge volume of money to less developed countries (LDC'S) .These lending during the "recycling boom" that followed the oil price shock of 1973 led to enormous capital inflows in the form of dollar loans to developing countries. Unlike bond finance, the banks themselves held these obligations. Unfortunately this lending mania left little room for careful monitoring of the

countries or projects of destination, as fierce competition among banks to gain new market shares prevailed over prudency considerations. In 1978-81 the burden of the debt was already heavy for DC's, but no clear signals of distress had emerged apart from an incipient debt crisis in Poland in 1981. The international banking system was still lending to DC's, although partly as a consequence of the typical Ponzi game of rolling over interest and repayments.

A perverse association of external developments (a new stance of US monetary policy in 1979; a fall in the unit price of exports in some heavily indebted countries) and of misguided domestic investment and macroeconomic policies was at the heart of the 1982-83 distress.After the 1982 debt crisis, the Baker plan (1985) requested the banks to stop lending to the governments of the developing countries. Now equity markets became the new conduit for capital transfer. An unprecedented volume of capital flows to developing countries began to take the form of equity purchases through the mutual and pension funds. These are investments in private and semi private companies rather than in government obligations. They are residual claims to the profits after debts have been serviced and promise a return denominated in local currency (not in dollars).

The structure of capital flows to the developing economies to a great extend influenced the debt crisis of the 20th century. They conditioned the responses of lending and borrowing governments, of multilateral organisations and of market participants alike.We develop these points by highlighting three differences among the crisis of 1930s, 1980s and 1990s .The first is their scope.

i. 1930’s crisis was global.

ii. 1980’s crisis more selective affecting several regions (Latin America, Eastern Europe and Africa but not East Asia)

iii. 1995-97 crisis was limited to a single country (e.g.: Mexico) or a single region (S.E.A)

First difference: The severity of the macro economic shock. In 1930’s the crisis was global because the great Depression was global; i.e. collapse of the commodity markets ,the debt inflation and high real interest rates that disrupted financial markets. No single country was immune .The crisis of 1980s and 1990s were less general because shocks that contributed to them were smaller. Real interest rates rose as in the 1930s but production and imports in the industrial world did not collapse.

The second difference: In the 1920s when central banks floated money, default by borrowing nation did not jeopardise the stability of creditor country banking systems. Hence default did not attract the concern of creditor country governments for the stability of their financial systems. In the 1980’s the risk to creditor country banking systems resulted in early and decisive intervention by the IMF. During 1995-97 intervention operated through the leadership of the regional powers such as the U.S.A (in the case of Mexico) and Japan (in the case of Thailand) and the IMF. Crises in the developing world pose a threat to the stability of the financial institutions in developed countries. This threat became selective in 1990s i.e. in terms of which intermediaries are at risk and which countries are affected. E.g.: Mexican crisis affected US banks and Asian crisis affected Japanese lending institutions.

The third difference: Response of the borrowing countries took the form of import substitution in the 1930s, fiscal adjustment in the 1980s and monetary adjustment in the 1990s.They reflected different external conditions. In the 1930s the global nature of the crisis and the absence of intervention lead to reduction of external obligations through policies of import substitution, reducing dependence on foreign markets and foreign capital. LDC's were forced to institute budget cuts and other measures of fiscal correction. In the 1990's foreign capital flowed heavily to private and semi public enterprises hence there was less need for fiscal correction. Adjustments were effected through monetary as well as fiscal instruments.

Domestic policies also provide an explanation for the differing responses of capital importing countries. In 1990s many countries resorted to restrictive monetary policies. They accumulated international reserves as buffers to capital flight . The crisis of 1982 by contrast was preceded by a period of rapid inflation, due to financing budget deficit. Hence harsh fiscal retrenchment was essential i.e. the late 1920's more closely resembled the 1970's and 1990's. International reserves prices rose rapidly on the eve of the 1982 crisis where as they fell alarmingly in 1931.In the 1980s by curtailing their inflation rates countries could price their exports back to international markets. Where as in the 1930's fall in prices made the scope for adjustment more limited.

TRENDS IN EXTERNAL FINANCE TO DEVELOPING COUNTRIES

Trends in capital flows to developing countries reflect three forces;

1. Increasing financial integration of the global economy (though imperfect).
2. Recent structural changes attracting investors
3. Importance of psychological factors in determining international flows.

External resources to developing countries is evident from the tables 3.3, 3.4 and 3.5.

Table 3.3 TRENDS IN EXTERNAL FINANCE (BILLIONS OF $)

	1991	1992	1996	1997	1998	1999	2000
Sources of funds	143.1	194.0	354.4	358.7	283.7	246.2	299.3
Net long term resource flows	123	155.8	311.2	342.6	334.9	264.5	295.8
Net short term flows	20.1	38.2	43.2	16.2	-51.2	-18.3	3.5
Uses of funds	143.1	194.0	354.4	358.7	283.7	246.2	299.3
Current a/c deficit	76.5	85.0	114.5	101.3	46.1	-26.8	-60.3
Changes in reserves	49.7	16.0	89.6	29.1	49.0	26.2	53.0
Capital outflows and E&O *	16.9	93.1	150.3	228.3	188.5	246.9	306.6

*Errors and Omissions

Source: World Bank , Global development finance 2001

Table 3.4 **NET LONG TERM RESOURCE FLOWS TO DEVELOPING COUNTRIES, 1991-2000**

Resource flows	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	123.0	155.8	220.4	223.7	261.2	311.2	342.6	334.9	264.5	295.8
Official flows	60.9	56.5	53.6	48.0	55.1	31.9	42.8	54.6	45.3	38.6
Private flows	62.1	99.3	166.8	175.7	206.1	279.3	299.8	280.3	219.2	257.2
Capital markets	26.3	52.2	100.2	65.6	99.1	147.8	127.2	103.5	33.8	79.2
Debt flows	18.8	38.1	49.2	50.5	63.0	98.7	97.0	87.9	-0.6	31.3
Bank lending	5.0	16.2	3.4	8.7	30.5	33.7	45.2	50.0	-24.6	0.7
Bond financing	10.9	11.1	36.6	38.2	30.8	62.5	49.0	40.9	25.4	30.3
Others	2.8	10.8	9.2	3.6	1.7	2.4	2.7	-3.0	-1.6	0.3
Equity flows	7.6	14.1	51.0	35.2	36.1	49.2	30.2	15.6	34.5	47.9
FDI	35.7	47.1	66.6	90.0	107.0	131.5	172.6	176.8	185.4	178.0

Source: World Bank, Global development finance 2001

TABLE 3.5 DEVELOPING COUNTRY SHARE (PERCENTAGE EXCEPT WHERE STATED OTHERWISE)

Developing country share	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
In global total private capital flows	11.8	12.6	12.6	12.8	12.4	13.2	14.4	9.9	7.6	7.6
In global capital market flows	9.7	9.4	9.4	9.0	9.0	9.8	10.8	6.2	4.7	5.5
In global FDI flows	22.3	27.4	29.5	35.2	32.3	34.9	36.5	25.9	18.9	15.9
In global output	19.8	19.2	19.7	20.0	20.7	22.1	23.2	21.6	21.7	22.5
In global trade	26.5	28.3	28.3	28.4	29.5	31.3	32.4	30.7	30.7	33.4
In global population	84.1	84.3	84.4	84.5	84.6	84.7	84.9	85.0	85.1	85.2
Global capital market flows*	794	850	1226	1501	1928	2403	2929	3033	3910	4324
Global FDI*	160	172	226	256	331	377	473	683	982	1118

*Billion dollar

Source: World Bank, Global development finance 2001

The surge of capital flows to DCs in the early 1990s is commonly attributed to the implementation of Brady Plan and a simultaneous downturn in the business cycle of industrial countries, with the associated fall in the international interest rates.

Characteristics of the 1990s recovery are the following:

1) Long-term debt-creating flows are diminishing fraction of overall net flows. Official lending and grants peaked in 1990, the year after the Brady Plan was launched, and declined afterwards.

2) Short-term debt-creating flows have been growing more or less in line with total net flows since 1987, with some fluctuations depending on the inclusion of interest arrears and IMF lending under this items.

3) Portfolio flows replaced bank loans as the main instrument of private capital transfer to DC's from 1991 through 1994, although the evidence in 1995 and 1996 indicates that bank lending revived in the aftermath of Mexican crisis.

4) Non-debt-creating inflows were the most dynamic components of capital movements to DC's. The contribution of FDI has been relevant since 1987.

5) The rapid increase of non-debt-creating components mainly reflects the dynamics of equity-related inflows to DC's, which moved from a mere scratch to 40 million dollars over 1986-94. Equity and FDI together accounted for almost half of the global net capital transfer to

the DC’s in 1994 (grants excluded), that is about 120 billion dollars (Table 3.6.)

Table 3.6 – Net total capital flows including grants: all developing countries, 1970-94

	1970	1980	1985	1989	1991	1994*	1970	1980	1985	1989	1991	1994
Net capital inflows plus grants	11.4	89.5	60.8	105.2	147.7	255.3	100	100	100	100	100	100
Grants (excluding technical cooperation	1.9	13.2	13.2	19.1	32.5	30.4	16.7	14.7	21.7	18.2	22.0	11.9
Net total capital inflows	9.5	76.3	47.6	86.1	115.2	224.9	83.3	85.3	78.3	81.8	78.0	88.1
Long-term debt of which:	6.8	71.7	36.4	36.1	47.8	79.5	59.6	79.8	59.9	34.4	32.4	31.1
Official creditors	3.4	21.9	20.9	23.3	29.2	23.9	29.8	24.5	34.4	22.0	19.8	9.4
Private creditors of which	3.4	49.7	15.5	12.8	18.6	55.6	29.8	55.3	25.5	12.3	12.6	21.7
Bonds	0	2.6	4.9	5.3	12,5	--	0	2.8	8.1	5.0	8.5	--
Commercial banks	0.6	24.2	6.6	0.9	4.0	--	4.8	27.0	10.9	0.9	2.7	--
Short-term debt	--	--	0.6	20.9	23.1	28.1`	--	--	1.0	19.9	15.6	11.0
Portfolio equity flows	0	0	0	3.4	7.5	39.4	0	0	0	3.2	5.1	15.4
Net FDI	2.3	5.3	10.6	25.7	36.8	77.9	23.7	5.9	17.4	24.4	24.9	30.5

Notes:

a Short-term debt is not recorded separately

b Guaranteed and non-guaranteed debt generating flows from private creditors, including bonds, lending by commercial banks and other items (mainly export credits).

c Private non guaranteed flows are excluded.

d IMF lending and interest arrears on long-term debt are included.

" Not available

* 1994 World Bank estimates

Source: World Bank, World Debt Tables.

Net inflows mainly targeted three areas (Tables 3.6): East Asia, where their rate of growth reached 50 per cent in 1992; Europe and Central Asia, where the rapid increase since 1989 was associated with the start of the transition process in formerly planned economies; and Latin America where the turning point was 1990 and net long-term inflows grew by 50 percent in 1993. Net long-term inflows actually stagnated in Sub-Saharan Africa, where they amounted in 1993 to one-third of the value of 1980 in nominal terms; in South Asia, where the World Bank forecasts are more optimistic for the future; and in the Middle East and North Africa, despite the reconstruction process following the Gulf War. In other words, with the exception of some very large low income countries such as China, and to a less extent India, middle income developing or transition economies have mainly gained from the recovery in capital inflows.

Official and private long-term lending followed rather opposite paths in the first half of the 1990s; whereas official lending, which was distributed quite homogenously among different regions including Africa and South Asia, declined after 1991, private lending more than doubled in 1992 but was heavily concentrated in East Asia, Eastern Europe and Latin America. If we look at the composition of long-term private lending in the early 1990s, it emerges that banking involvement was proportionally larger in East and South Asia, while new loans were less relevant in Latin America and even negative in post-socialist Europe – that is, the two regions where commercial

banks were more severely hit by the 1980s' debt crisis. Systematically, the contribution of international bond market was more effective for Latin American and European DC's.

The bulk of the equity boom of the early 1990s was located in only two regions, Latin America and East Asia, while Asian and Pacific countries were the destination of almost half of the net FDI accruing to DC's. Direct investment from abroad has also been sustained in Latin America, and in the transition countries of Europe and Central Asia, despite the uncertainty caused by the establishment and enforcing of property rights in formerly planned economies.

Table 3.7 **– Net Long-term capital flows to developing countries, by region of destination in 1970-94 (billion US dollars)**

Developing countries by region	1970	1980	1985	1989	1991	1994
All DCs	9.0	76.0	47.1	64.5	91.7	197.3
East Asia and the Pacific	1.5	11.9	14.3	23.0	31.9	89.5
Europe and Central Asia	0.5	16.6	3.5	11.7	16.8	33.4
Latin America and Caribbean	3.9	29.5	12.0	5.5	25.5	40.7
Middle East and North Africa	0.8	3.8	8.3	7.9	4.5	9.2
South Asia	1.1	4	4.2	8.2	8.3	15.2
Sub-Saharan Africa	1.2	10.2	4.8	8.2	4.7	9.3

Notes: Based on 1994 World Bank estimates excluding grants

Source: estimates based on World Bank, World Debt Tables, various issues.

Until 1997 developing countries share in global private capital flows was rising. During the period 1997-2000 it has fallen sharply. Developing countries suffered from the East Asian crisis as well as by the high return opportunities available in the developed world. Industrial countries account for the upsurge in the world FDI flows during the second half of the 1990s. The share of developing countries in global FDI flows has fallen correspondingly.

CAPITAL MARKET FLOWS

Cyclical conditions in industrial countries influence the capital flows to developing countries (emerging markets). The worse sentiments in the capital markets of the developed countries substantially limited the borrowing opportunities of developing countries in the last two months of 2000. The reduction in US interest rates and improving economic fundamentals will bring more capital flows to developing countries in future.

It is evident from the table 3.8 that the 1997 crises weakened the capital market flows to the developing countries.

TABLE 3.8 GROSS CAPITAL MARKET FLOWS TO DEVELOPING COUNTRIES (BILLION $)

Type of flow	1997	1998	1999	2000
Bonds	114	73	70	77
Loans	179	108	94	125
Equities	22	9	21	35
Total	316	190	185	273

Total, net	124	107	35	79

Source: World Bank, Global Development Finance, 2001

Gross capital flows to the developing countries in 2000 amounts to only three fourths of 1997. After the crises, supply constraints emerged due to (i) investor's reduced appetite for risk and (ii) increases in short term interest rates. East Asian crisis countries had low investment rates, which reflected their excess capacities and the slow pace of corporate restructuring.

TABLE 3.9 CAPITAL MARKET COMMITMENTS TO DEVELOPING COUNTRIES (BILLION $)

Type of flow	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	76.9	80.1	115.7	135.5	173.3	236.4	315.4	189.3	185.5	236.4
Bond issuance	11.0	20.1	50.1	45.7	52.6	97.6	114.3	73.0	70.3	77.2
Bank lending	61.3	54.0	57.5	72.8	112.7	125.2	179.1	107.8	94.0	124.4
Equity placement	4.6	6.0	8.1	17.0	8.0	13.7	224.4	8.6	21.1	34.8

Source: World Bank, Global Development Finance, 2001

Within the developing world, middle-income countries accounted for 97 percent of capital market financing. Capital market financing to Low –

income countries is in the form of syndicated bank lending (typically for short term, trade related financing), and this has declined since 1997. In 2000 three middle-income countries capital market financing increased by $ 43 billion While the remaining developing countries as a group received only 7 percent. Korea and South Africa received an additional $11 billion. Capital market financing to the rest of the world fell by $4 billion

Equity placements in developing countries have increased from $8.6 billion in 1998 to $34.8 billion in 2000.

Factors which have contributed to this growth are,

- IT and telecommunication boom caused a run up in technology stocks in industrial countries.
- Easy entry due to the issuance of ADR/GDR by the emerging market companies.
- More emerging market companies are listing their shares on stock exchanges in the major industrial countries.
- Communication revolution have reduced transaction costs and increased market liquidity.

Global Savings currently amount to about 25 percent of global GDP, about 2 percent points higher than in the 1990's an increase accounted for higher savings in developing countries. Major portion of these savings came from the Asian and Pacific region, especially China. (Chinas National Saving rate = 45 percent of GDP). Global investment has increased from 24 percent in 1990's to 24.6 percent in 2004. Here also the Asian and pacific region is

the major contributor. Low interest rates have also played a part in it. More over the savings have fallen in the USA.

Capital flows to the Developing region falls sharply

The latest data indicate that the net capital flows to the developing countries fell fairly sharply in 2005.

Table: 3.10: Net Capital flows to developing countries and of all Asian developing countries 1995-2005 (Billions of US $)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Total											
Net private capital flows	211.5	496.7	191.7	76.2	86.0	74.3	66.2	68.2	158.2	232.0	132.9
Net Pvt. Direct Investment	98.2	116.0	146.2	158.6	173.2	167.0	178.6	142.7	153.4	189.1	209.2
Net Pvt. Portfolio Investment	42.2	86.3	60.8	42.6	69.5	21.0	-83.6	-87.6	-7.3	64.0	-28.6
Net Other Pvt. Capital flows	70.5	-5.6	-15.3	-125.0	-156.7	-113.7	-28.8	13.0	12.1	-21.1	-47.7
Net official flows	26.5	-6.8	28.4	56.0	18.3	-52.1	-0.6	10.6	-61.7	-81.0	-137.7
Changes in reserves*	-118.2	-90.3	-105.2	-34.8	-93.4	-113.2	-115.9	-185.7	-364.6	-517.4	-510.5
Developing Asia											
Net Pvt. Capital flows	46.9	119.4	36.6	-49.9	11.8	7.5	14.7	21.0	62.0	132.9	84.6
Net Pvt. Direct Investment	52.6	53.4	55.7	56.6	67.1	59.8	48.6	47.5	67.1	81.6	84.2
Net Pvt. Portfolio Investment	22.7	32.5	6.8	8.7	55.8	20.1	-54.7	-60.2	4.9	25.8	-3.3
Net Other Pvt. Capital flows	21.6	33.5	-26.0	-115.2	-111.1	-72.4	20.7	33.7	-10.0	25.4	3.8
Net official flows	14.5	-14.5	22.7	15.4	-0.3	-11.7	-11.3	5.2	-16.6	5.8	13.1
Changes in reserves	-43.3	-46.3	-36.0	-52.9	-87.5	-52.5	-90.9	-149.9	-227.8	-342.7	-291.6

Source : IMF, World Economic Outlook September 2005.

* Minus indicates an increase.

Portfolio flows on a net basis were negative in 2005 despite the regions buoyant stock markets.

Significant Net inflows 2004 & 2005 : India, Philippines and Thailand

Significant Net outflows 2004 & 2005 : Indonesia and the republic of Korea

One feature of FPI flows in 2005 is the growing importance of mergers and acquisitions. It increases the efficiency of capital by facilitating consolidation in different sectors of the economy.

Stock Markets

Stock markets showed the following trends: Dow Jones Industrial Average and NASDAQ (U.S) composite index were generally flat, while those of other developed country markets showed considerable amount of buying. The Japanese stock market Index (Nikkei and Topix) reached their highest levels in 5 years. China's and Malaysia's Stock Markets showed a decline while Stock markets in India, Pakistan, Russian Federation and Turkey were amongst the best performing in the world.

These trends in the region indicate that country specific influences such as corporate profits were at work, more than the systematic influences governing capital flows in the region as a whole.

Exchange rate and financial markets remained stable in 2005 while the real interest rate declined. The low level of real interest rate in the region mirrors the low level of global real interest rates (more specifically U.S. interest rates).This is reflected in housing, real estate and gold prices hike.

Reserves in the region (excluding Japan) increased by 26 percent in 2003 to 30 percent in 2004. It slackened in 2005 first half but reached 1.8 billion in the 2nd half of 2005.

Thus on the whole we could say that the capital flows to the developing world is very volatile and depends on domestic and international factors. Now we must analyze the factors that contribute to the capital flows or in other words what variables influence the decision frameworks of the investors and how these decision affect the politics and policy of the 'Host counties'.

The questions that we address here are

i) Are the motivations of portfolio investor's short term or long term and to what extend are they short term based or long term based?

ii) To what extend the external and internal factors influence portfolio flows.

Factors determining FPI flows

The factors that determine FPI can be divided into

i) Push factors – external e.g.: low yields and high prices in other markets, rumors, technical factors etc.

ii) Pull factors – internal. e.g. Privatization policy, exchange rate stability etc.

TABLE 3.11 TYPES OF EMERGING MARKET INVESTORS

	Push	Pull
Short term	Yield orientation Mutual fund managers Directly constrains only host country interest rates and exchange rate policy Aggravate herding	Price and value orientation Hedge funds Can start or mitigate impact of herd behavior Should constrain policy but timing of their actions is unpredictable
Long term	Yield orientation Commercial bank loan officers in 1970s Virtually no constraint on borrowing country policy until default looms	Diversification and Value goal Pension funds and insurance companies Salutary long-term constraint on general policy direction and performance in host country

The table 3.11 shows that FPI investors in emerging markets could be classified into 4 based on the time horizon and push and pull factors.

Case I: Predominance of Push factors

When push factors predominate national policy will be constrained only when rates of return on substitute investments are relatively high. Another important implication is that the host country policies will be ineffective in controlling these flows.

Case II: Investors with short time horizons, pushed into emerging markets

Causal factor → Low yields on less risky investments.

Assumption

i) Predominance of push factors

ii) Existence of Day to day, Week-to-week basis volatile portfolio investment capital

Impact

i) Differences in rate of return on substitute investments are small

ii) Host country policy will be more constrained.

iii) When OECD countries interest ratio are low, non-OECD investments increases. E.g.: Mutual funds.

iv) Developing countries will have to design policies which will adapt themselves to changes in international interest rates and at the same time maintain exchange rate stability. Otherwise they will face the risk of sudden capital outflows. E.g. Mexican peso crisis (1994).

This type of flows dominates north to south capital flows. They place the developing and transitional economies at the mercy of factors beyond their control.

Case III: Investors with short time horizons and some appreciation of host country fundamentals

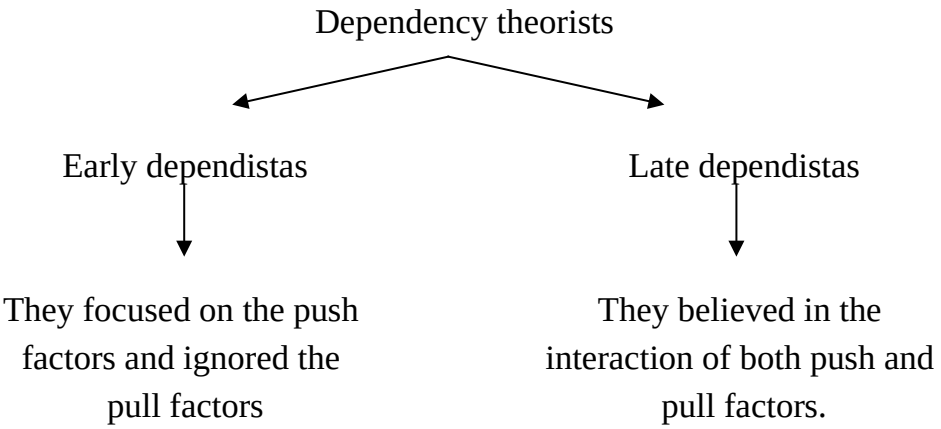
Frame work: Short term investors focus more on price than on relative yield. They make money by trading and betting on future price. They make use of or have an appreciation for the opportunity afforded by volatility in developing countries. They can influence the capital flows through this behaviour. If they believe that the market has misjudged the fundamentals

then they could cause massive capital outflows. In the long run the poor policies and performance of host countries result in capital outflow. But patient investors allow time to correct policy errors before the capital flows out. These investors have three major goals, (i) diversification (ii) Price efficiency and (iii) Yield.

Thus both long run and short run flows require careful policy choice so that the emerging markets could avoid crises.

Historical analysis of Response to capital flows (Policy choices)

Dependent theorists concern themselves with the factors **that influence capital flow to developing countries.**



Calvo, Leiderman and Reinhart Schadler Montiel have shown that multiple concerns have produced multiple responses to capital flows e.g. Thai financial crisis of 1997.

Case IV: Patient investors pushed by international condition

Frame work:

i) Push factors predominate

ii) Capital is patient (i.e. unlike the case of short term investors who pursue 'hot' volatile money)

iii) There is little constraint on National Policy. E.g. 1970's commercial bank lending boom.

iv) There is excess liquidity in the International banking system (Emerging markets limit of borrowing = $\propto$=infinity)

Here capital flows impose only little conditional tie ups on the host (developing) countries. Hence they enjoy considerable policy latitude.

Risk involved: Sudden outflow of capital

This sudden outflow occurs when policy errors accumulate overtime leading to international defaults on payments.

$PE_1 + PE_2 + \ldots PE_n \rightarrow$ International defaults

Where PE = Policy error

1….n = time periods

E.g. Mexican Debt default 1982.

Case V: Patient capital pulled into the host country.

National policy will be more under pressure when capital inflows are pulled rather than pushed. Patient investors pulled by the emerging markets, when compared to the other categories of investors, provide better conditions for development and growth.

Time line showing policy responses to Capital flows

I	-	Sterilized intervention
(60's and 70's)		Monetary authorities manipulated the foreign exchange market.
		Method:
		Open market operations via sale of treasury bills.
		Increase in Reserve requirements and
		Shifting of government deposits and funds from the banking system to the central bank.
		Result: Accumulation of foreign exchange reserves.
II	-	Fiscal austerity Measures. (Applied on the spending side)
(late 70's and early 80's)		Result: De pressurizes the foreign exchange rate.
		Expenditures fall heavily on non-traded goods.
Policies since late 80's III	-	Trade liberalization
		Result: Reduces pressures on the real exchange rate.
IV	-	Liberalization of capital outflows
V	-	Controls of capital inflows
		Methods : Taxes, qualitative restrictions providential measure etc.
VI	-	Revaluation of nominal exchange rate
VII	-	Greater exchange rate flexibility
VIII	-	Curbing customer credit and consumption
IX	-	Prudential banking measures

One thing is crystal clear; multiple responses, to capital inflows precipitate results unanticipated by the policy framers. i.e. the law of unintended consequences still holds valid.

The table 3.12 summarizes the factors that determine the capital flow during various time periods.

Table 3.12 Factors determining capital flows.

Time Period	19th Century Capital flows	20th Century Capital flow
Determinants	London Stock Market Latin American independence, Need for credit in developing countries.	1914 financial crisis in London, outbreak of first world war Emergence of New York Stock Market 2nd World War, Low interest rate in the USA, Bond finance, Structural Adjustment Programmes in DCs

The capital flows help in integrating the world capital markets.The integration of world capital markets favours economic growth and welfare for the following reasons: s

1) The decoupling of domestic investment from national saving
2) The possibility of smoothing consumption in the face of country-specific shocks
3) The availability of a worldwide pool of financial instruments that allows a more efficient insurance against risk and lower borrowing costs.

However, the long-run benefits of capital market integration in terms of growth and welfare crucially depend on the destination of external financing to productive investment (rather than consumption or speculation), on the allocation of investment resources to highly profitable projects, on a

domestic and international environment conducive to economic growth and also on favourable unexpected events (such as improvements in the terms of trade). Many conditions must therefore be fulfilled if capital inflows are to favour economic growth and welfare in DC's.

Moreover, only when external financing is associated with economic growth is the dynamic sustainability of the accumulation of foreign liabilities conceivable. The counterpart of the foreign capital contribution to growth is the building of an external debt (or, in general, of a negative net foreign asset position) that is viable only if domestic output and exports are growing as well. However finding sound investment opportunities can get difficult when a developing economy incurs over borrowing during a liberalisation phase. The danger of inflating high-risk projects starts to materialise at this stage, with the related negative consequences for the recipient economy in the medium and long run.

Thus the overview of capital flows to developing countries reveals the nature of these flows and the factors which cause these flows. For the capital flows to achieve the much coveted economic growth and development every developing country should satisfy certain basic requirements like favourable investment environment. More over sound and credible policies are required to assure that the impact of foreign finance on long term growth in DC's is positive. This together with liberalisation policies effectively promoting and supporting the accumulation of infrastructures and human capital (education, healthcare, on-the-job training, and so on) will bring in the much desired growth and development.

CHAPTER 4

REFORMS AND INDIAN CAPITAL MARKET

India's foreign Investment policies play a crucial role in attracting foreign investment to India: Analysis of India's policies on foreign investment reveals 4 major phases.

4.1 Four phases of India's policies on Foreign Investment

During the gradual liberalization phase of 1948-1967 foreign capital was welcomed on mutually advantageous terms. As the foreign investors were assured of unrestricted profits and dividends and national treatment, domestic firms which were less competent argued for a protective discrimination. The protective discrimination which materialized, in effect, remained as rule only. The foreign exchange crisis of 1957-58 further accentuated the attitude towards liberalization. A series of measures like the signing of the Indo US convertibility agreement, granting tax concerns to foreign firms, sending industrial mission abroad etc. were undertaken to attract foreign investment. The Hathi Committee (1975) noted that it was during this period that most foreign firms set up manufacturing subsidiaries in the country.

The restrictive phase of 1968-79 witnessed a reversal in government policy – capped by tightening foreign exchange restrictions (1973), two acts of policy of special significance were enacted by the state- the MRTP Act of

1969 and FERA of 1973. Both these acts curtailed the freedom of foreign investors in India. Many foreign companies preferred winding up their operation in the country to diluting their equity holdings. For example IBM and Coca cola left India instead of diluting their share holdings.

The realization of the deterioration of the international competitiveness of Indian goods, decline in exports, oil price shock etc lead to a change in the government of India's policies regarding foreign investment during the 80's. This led to the opening up phase of (1980-1990). The adoption of the Industrial policy statement of 1980-1982 reflected the decision of the government to combat these problems through liberalized imports of technology and capital goods. The U.S. Mission in 1983 and a round table conference on India organized by the European management foundation in 1985 testify for the interest shown by the developed world towards this policy change. In 1985 further liberalization through dismantling of the licensing system, dilution of FERA and MRTP clearly showed where the Indian economy was heading to:

Structural Adjustment and Globalization in 1990's

To crown up, there emerged the BOP crisis in 1990-91. The congress party which came to power at the centre introduced the liberalization, Globalization and privatization mantra to escape from the tough situation. i.e. Market oriented reforms began in 1991. The twin forces of globalization and deregulation have breathed a new life to private business and the long protected industries in India are now faced with the challenge of international

competition as well as opportunities of world markets. The foreign participation in companies up to 51percent was permitted automatically in 34 industries. Establishment of RBI's automatic approval system, Foreign Investment promotion board, permission for FPI in Indian capital markets etc. marked a new turning point in the economy.

With the removal of the administrative controls on bank credit and the primary market for securities, the capital markets came to occupy a larger role in shaping resource allocation in the country. This led to heightened interest amongst policy makers in the institutional development of securities markets. The Harshad Mehta scam of April 1992 set the stage for an unusual policy interaction – i.e. setting up of National stock exchange, which pioneered many important innovations in market design in India. A better understanding can be facilitated only through an indepth analysis of the growth and evolution of Indian capital market.

4.2 Growth and Evolution of Indian capital market

In India from 1947 to 1980 Banks and major financial institutions dominated the capital market i.e. resource mobilization for industrialization came mainly from financial institutions.

Table 4.1 - ASSISTANCES SANCTIONED BY ALL FINANCIAL INSTITUTIONS

Year	Amount disbursed Rs. Crores	Growth (in %)	Year	Amount disbursed Rs. Crores	Growth (in %)	Year	Amount disbursed Rs. Crores	Growth (in %)
1970-71	159.9	19.69	1980-81	1847.9	36.66	1990-91	12810.1	32.89
1971-72	191.4	14.31	1981-82	2352.0	27.28	1991-92	16260.0	26.93
1972-73	218.8	37.84	1982-83	2468.5	4.95	1992-93	23150.3	42.38
1973-74	301.6	40.91	1983-84	3138.4	27.13	1993-94	26624.3	15.01
1974-75	425.0	2.4	1984-85	3627.9	15.6	1994-95	33568.1	26.08
1975-76	435.2	38.32	1985-86	4940.0	36.17	1995-96	38649.5	15.14
1976-77	602.0	18.43	1986-87	5709.1	15.57	1996-97	42656.5	10.37
1977-78	713.0	32.89	1987-88	7061.1	23.68	1997-98	53647.9	25.77
1978-79	947.5	42.71	1988-89	7700.8	9.06	1998-99	57190.7	6.6
1979-80	1352.2	18.43	1989-90	9639.7	25.17	1999-00	68478.8	19.74

Source: RBI Bulletin various issues

The gradual process of liberalization which began in the 80’s and the new economic policy of 1991 transformed the role of capital market. From a passive onlooker the market became an active source for corporate capital mobilization.

Table 4.2 – CAPITAL ISSUES BY PUBLIC LIMITED COMPANIES

Year	No. of issues	Amount raised (in Rs. Crores)	Year	No. of issues	Amount raised (in Rs. Crores)	Year	No. of issues	Amount raised (in Rs. Crores)
1970	113	66.4	1980-81	237	163.9	1990-91	364	4312.2
1971	100	43.4	1981-82	435	598.4	1991-92	514	6193.1
1972	141	92.9	1982-83	644	706.0	1992-93	1040	19803.4
1973	190	74.4	1983-84	794	837.5	1993-94	1133	19930.3
1974	173	56.3	1984-85	471	1056.4	1994-95	1678	26416.7
1975	170	97.9	1985-86	850	1745.3	1995-96	1663	15997.6
1976	140	68.6	1986-87	521	2581.4	1996-97	838	10409.5
1977	152	103.4	1987-88	225	1787.7	1997-98	102	3138.3
1978	165	100.5	1988-89	341	3224.8	1998-99	48	5013.1
1979	189	180.0	1989-90	407	6509.9	1999-00	79	5153.3

Source: RBI Bulletin various issues

Table 4.2 shows that

- Capital issues by public limited companies reached a peak during mid 90’s.
- During 1995-2000 it declined drastically.
- Primary market resource mobilization showed a decline during 1995-2000.
- During 1995-2000 public issues declined while private placement surged as is evident, from table 4.3.

Table 4.3 – RESOURCE MOBILIZATION FROM THE PRIMARY MARKET

Issues	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00
Corporate securities	14219	16366	23537	44498	48084	36689	37147	42125	6192	72450
Domestic issues	14219	16366	23286	37044	41974	36193	33872	37783	59044	68963
Non – Governmen t public companies	4312	6193	19830	19330	26417	16075	10410	3138	5013	5133
Private placement	4244	4463	1635	7466	11174	13361	15066	30099	49679	61259

Source: Indian securities market ,A review, NSE, 2002

SECONDARY MARKETS (STOCK EXCHANGES) IN INDIA - AN OVERVIEW

The secondary market or stock market or stock exchange means any body of individuals constituted for the purpose of assisting regulating or controlling the business of buying selling or dealing in securities. It provides a market for the purchase and sale of shares and debentures of corporate enterprises. In the stock exchanges the stock brokers are just as likely to be buyers or sellers. The main operations of the stock exchanges are

i. Listing of securities: -

ii. Provision of free and fair market.

iii. Provision of new capital for industrial and other borrowers.

The working day of a stock exchange and the type of margin are determined by its governing body. The transactions in the stock exchanges (markets) must be in accordance with the rules and byelaws framed by the stock exchanges to regulate its day-to-day operations.

The origin of the stock market goes back to the time when securities representing property or promise to pay were first issued and made transferable from one person to another. The East India Company was the dominant institution in 1830's. In 1860-61, the American civil war totally stopped supply of cotton from U.S.A. to Europe. This lead to a large and unlimited demand on India and India relied mainly on the Bombay presidency for its cotton. The large exports of cotton from Bombay resulted in flow of export payments in the form of sliver and gold. Investors now started looking for new avenues for investing the newly accumulated wealth which lead to the share mania of 1861- 65.

1. THE BOMBAY STOCK EXCHANGE (1875)

The trading of share flourished in Bombay during the share mania and the number of brokers increased from about 200 to 250. Till 1874 the brokers assembled in a street that is now called Dalal Street and conducted business in securities. In 1877 they founded the present native stock and share brokers association. The word *Native* provides that no other person except natives of India were to be admitted as members of the said association. The association is now also known alternatively as the “The Stock Exchange”. The members entrance fee was Rs.1/- and there were 318 members in 1875. In 1990 the number of members increased to 555.

2. THE AHMEDABAD SHARE AND STOCK BROKERS ASSOCIATION FOUNDATION

Ahemadabad brokers formed themselves into an association under the title “The Ahemadabad share and stock brokers association”. The exchange was organized as a voluntary non-profit making association and followed the rules and practices prevalent in Bombay. The members used to conjugate and trade under the open sky in the Manock Chowk area and it was only after the First World War that a building was constructed and now it is known as the “Ahmedabad stock exchange association limited".

3. THE CALCUTTA STOCK EXCAHANGE ASSOCIATION

Coal boom in Calcutta between 1904 and 1908 lead to rise in prices of coal shares. On 15th June 1908 an association was formed by leading brokers under the name of the Calcutta Stock Exchange Association with 150 founder members. The first committee of exchange had 9 members. The Calcutta stock exchange was founded in new building at new China Bazaar Street (later known as the Royal Exchange place)

4. MADRAS STOCK EXCHANGE

A stock exchange was organized in Madras on 4th September 1937, under the title of the Madras stock exchange Association Private. Ltd. The new exchange started with only five members and 84 companies on its list of officially quoted securities. The madras stock exchange was reorganized as company limited by guarantee under the title of the Madras stock exchange Ltd. on April 29,1957. The Madras stock exchange had 35 members on its roles.

5. MUSHROOM STOCK EXCHANGES

Table 4.4 – MUSHROOM STOCK EXCHANGES IN INDIA

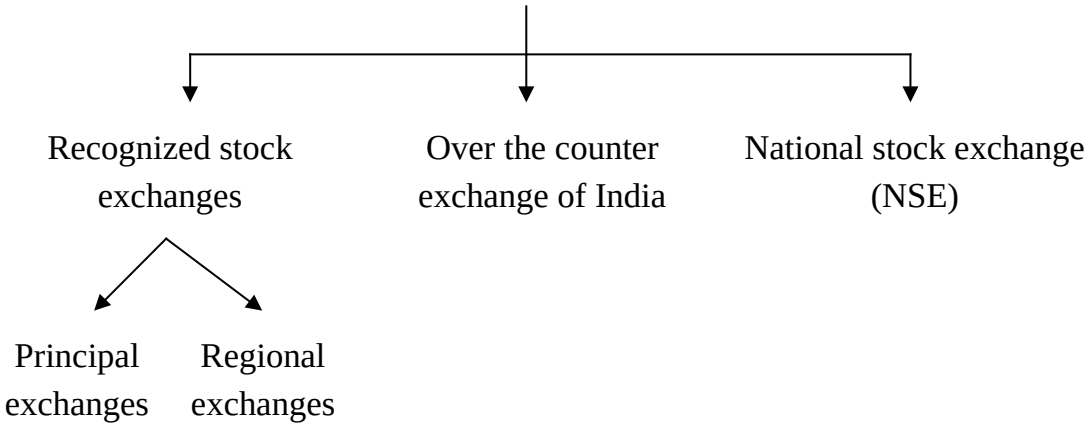
Stock exchange	**City**	**Year**
The Delhi stocks and shares Exchange Ltd	Delhi	1943
the Delhi Stock Exchange Association Ltd	”	25th of June 1947
The U.P stock exchange Ltd	Kanpur	1940
The Hyderabad Exchange Ltd	Hyderabad	1944
The Bangalore Stock Exchange	Bangalore	1951
M.P Stock Exchange	M.P	1930
Cochin Stock Exchange Ltd	cochin	1978
Pune Stock Exchange Ltd	Pune	1982
Ludhiana Stock Exchange Association Ltd	Ludhiana	1983
Guwahati Stock Exchange Ltd	Guwahati	1984
Kanara Stock Exchange Ltd	Mangalore	1985
Magadh Stock Exchange association	Patna,	1986
Jaipur Stock Exchange Ltd	Jaipur	1983-84
Bhubaneshwar Stock Exchange Association Ltd	Bhubaneshwar	1989
Saurashtra Katch Stock Exchange Ltd	Rajkot	1989
Vadodhara Stock Exchange	Baroda	1990
Coimbatore stock exchange in	Trichy	1996
OTC Exchange of India	Bombay	1992

Source: BSE Research and Analysis Wing Reports various issues.

The National Stock Exchange of India Ltd was set up in Worli near Bombay. The increase in the number of stock exchanges points out the increasing number of companies in India.

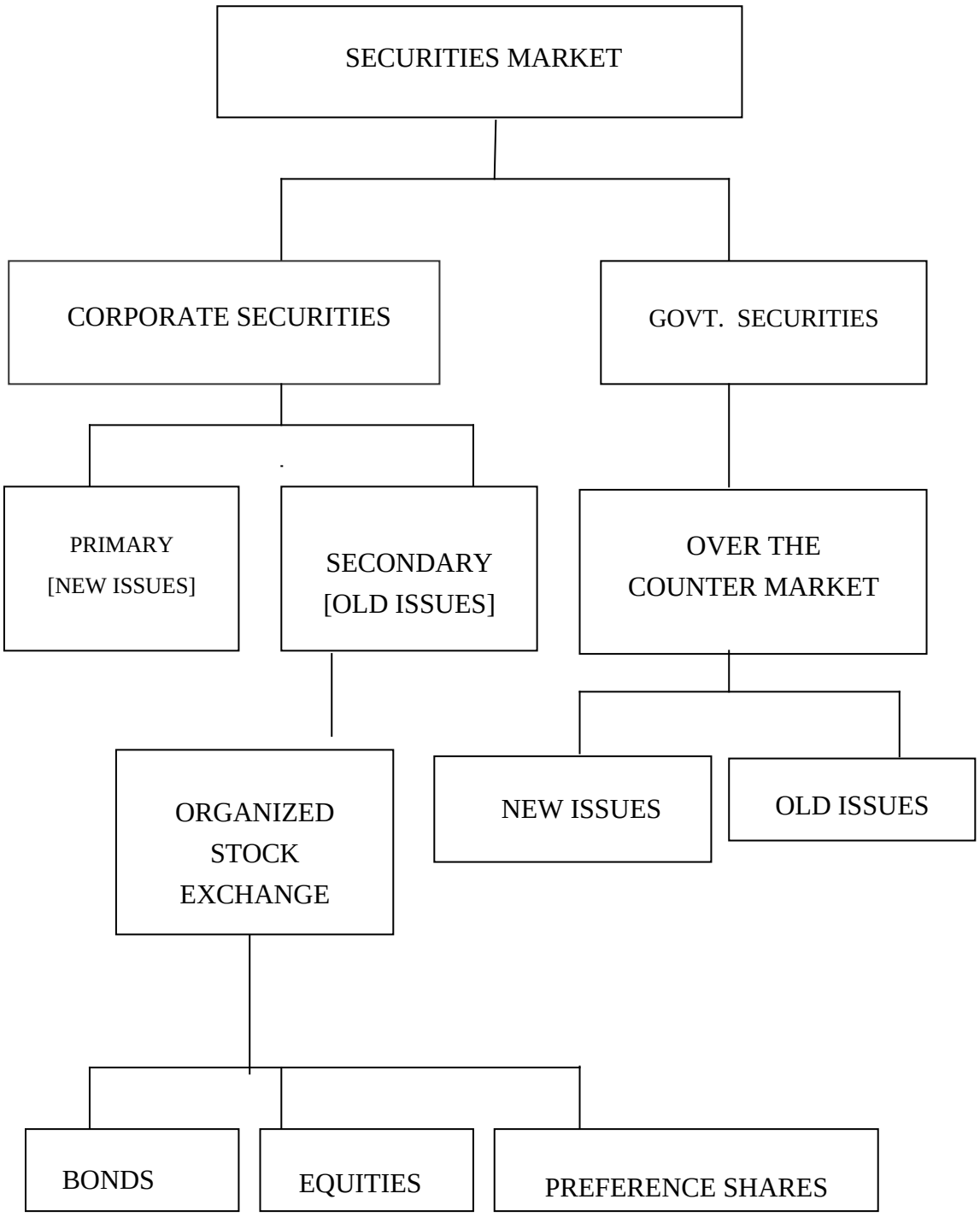
The emerging market structure in India can be diagrammatically shown as below.

Chart 4.2 Emerging Market structure in India



Recognized stock exchange means the stock exchange which is for the time being recognized by the central government under section 4 of the act.

THE STRUCTURE OF SECURITIES MARKET



The primary and secondary market act and react on each other. The stock market is very sensitive to the impact of development in a country and the same is transmitted to the new issue market. Thus it is very aptly remarked that stock exchanges are a nation's barometer of prosperity and adversity.

REFORMS IN THE INDIAN CAPITAL MARKET

The capital market in India has seen a large number of changes over the last few years and SEBI continues to move towards a more efficient market.

All the measures introduced since July 1991 aims to improve the productivity and efficiency of the system. SEBI as well as other agencies looks for professional standards, functional strength backed by corporate right, ethical behaviour and a comprehensive and total approach to business from the part of stock brokers.

Significant changes brought about by the liberalisation policies of the government are the following

1) Simplification of public issues.

2) Abolition of controller of capital issues.

3) Establishment of SEBI and its regulatory mechanism:

   The central government set up on April 12, 1992- the Securities and exchange board of India (SEBI) in Bombay to promote orderly and healthy development of the securities market and to provide adequate investor protection. SEBI was established with the objectives of controlling the primary market, regulating the stock exchange, for

administering a regulatory frame work and to protect the investors and educate them. These objectives are proposed to be accomplished by evolving a comprehensive legislation covering all aspects of the securities market in an integrated framework.

4) Private sector entry into mutual funds.

5) Permission to issue GDR's and ADR's.

6) Designing new financial instruments.

7) SEBI and stock exchanges becomes more investor friendly

8) Opening capital markets to the external sector which resulted in the inflow of foreign capital: A major market driver has been the influence of the foreign institutional investors and other foreign portfolio inflows. Liberalisation has thrown open the gates of soft international finance to the Indian industry and also the challenges of competition. Indian companies can now privately place equity to the Indian mutual funds and FII's as per the SEBI guidelines. i.e. raise cheap capital from the foreigners themselves and then to compete in the international market. All these measures will ultimately make Indian industry competitive in the international market

9) Establishment of NSE:

NSE was a pioneer in the international securities market in using a "demutalised" structure, where brokerage firms did not own the exchange. This helped in keeping NSE focussed on the needs of investors as opposed to the profit maximisation of the Brokerage firms.

It also resulted in serious enforcement of rules and regulations as compared with other stock exchanges. Trading at NSE started in November 1994. From October 1995 onwards, NSE became India's largest exchange. There are only few other parallels to this episode internationally where a new exchange displaced the position of an existing stock exchange within a year.

The NSE and BSE are located in the same city and have the same trading hours, all major stocks trade on both exchanges. So they compete for listing as well as for order flow. The emergence of NSE has lead to reforms in the BSE E.g. establishment of BOLT (Bombay on line trading)at BSE.

10) Open Electronic limit order book market and screen based trading

The open outcry system in the stock market was replaced by the open electronic book market. The open electronic limit order book (ELOB) is a country wide computer based matching system.

Advantages of ELOB

- Prices reflect the resources and information of all traders
- Facilitates transparent screen based trading
- Enhances liquidity

NSE was established in 1994 with this new screen based trading facility.

11) Integration of Markets

NSE established satellite communication system which led to the emergence of an integrated national market. i.e. An order to buy from

Cochin can be matched through computers with an order to sell from any part of the country.

Advantages

- Removed price fluctuations: Arbitrageur cannot exploit pricing discrepancies.
- Increased market efficiency
- Reduces the number of intermediaries which leads to reduction in transaction costs. See table 4.5

Table 4.5 – REDUCTION IN TRANSACTIONS COSTS IN INDIA (1994 & 1999)

Transaction Cost	1994	1999	Global Best
Trading (%) Fees	2.5	0.25	0.25
Impact Cost	0.75	0.25	0.2
Clearing counter Party Risk Settlement (%)	Present	Nil	Nil
Paper work	0.75	0.1	0
Bad Delivery	0.5	0	0
Stamp Duty	0.25	0	0
Total (%)	>4.75	0.6	0.45

Source: National Stock Exchange Reports, various issues

12) Establishment of clearing houses

The establishment of National Securities Clearing house Corporation (NSCC) in July 1996 helped in eliminating the issue of counter parity risk.

NSCC performs 'novation' i.e. it is the legal counterparty to the net settlement obligation. In traditional exchanges brokerage firms were bound

by family and ethnic ties. These ties were exploited in reacting to crises. But when NSE admitted brokerage firms without any ethnic or family ties, NSE was exposing itself to greater chances of counter parity risk. The solution to the problem thus lead to the birth of NSCC. NSCC prevents the externalities associated with defaults.

A combination of online real-time task monitoring and initial margin and the daily mark-to-market margin is used as the risk containment system by NSCC. NSCC has successfully navigated the markets during periods of high volatility. Though it is criticized for being overly conservative in margin calculations; it has produced an unprecedented reliability in the stock market operations.

13) Depository Services

The Depository act of 1996 removed the problems arising from physical share certificates. The transfer of physical shares involved huge transaction cost, delays, reduced liquidity etc. The Act established Depositors i.e. institutions that dematerialize shares. These institutions convert the shares into electronic form. E.g.: NSDL and CDSL

Advantages

- Electronic records of ownership of shares do away with the problems of storage and handling. This reduces the costs involved. Eg. Transaction costs, maintenance cost etc. This can be seen from the table 4.6.

Table 4.6 – TRANSACTIONS COSTS OF STOCK MARKET AND THE BANKS

Year	Transactions costs of Stock Market (in %)	Transactions costs of Banks (in %)
1994	4.75	4
1995	0.6	2.5

Source : Calculated from National Stock Exchange and RBI Handbook 2000 data.

From the table it becomes clear that when compared to banks the transaction cost of stock markets have come down sharply.

- ELOB eliminates forgery, counterfeiting and theft of securities.
- It enhances liquidity, better price and market efficiency.

14) Rolling Settlement

T+n Rolling settlement was introduced in the stock exchange T = trading day, n = number of days after the trading day. All shares were compulsorily moved to rolling settlement from December 2001. All exchanges were moved to the same settlement day.

T+5, T+3 and later T+2 were the settlements adopted.T+1 mode was introduced in 2004.

Advantages

- Reduces the risk of large open positions which have a huge volatility potential.

15) Derivatives trading: It was introduced in June 2000

Derivates = financial contracts which derive their value from the spot market price of the product concerned (underlying).

* NSDL = National securities Depository Limited (promoted by NSE) Central Depository services Limited (promoted by BSE).All trades in the derivatives market are guaranteed by the clearing corporation.

Advantages: Derivatives facilitate

- Better risk management
- Risk minimization (E.g. Hedging and arbitrage)

16) FPI was allowed:

Foreign institutional Investors, ADR, GDR and offshore funds were allowed in the capital market scenario. It leads to the integration of Indian Capital Market with the rest of the world as is evident from the table 4.7.

Table 4.7 – GLOBAL INTEGRATION OF THE INDIAN STOCK MARKET

Parameters of integration	1990	2000
Access to foreign capital markets	No access	Access through ADRs, GDRs and Euro Bonds
Amount mobilized abroad (in Rs. Crores)	Nil	30868
Foreign Portfolio Investment	Non Existent	Exists
FPI value (in Rs. Crores)	Nil	393331

Source: RBI handbook 2000 & Indian Securities Market Review 2002.

17) Book Building

It is a process of offering securities based on bids received from investors (contrary to the earlier fixed price mode). It helps to assess demand and fix price accordingly.

18) Corporatisation of stock exchanges

The Corporatisation and demutilization reform was introduced in 2001. It involves segregation of ownership, management and trading membership and introduction of Comprehensive Risk Management System (CRMS). CRMS incorporated i) Capital adequacy of members ii) Adequate margin requirements iii) Limits on exposure and turnover iv) Indemnity insurance v)On line position monitoring vi)Automatic disablement vii) System for efficient market surveillance etc.

All these measures helped to prevent excess volatility in the capital markets.

Other reforms

- Mutual funds industry was opened to the private sector
- Code for takeovers/acquisitions and mergers were introduced.
- Stock buy back facility for companies
- Stock lending
- Disclosure and investors protection guidelines.

Impact of reforms

The reforms transformed the capital market drastically. The change in the market design is evident from the table 4.8.

Table 4.8 – MARKET DESIGN IN INDIAN SECURITIES MARKET 1992 AND 2002

Feature	1992	2002
Regulator	No specific Regulator but Central Govt. oversight	A specialized regulator for securities market (SEBI) vested with powers to protect investors' interest and to develop and regulate securities market. SROs strengthened.
Intermediaries	Some of the intermediaries like stock brokers, authorized clerks etc. regulated by the SROs	A variety of specialized intermediaries emerged. They are registered and regulated by SEBI (also by SROs). They as well as their employees are required to follow a code of conduct and are subject to a number of compliances.
Access to Market	Granted by Central government	Eligible issuers access the market after complying with the issue requirements.
Pricing of securities	Determined by Central Government	Determined by market, either by the issuer through fixed price or by the investors through book building.
Integration with international market	No Access	Corporates allowed to issue ADRs/GDRs and raise ECBs. ADRs/ GDRs have two-way fungiblity,. Flls allowed to trade in Indian Market. MFs also allowed to invest overseas.
Trading Mechanism	Open outcry. Available at the trading rings of the exchanges, Opaque, auction negotiated deals.	Screen based trading system, orders are matched on price-time priority, Transparent, Trading platform accessible from all over the country.
Feature	**1992**	**2002**
Aggregation	Fragmented market	Order flow observed exchanges have

order flow	through geographical distance. Order flow unobserved	open electronic consolidated limit order book.
Anonymity in Trading	* Absent	Complete
Settlement system	Bilateral	Clearing House of Exchange or the Clearing Corporation is the central country-party
Settlement Cycles	14 day account period settlement, but not authorized to always.	Rolling settlement on T+3 basis
Counter parity risk	Present	Absent
Form of settlement	Physical	Mostly Electronic
Basis of settlement	Bilateral Netting	Multilateral Netting
Transfer of Securities	Cumbersome, Transfer by endorsement on security and registration by issuer	Securities are freely transferable. Transfers are recorded electronically by Depositories
Risk Management	No focus on risk management	Comprehensive risk management system encompassing capital adequacy, limits on exposure and turnover, margining, on-line position monitoring etc.

Source: Compiled from NSE Securities market review, various years

Table 4.9 provides a comparative analysis of banks and markets with regard to the assets intermediated.

Table 4.9 – ASSETS INTERMEDIATED BY BANKS AND MARKETS 1990-2000

(In Rupees Billion)

Year	Banks	Equity Market
1990	1841	705.21
2000	9254	10293

Sources : Calculated from RBI Handbook 2000 and Capital Market April 1990 and April 2000.

It is evident that during the 10 year period equity markets have outgrown the banks with respect to the amount of assets intermediated. Another important impact of the reforms is the reduction in the interest rate spread. As is evident from table 4.10, the reduction in the interest rate spread will have a positive impact on saving and investment activities in the economy.

Table 4.10 – TRENDS IN THE INTEREST RATE SPREAD

Year	Average Deposit rate (1 to 3 years in %)	Minimum lending rate (in %)	Interest rate spread (in %)
1990-91	9.5	16	6.5
1991-92	12	19	7
1992-93	11	17	6
1993-94	10	14	4
1994-95	11	15	4
1995-96	12	16.5	4.5
1996-97	11.5	14.75	3.25
1997-98	10.75	14	3.25
1998-99	10	12.5	2.5

Source : Calculated from RBI Handbook 2000 data

The process of reforms in the capital market thus has far reaching long term implications for the efficient allocation of saving and investment flows

in our country. Institutional development lies at the essence of these reforms, and along with a host of new market practices, four new institutions have arisen over this period: SEBI, NSE, NSCC and NSDL. Table 4.11 gives an account of these changes as follows: -

Table 4.11 – INDIA'S EQUITY MARKET IN TERMS OF 12 COMPONENTS (APPROXIMATION)

COMPONENTS	**1994**	**1998 (WITH NSDL)**
TRADING		
DENIAL OF ACCESS	HIGH	LOW
MARKET DOWN-TIME	HIGH	LOW
FEES TO INTERMEDIARIES	HIGH	LOW
UNRELIABLE ORDER PROCESSING	HIGH	LOW
MARKET INEFFICIENCIES	HIGH	LOW
MARKET IMPACT COST	HIGH	MODERATE
CLEARING		
CONTEMPORARY RISK	HIGH	ZERO
INITIAL MARGIN	ZERO	MODERATE
SETTLEMENT		
BACK OFFICE COSTS	HIGH	LOW
BAD DELIVERIES	HIGH	ZERO
DELAYS IN PAYMENTS	HIGH	LOW
TRANSACTION TAXES	MODERATE	ZERO

Source: BSE Research and Analysis Wing Reports, various issues

The 12 components selected here give an indication of the growth, development, efficiency and integration of Indian capital market.

These reforms have significantly altered the capital structure choices of Indian firms. In 1993-94 and 1994-95, firms significantly reduced their leverage through primary market issues of equity. *Shah* points out that the P/E ratio (market capitalisation upon net profit) reveals expectations of the stock market. In recent years the forecast accuracy of the market's P/E has improved considerably: this partly reflects a more stable environment and institutional development on the equity market.

SHARE MARKET REFORMS AND GROWTH

Cross country growth regressions suggests that

1) The stock market developments are positively and robustly associated with long run growth,
2) The level of stock market development is positively correlated with the developments of financial intermediaries
3) Stock market development induces (facilitates) more debt finance in developing countries.

In India the reforms have integrated the domestic capital market with capital markets abroad. This is evident from the table 4.12.

Table 4.12 – MARKET CAPITALIZATION AND TURNOVER FOR

MAJOR MARKETS (US & MILLION)

Country/Region	Market capitalization (end of period			Turnover		
	1990	2000	2001	1990	2000	2001
Developed Markets	8795239	29614264	25246554	4616473	43912999	39676018
Australia	108879	372794	25246554	40113	226325	240667
Japan	2917679	3157222	374269	1603388	2693856	1826230
UK	848866	2576992	2251814	278740	1835278	1871894
USA	3059434	15104037	2217324	1751252	31862485	29040739
Emerging Markets	604420	2608486	13810429	898223	3956869	2400844
China	-	580991	2572064	-	721538	448928
India	38567	148064	523952	21918	509812	249298
Indonesia	8081	26834	110396	3992	14311	9667
Korea	110594	148649	23006	75949	1067669	703960
Malaysia	48611	116935	220046	10871	58500	20772
Philippines	5927	51554	120007	1216	8196	3148
Taiwan	100710	247602	41523	715005	983491	544808
World Total	9399659	32222750	292621	5514706	47869867	42076862
US as % of World	32.55	46.87	49.64	31.76	66.56	69.02
India as % of World	0.41	0.46	0.40	0.40	1.06	0.59

Source : S & P Emerging Markets Fact book, 2002.

The domestic capital market volume and value of transactions,

development of new types of participants and products etc have increased tremendously. About 10,000 companies are listed and stock market capitalisation soared by more than Rs. 5, 60,000 crores. With the abolition of the office of CCI there was a huge surge in issues. For example between April 1992 and March 1996 about 4069 public issues were floated collecting over Rs. 45,000 crore .Total market value of shares is much above the aggregate deposits of all scheduled banks in the country. India is considered to be one of the most promising emerging stock markets of the world.

Table 4.13 – STOCK MARKETS: INTERNATIONAL COMPARISON (2001)

	USA	UK	Japan	Germany	Singapore	HonKong	China	India
No. of listed companies	6355	1923	2471	988	386	857	1160	2795
Market Capitalization ($ Bn)	13810	2217	2252	1072	117	506	524	110
Market Capitalization Ratio (%)	143.8	151.9	49.8	51.9	118.0	287.3	49.3	24.3
Turnover ($Bn.)	29041	1872	1826	1420	63	196	449	249
Turnover Ratio (%)	201.3	78.4	67.9	124.7	46.9	34.8	81.3	191.4

Source : International Capital Markets : Developments Prospects and Key Policy Issue; IMF Washington D.C. November 2002.

Table 4.14 – VALUE OF NEW EQUITY ISSUES IN SELECTED ASIAN COUNTRIES (US $ MILLION)

	1990	1991	1992	1993	1994	1995	1996	Total
China	…	…	…	…	…	804.5	550.6	1355.1
India	1796.5	2849.8	4267.8	7421.4	12242.3	10516.3	3691.5	42785.6
Indonesia	…	178.2	734.8	3509.8	11225.5	9284.8	1584.7	26547.8
Korea	4039.5	3648.3	2269.5	3512.3	6805.7	7323.3	4285.4	31884.0
Malyasia	3488.5	1896.2	2378.8	2738.9	2684.0	4572.7	4824.8	22583.9
Phillipines	339.4	381.1	124.5	413.7	1387.7	1493.3	1198.0	5337.7
Taiwan	7444.6	1688.0	1044.6	2526.9	3676.9	3878.0	3983.1	24244.2
Thailand	1748.2	2536.3	2157.2	1160.8	3157.0	3167.0	3604.6	17531.6

Source : International Capital Markets : Developments Prospects and Key Policy Issue; IMF Washington D.C. November 1997.

Thus economic reforms have given rise to unprecedented growth in

capital market in our country. However during 1995 - 1998 the appreciation in stock prices largely concentrated on a handful of stocks. Only 29 companies managed to cross 14 percent per annual returns to shareholders. The capital market changes bring the inevitable uncertainty, chaos and risk E.g. the increasing number of companies defaulting on their fixed deposits and vanishing have badly affected investors.

A great resurgence of Indian capital markets has come via the Information technology, communications and entertainment. Experts divide the shares into two groups: ICE (InfoTech, communications and entertainment) and non-ICE shares. The ICE shares have made instant millionaires and even billionaires. On 3 January 2000, over 700 scrips touched the upper limit band (more than 8 percent) and pushed the sensex by 369 points. Increased democratisation of the structure of securities market has given way to the birth of new entrepreneurs and new businesses. A very strong surge in mergers and acquisitions which are powerful stock price drivers is visible in Indian and global markets.

PRIMARY MARKETS

The permission to public sector enterprises to raise resources through bonds and debentures (partly convertible) led to an increase in the resources raised from the primary markets.

Prior to liberalisation in India asset building was largely the domain of the public sector. With the advent of New Economic Policy Indian corporates realized that they had to be competitive internationally. Asset creation through the Mergers and acquisitions route assumes a significant role here. Some companies went overboard and pursued projects beyond their means

and suffered when the markets slumped and the bankers tightened their purse strings. However corporates are still raising money, with rights issue at an average of 3 per month. By 1997, the ratio of debt to equity was 55:45.

During 1996, 1997 and 1998, primary markets have been virtually dead. Therefore lower fresh investment, lower industrial growth and vicious circle prevailed. Hence the means to revive capital markets were badly needed see table 4.15.

Table 4.15 – RESOURCE MOBILIZATION FROM THE PRIMARY MARKET (RS. CRORES)

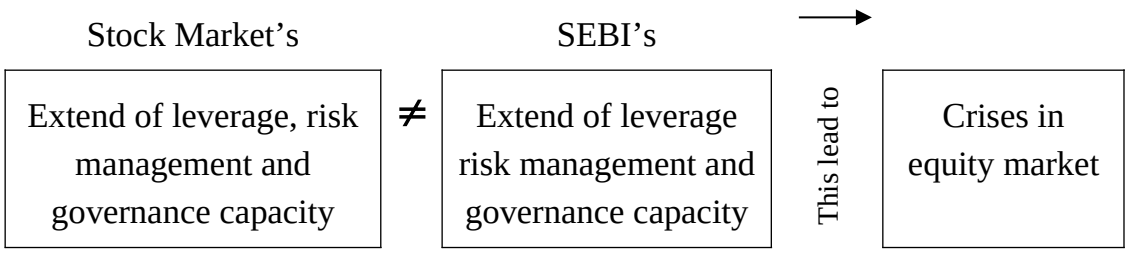
Issues	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00
Corporate Securities	14219	16366 (15.1)	23537 (43.82)	44498 (89.06)	48084 (6.98)	36689 (-23.7)	37147 (1.25	42125 (13.4)	60192 (35.77)	72450 (20.36)
Domestic issues	14219	16366 (15.1)	23286 (42.28)	37044 (59.08)	41974 (13.330)	36193 (-9.01)	38872 (-6.41)	37783 (11.56)	59044 (56.27)	68963 (16.8)
Non-Govt. public companies	4312	6193 (43.62)	19830 (220.2)	19330 (-2.52)	26417 (36.66)	16075 (-39.15)	10410 (-35.24)	3138 (-69.86)	5013 (59.75)	5153 (.80)
PSU Bonds	5663	5710 (.82)	1062 (-81.4)	5586 (426)	3070 (-45.04)	2292 (-25.34)	3394 (48.08)	2982 (-12.14)	- -	- -
Government Companies	-	-	430	819 (90.47)	888 (8.42)	1000 (12.61)	650 (-35)	43 (-93.38)	-	-
Banks & Fls			356	3843 (979.49)	425 (-88.94)	3465 (715.29	4352 (25.6)	1476 (-66.08)	4352 (194.85)	2551 (-41.38)
Private Placement	4244	4463 (5.16)	1635 (-63.36)	7466 (356.64)	11174 (49.67)	13361 (19.57)	15066 (12.76)	30999 (99.78)	49679 (65.05)	61259 (23.30)
Euro Issues			702	7898 (025.07)	6743 (-14.62)	1287 (-80.91)	5594 (334.65)	4009 (-28.33)	1148 (-71.36)	3487 (203.75)

Source : Indian Securities Market, A Review, NSE, 2002.

Institutional reforms and policy issues

The creation of the NSE, NCCL and NSDL were important milestones in the process of institution building. They led to the modernisation and transformation of other exchanges in the country. Thus these changes have roughly improved the market liquidity by 10 percent.*

However, some important structural defects still remained in the market design. Though the unique feature of featuring leveraged futures – style trading on the spot market was remarkable there was a mismatch between certain important variables, factors which prevailed in our market.



The most common methods which lead to crises were price manipulation on the secondary market, defaults at one or more exchange etc. They lead to huge disruptions in the equity market. Thus questions were raised about the role of leveraged trading. Two groups emerged in these discussions on leveraged trading. The conservative groups argued for status quo while the reformative groups argued for a spot market based on 'rolling settlement'** They believed that access to leverage trading can be obtained through trading in financial derivatives. Since SEBI believed in the conservatives the functioning of the equity market remained 'status quo'.

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* The one way transactions cost faced by small trades is estimated to have dropped from 5% to 0.5%.

** Rolling settlement where leverage is limited to intra-day positions only.

In 2001 Indian stock markets witnessed another crisis. The major factors which contributed to the crisis were identified as large leverage positions which went wrong, market manipulation, Calcutta exchange payments crisis, fraudulent banking practises, collision between institutional investors and collusive cartels, ethics violation at the BSE, issue of fraudulent contract notes with badla. The one positive aspect of the crisis was that it broke the 5 year conservative attitude of SEBI. SEBI once again started reforms with an objective to curb the malpractices. As a result in June 2001 Index options trading was started. In 2001 July rolling settlement and options trading commenced. Indian investors viewed these changes with scepticism initially and as such the market liquidity fell sharply at first. Within a few weeks however liquidity improved greatly.

Banks and Security Markets Interface

In every economy there are huge interfaces between the banking system and the securities market. These interfaces truly integrate the capital markets via the banks to the other segments of the nation's financial markets. Hence policy makers give a lot of attention to these interfaces. Traditionally they favoured only restricted interactions between the two. Later they had to adapt themselves to the engine of changes in the global and Indian economy. This led to the realization that both banking and securities market could reap gains in efficiency and risk management if their scope for interplay is widened through appropriate mechanisms.

The first and foremost aspect of interface between banks and securities markets is the payments system. During the 1990's though the real time

capability for trading and setting stock transactions increased in the stock exchanges the fund transfer mechanism in the country had not been well developed. The weak payment mechanism can block the institutional development of the securities market in future. Foreseeing this situation, though RBI had announced proposals for improved payments system nothing much materialised. What could be the other option? One answer to this question lies in utilizing the new generation banks equipped with modern information technology for real time fund transfers.* This necessitates the creation of sound risk management system at banks, but these systems often fail to estimate the transparency of the collateral**. The transparency of the collateral determines the successful operation of the risk management system. But often transparency is confused with the volatility of the security and result in wrong policy formulation.

In BSE the leverage of spot market trading was executed through badla. Badla allows postponement of settlement obligations into the next settlement period which lead to indefinite deferment of settlement i.e. like a futures market without a stated expiration date. It meant enhanced chances of counter parity risk especially in the context of SEBI's lack of enforcement capacity with respect to risk containment measures. Finally SEBI banned Badla in 1993. However political pressures led to a resurgence of weak form Badla in 1995 and further weakening of prudential regulation in 1997.

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* Real time fund transfers for post trade activities on securities market.

** Securities are ideal collateral because of the following (a) Publicly observed prices which helps in making market values of collateral and (b) markets for easy liquidation.

Apart from NSE no other securities exchange came up with an institution like NSCC. The major cause was the use of inferior risk management systems like 'trade guarantee funds' which was supported by SEBI. The payments problem of 2001 exposed the inherent weakness of these mechanisms as well as the failure of SEBI in creating innovative institutional set up for spurting the growth and development of equity markets in India.

Vulnerability to Crisis: Why, When, Where?

Despite all these reforms the equity market witnessed spectacular cases of fraud and market manipulation; the most important of these were the crises of 1995, 1997, 1998 and 2001.

- In 1995 the payment problems on M.S. Shoes lead to the closing up of BSE for 3 days.
- In 1997 the CRB Mutual fund scandals on defrauding its investors lead to a collapse of major stock indices.
- In 1998 three stocks – BPL, Sterlite and Videocon manipulated the market through a variety of questionable methods to secure the payment settlements at the BSE. SEBI dismissed the BSE president in connection with the crises.
- The March 2001 crisis at the Bombay and Calcutta stock exchanges sprang up from the payment failures at these exchanges. This led to the dismissal of the president and all elected directorate of the BSE.

The above crises distorted the stock prices beyond imagination. A part of this blame can be attributed to the media which ignited a series of bear regime in the market. These crises had important negative impacts for economic agents directly involved with them. It further leads to a deeper implantation of the idea that stock exchanges are dangerous avenues for investment among the uninformed, common investors. This lead to a surge in the investment risk premia demanded by households.

Hence by 2001 policy makers started addressing the issue of Indian stock markets vulnerability to crises. An in-depth analysis of the crises requires a clear diagnosis of the market design in order to identify the elements that generate the vulnerability to crises. But no one could find a single element that could capture the essence of all the crises together, as the crises emerged from a range of issues i.e. from primary market regulation to the supervision of mutual funds.

Investigations have revealed that prior to each of these crises there emerged manipulative cartels which built up large leveraged positions in the secondary market. These cartels along with the administrators of securities markets (i.e who either violated the rules or failed to enforce them) triggered off many of these crises. Thus the limited institutional capacity of the stock exchange often led to its own collapse under highly leveraged spot market conditions.

After the roller coaster ride of each crises Indian policy makers debated whether we should move away from futures – style settlement and badla and introduce the rolling settlement. However political pressures lead SEBI to act status quo with regard to the market structure. These power blocs became

successful in manipulating SEBI to reverse the ban on badla after 1995 crises and weaken the prudential ban on badla after 1997 crises. Derivatives trading were seen as a threat to the leveraged positions on the badla spot market by these groups. Hence SEBI could introduce the exchange traded index futures only in June 2000. These new mechanisms had reached high levels of liquidity within a few weeks after they were introduced. However their market efficiency, vulnerability to crises under these new regimes have not been empirically analysed yet.

The technical analysis of India's equity market reveals a commendable performance during the 90's. SEBI, NSE and finance ministry policy makers have indeed come a long way from the primitive to complex techno market infrastructure. The greatness of this achievement lies in the fact that it completely transformed the trading process in India. However the series of crises throw up important questions for policy formulation in future.

Given the technical quantum leap of the market the agenda for future policy formulation should emphasise on enforcement, incentive compatible institutional mechanisms and political economy. Policy reforms always give rise to two sections – the achievers who gain from reforms and the losers who loose as result of the introduction of these reforms. The economic agents who are losers actively lobby against reforms. For example when markets are transparent and competitive with commoditised financial products market efficiency increases and the costs of financial intermediation reduces. These conditions result in the lowest profit rates for the financial intermediaries. As a result, their interest often clash with that of efficient financial systems.

Thus the brokerage firms and mutual funds will intensively try to lobby with SEBI while in the government bond market banks and primary dealers will try to lobby with RBI to safeguard their interests. i.e. non transparent market mechanisms, entry barriers in financial intermediation etc.

SEBI, NSE and Reforms

In its infant stage SEBI remained aloof from stock brokers and formulated policies with an independent vision as to where India's capital markets should be headed. Hence many of its reforms were unkind to these intermediaries. The 1993-94 reforms led to a 50 percent decline in the price of a BSE card which led to a Rs.20 million reduction in the net worth of each broker.

BSE members total loss of wealth = 600 (member firms) x 20

= 12000 million rupees (12 billion rupees).

Hence they had a strong incentive for lobbying politically. The result of this lobbying is evident from the later policies of SEBI which clearly shows an adaptation to the interest of the intermediaries eg. Badla reforms of 1993 & 1995. From policy perspective this suggests that special efforts should be undertaken so that the viewpoints of these economic agents are also considered during the decision making process at SEBI. But the task is not so simple as only market practitioners have the specialised technical knowledge to be focussed clearly on what they really want. However SEBI should try to incorporate into its decision making, through whatever means, individuals and organizations, with knowledge of the securities market but who doesn't have any conflicts of interests.

Though NSE is extremely successful now, two points deserves greater attention in order to move towards higher levels of growth and development in future.

i) *Political capture*: NSE is exposed to the vulnerabilities of being a public sector organization. The present enviable position of NSE may lead to a significant political move to capture NSE and derive rents from it.

ii) *Cost minimisation and innovation:* The negligible amount of competition from other securities exchanges with respect to cost minimisation, modernisation and innovation may weaken NSE's efforts in these directions in future. And as always, except a few, most public sector institutions slowly drift to lethargy after their initial spurt of activity.

As such policy makers should be careful to formulate policies giving due importance to these two concerns. Similarly the beneficiaries of sound securities markets should have a greater say in the decision making at NSE. More over the globalization of India's financial sector can be used for igniting the competitive spirit of NSE through (i) the Indian products traded offshore and (ii) offshore products traded in India.

Indian products traded offshore: Indian firms list offshore and trade. eg. NSE-50 index do trade at Singapore. This leads to competition for NSE. It can be explained with the help of an example. The low transaction charges for NSE-50 futures trading at Singapore led to lowering of NSE-50 future trading charges in India.

Offshore Products traded in India: International funds traded at NSE would create competitive situations which could minimise cost and help to constrain governance.

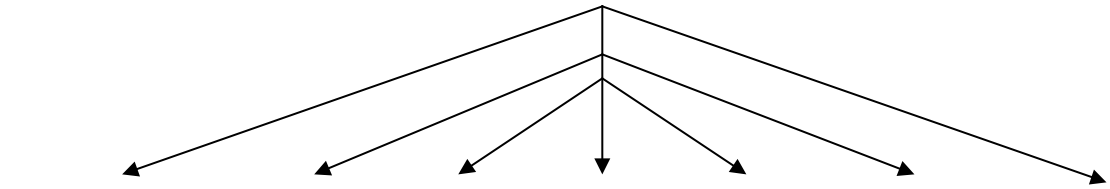
Chronology of Important Events i**n India's Equity Market**

Date	Event
1876	Birth of BSE
27 June 1969	Notification issued by government under SC (R) A prohibiting forward or futures trading
Jan 1983	Regulatory permissions obtained for Badla trading, a mechanism for carry forward positions
2 Jan 1986	Computation of BSE's sensitive Index commenced
12 April 1988	SEBI created
1992	Fixed income and equity markets scandal
30 June 1994	Start of electronic debt trade at NSE
3 Nov 1994	Start of electronic equity trading at NSE
13 Dec 1994	Ban on badla
25 Jan 1995	SC(R) A amended to lift the ban on options trading
14 Mar 1995	Start of electronic trading on a few stocks at BSE
3 Jul 1995	Electronic trading of all stocks at BSE
5 Oct 1995	Ban on Badla reversed
Apr 1996	NSCC Commenced operations
8 Nov 1996	NSDP commenced operations
1999	Securities law modified to enable derivatives trading
12 Jun 200	Start of equity index futures trading
4 Jun 2001	Start of equity index options trading
2 Jun 2001	Major Stocks moved to rolling settlement; start of stock options market.

Source : BSE Research and Analysis Wing Reports, various issues.

Summarizing we may say that on the whole reforms have lead to the transformation of Indian capital market yet we have miles to go before we sleep. The impact of the reforms can be summarised in the form of a chart.

Impact of reforms



Reduction in Transaction cost	Market determined pricing	Electronic settlement	Elimination of counter parity risk, probabilities of hedging etc.	Country wide market integration	Global integration of markets (ADR/GDR FPI)	Enhanced liquidity.

The impacts of these reforms are discussed in chapters 5 and 6.

CHAPTER 5

FPI INFLOWS: EMERGING TRENDS AND PATTERN

The objective of this chapter is to identify the emerging trends and patterns of the FPI inflows. The first section deals with the FPI trends and patterns while the second section deals with the trends and patterns of individual components of FPI..

5.1 FPI INFLOWS 1993- 2006

In order to have a better picture of the foreign portfolio investment, it is necessary to examine the foreign investment inflows to India. Foreign investment inflows to India comprises of FOREIGN DIRECT INVESTMENT (FDI) AND FOREIGN PORTFOLIO INVESTMENT (FPI). FPI as discussed earlier is of recent origin when compared to FDI. A large number of studies have focused their attention on the importance of trend and pattern of FDI flows. However the FPI flows were neglected by many policy makers and researchers until the south East Asian crises. Since then a new trend emerged in the analysis of the foreign investment inflows to India. Now more attention is being paid to the volatile FPI flows. In order to analyze the nature of the FPI flows identification of the trends and patterns of these flows is necessary. Table 5.1 provides the data on the foreign investment inflows from 1993-2006

TABLE 5.1 – FOREIGN INVESTMENT INFLOWS

	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
A. DIRECT INVESTMENT	315	586	1314	2144	2821	3557	2462	2155	4029	6130	5035	4322	6051	7722
I.Equity(a+b+c+d+e)				2144	2821	3557	2462	2155	2400	4095	2764	2229	3778	5820
a.govt (sia/fipb)	222	280	701	1249	1922	2754	1821	1410	1456	2221	919	928	1062	1126
b.rbi	42	89	171	169	135	202	179	171	454	767	739	534	1258	2233
c. nri	51	217	442	715	639	241	62	84	67	35	0	0	0	0
d.acquisition of shares*	0	0	0	11	125	360	400	490	362	881	916	735	930	2181
e.Equity capital of unincorporated bodies	0	0	0	0	0	0	0	0	61	191	190	32	528	280
II.Reinvested earnings	0	0	0	0	0	0	0	0	1350	1645	1833	1460	1904	1676
III. Other capital	0	0	0	0	0	0	0	0	279	390	438	633	369	226
B.PORTFOLIO INVESTMENT	244	3567	3824	2748	3312	1828	-61	3026	2760	2021	979	11377	9315	12492
a.gdrs/adrs	240	1520	2082	683	1366	645	270	768	831	477	600	459	613	2552
b. fiis	1	1665	1503	2009	1926	979	-390	2135	1847	1505	377	10918	8686	9926
c.offshore funds and others	3	382	239	56	20	204	59	123	82	39	2	0	16	14
TOTAL (A+B) (rs crore)	559	4153	5138	4892	6133	5385	2401	5181	6789	8151	6014	15699	15366	20214

Source : RBI BULLETIN 1995,2000,2007

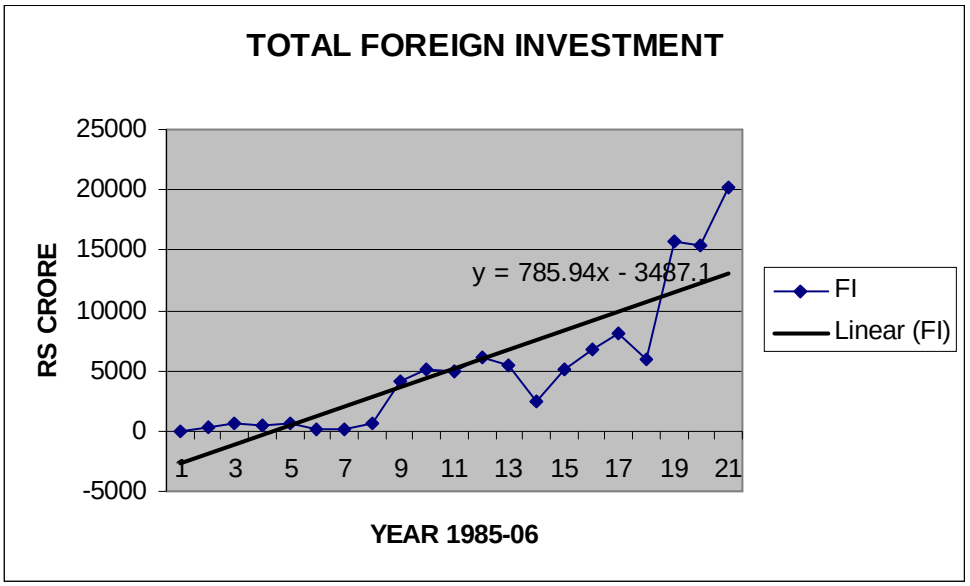
A temporal analysis of the Total Foreign Investment (TFI) was made to get a clear picture of the trends in the FPI; this also helps to analyze the changes in the TFI as a result of the FPI flows. First the trend of TFI from 1985 to 2006 was examined as shown in the chart 5.1. Then separate trends were analyzed for (i) 1985-1993 and (ii) 1994-2006. See charts 5.2 and 5.3

The compound growth rates of TFI for the three time periods were also calculated and the results are as shown below.

- CGR for 1985 to 2006 was found to be 26.81%
- CGR for 1985-1993 was found to be 17.71% and
- CGR for 1994-206 was found to be 13.58%.

Though in money terms the inflow has increased since 1993 the decline in CGR during 1994-2006 can be attributed to the fluctuating nature of the FPI inflows which forms a significant component of TFI.

Chart 5.1 - Trend analysis of TFI 1985-2006



The overall trend analysis of TFI 1985-2006 shows a positive linear trend .

Chart. 5.2

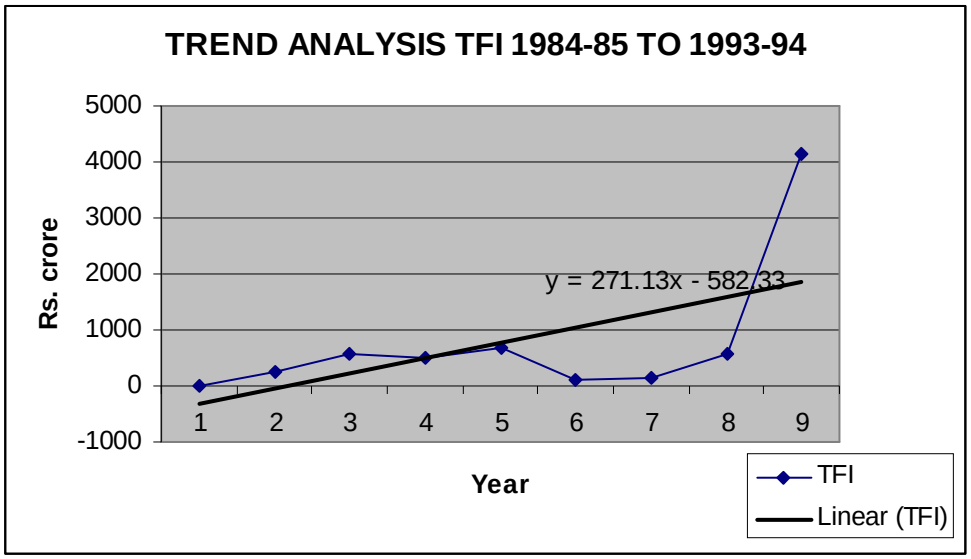
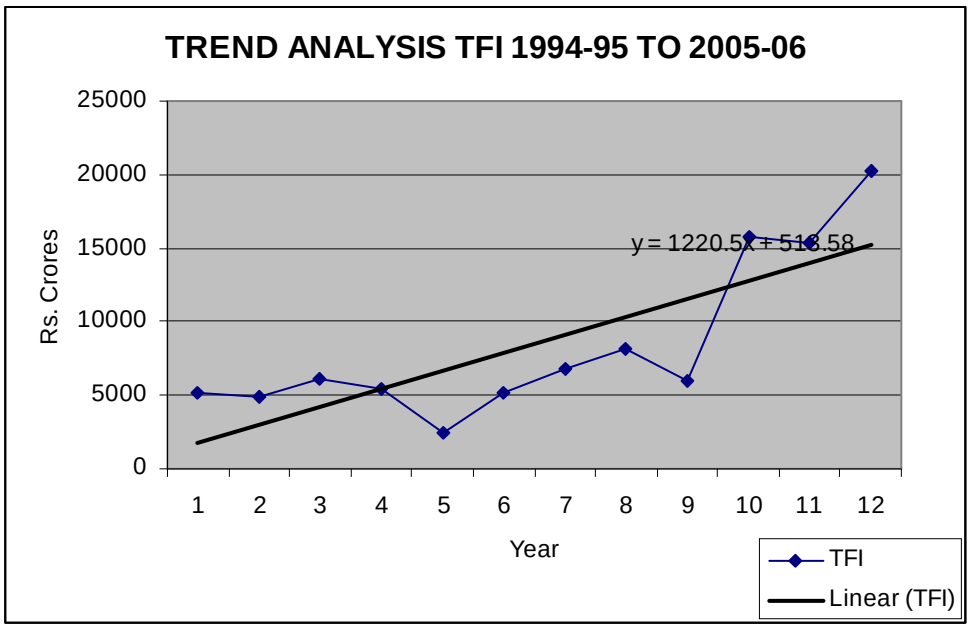
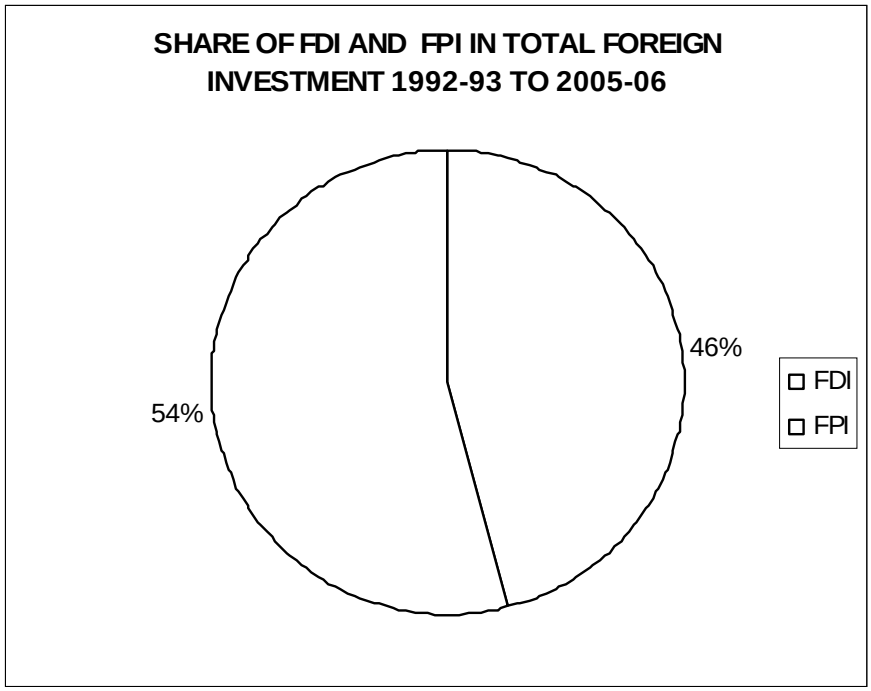


Chart 5.3



The charts 5.2 and 5.3 indicate clearly that the FPI inflows have significantly influenced the trends in the Total Foreign Investment. During the first period of analysis (i.e. in the absence of FPI) 1984-85 to 1993-94 the trend line was found to be linear and positive. While during the second period which comprises of the FPI inflows the trend line is linear and positive with a higher intercept value implying the increase in the Total Foreign Investment. To strengthen our argument the contribution of FPI and FDI in Total foreign Investment was analyzed using the pie chart and it was found that of the total inflows from 1992-93 to 2005-06 the share of FPI in total foreign investment is much higher than that of FDI. FPI contributed to 54 percent of total foreign investment while FDI's contribution was only 46 percent. It points to the importance of FPI in Total Foreign Investment.

Chart 5.4



Trend analysis of FPI (1993-2006)and FDI (1991-2006) was made to understand the nature of these inflows. FPI shows a positive linear trend with y=18287X- 6972.8 while FDI shows a positive trend with y = 464x - 889.73 as shown in the charts 5.5 and 5.6.

Chart 5.5

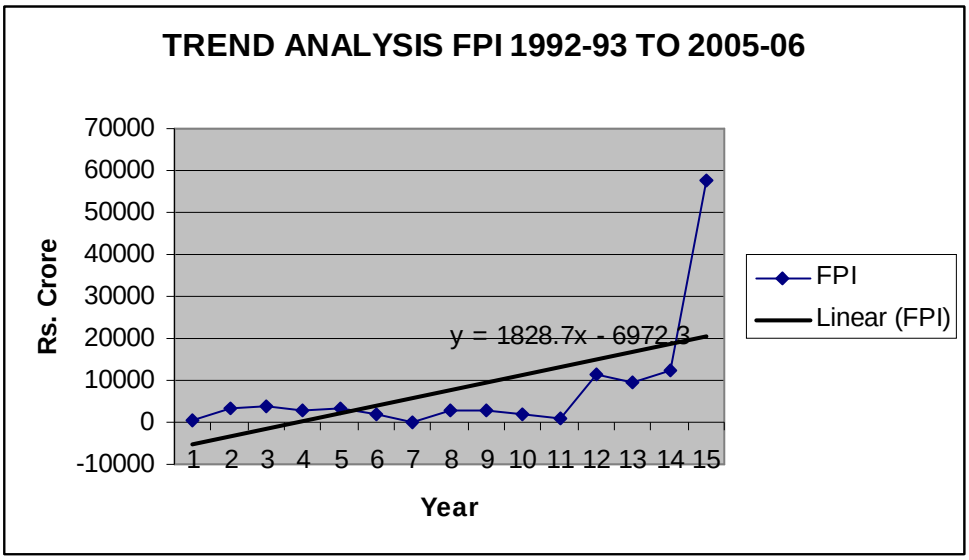
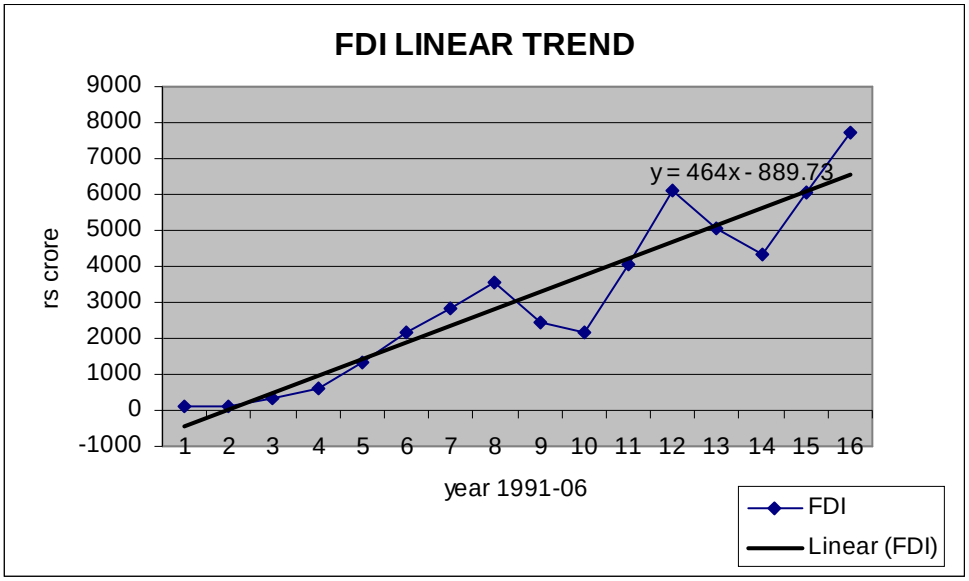


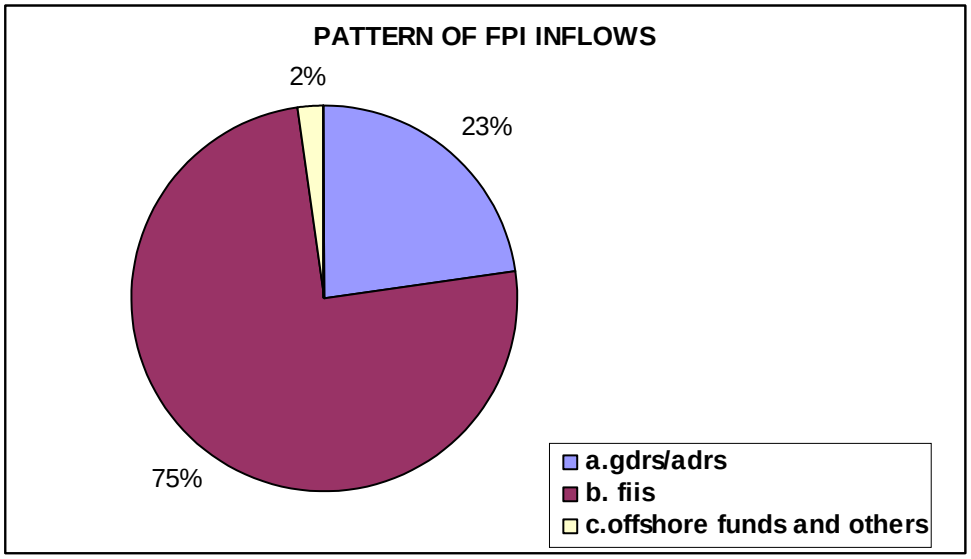
Chart 5.6



Comparison of the Compound Growth Rates of FDI and FPI shows that FPI has a greater compound growth rate than FDI. The CGR of FPI was found to be 41.03 percent and that of FDI was only 29.66 percent for 1993-2006. Thus it becomes imperative to analyze these huge FPI inflows, their pattern and impact in the context of the Indian economy.

5.2 PATTERN OF FPI INFLOWS: FPI in India comprises of foreign institutional investors, American depository receipts/Global depository receipts and offshore funds and others

Chart 5.7 PATTERNS OF FPI INFLOWS 1994-95 to 2005-06



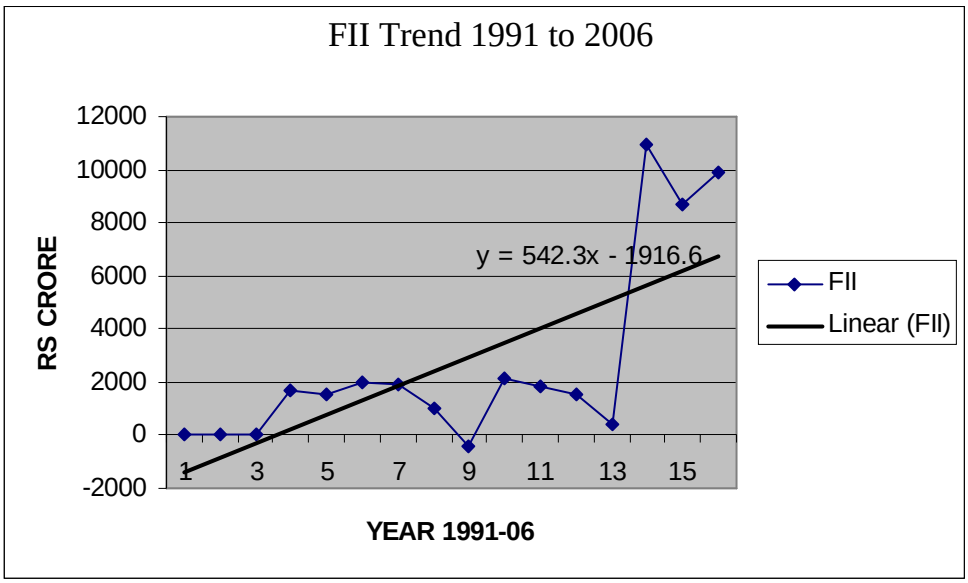
Pattern of FPI inflows from 1994-95 to 2005-06 shows that 75 percent of the total inflows comprise of Foreign Institutional Investors, 23 percent of ADR/GDR and 2 percent of Off Shore Funds and Others see chart 5.7. Each of these components of FPI is analyzed separately to provide a better picture of the trends and patterns in the FPI flows.

5.2.1 FOREIGN INSTITUTIONAL INVESTORS

FII's in secondary market:

With the opening up for the FII investment by the end of 1992, stock markets received a special impetus for growth. The FII's – pension funds, mutual funds, investment trusts, asset management companies, nominee companies and incorporated institutional portfolio managers were permitted to invest directly in the Indian stock markets. In November 1995 SEBI modified the FII guidelines issued in 1992. The scope of FII operations has been expanded by permitting (a) additional categories of investors (b) recognizing other instruments in which they can invest and (c) altering the individual and aggregate FII shares in any one company.

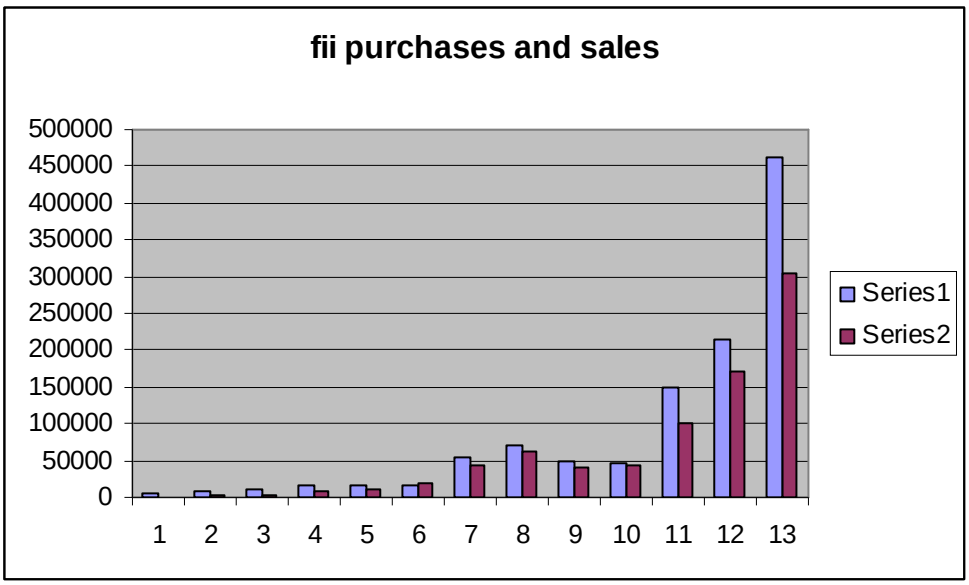
Chart 5.8



The trend analysis of FII during 1991-2006 revealed a positive linear trend as shown in chart 5.8. Also the compound growth rate of FII was found to be 64.36 percent which is the highest when compared to the other two components

of FPI. Most of the FII's registered with SEBI fall under two categories FA and FD. FA refers to fund advisors and asset management companies .They amount to 56.57 percent which implies that most of the FII's work as representatives of others .FD refers to investment funds 36.43 percent of the funds belong to FD category .Only 0.013 percent of the FII's fall under the FC category which are most likely pension funds . The rest belongs to the FE category i.e. insurance companies, investment trusts and government bodies.

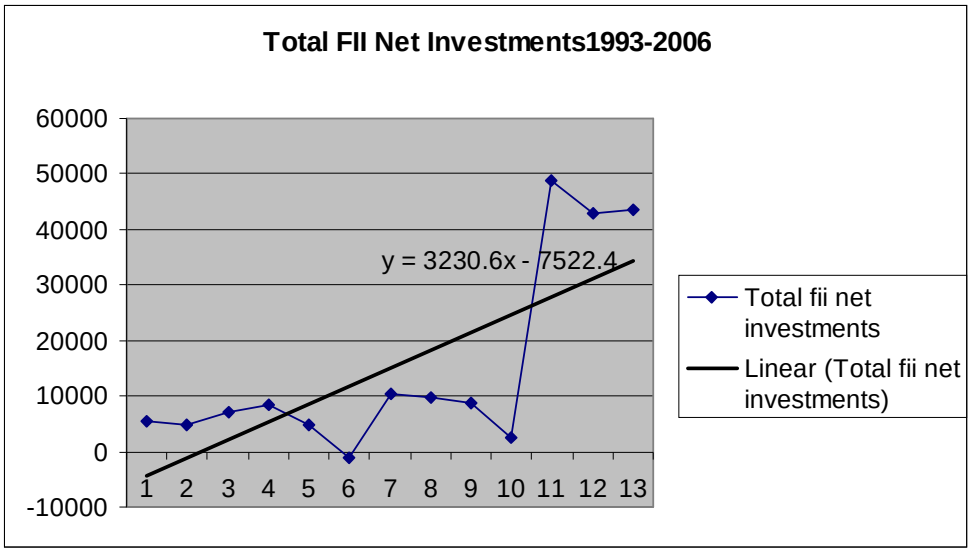
Chart 5.9



The chart 5.9 shows the FII total purchases (series 1) and FII sales (series 2) for 1993-94 to 2005-06. Till 1999-2000 FII purchases and sales were almost equal but after 2000 a change in the activities of FII's can be seen, i.e. FII purchases have scored over the FII sales. This shows that the FII's are interested in purchasing the shares of Indian companies which leads to a higher inflow of capital into the economy. It also gives an indication that the economy has been performing strongly over the past years. Chart 5.10 also testifies this statement, the trend line of total FII net investments is

positive and linear.It is also evident that since 2003 there has been a quantum jump in the FII net inflows .

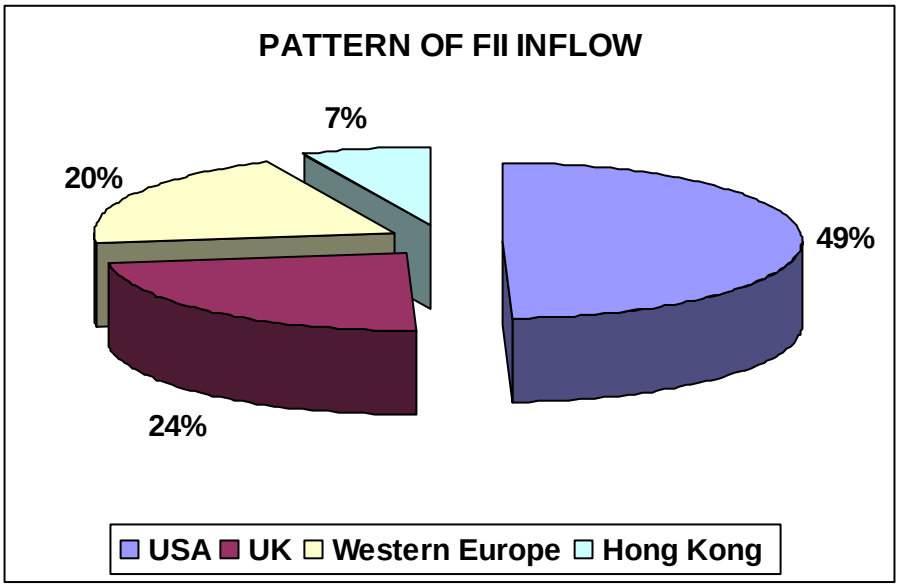
Chart 5.10



At the beginning of march 2000 the number of FII's registered with SEBI stood at 502.The number of FII's is insufficient to give a full picture of the FII operations in India as each FII represent unlimited number of sub accounts . However SEBI does not divulge the information on sub accounts. Also many FII's are under common control which makes their individual FII limits less relevant. Out of the 502 FII's 200 had base in USA, 121in UK and a few were found to be from Hong Kong , Singapore, Luxembourg etc. Some of them registered from destinations other than UK and USA had their origins in these countries. For example FII's from Singapore include City Corp Investment bank (Singapore) Ltd, Templeton Asset Management Ltd, JP Morgan Securities Asia Pvt Ltd. thus it becomes clear that the origins of these

registrants from Singapore actually belongs to UK and USA. It thus emerges that the phenomenon of FII's is essentially a domain of funds from UK and USA. Today the total number of FII's registered with SEBI as on March 2007 is above 1500 still the US, UK domination continues, see chart 5.11.

Chart 5.11



The big sharks among FII's normally have multiple associates in India which includes locally incorporated companies which operate either as brokers, managers or mutual fund operators. Some of the FII's entered into joint ventures with major Indian Broking Firms or with Indian business groups. Acknowledging the fact that the FII's can invest via the GDR route the FII investment largely influences the stock markets in India. But what about the primary markets? Available information suggests that FII's do not play a major role in the primary segment of the Indian capital markets. SEBI annual reports points out that in 1995-96 out of the 1462 public issues involving an issue amount of Rs14,240 crores in 79 issues Rs 212 crore were

reserved for FII's . In 1997-98 the amount reserved was Rs 12 crore in 3 issues. However during 2005-2006 the FII operations in the Primary Capital market has shown an improvement.

In the secondary market the FII's are more active in the equity market than in the debt segment. See figure 5.12 and 5.13.FII's are more interested in the purchase and sale of equities than debt. One major reason behind this behavior is the better liquidity options involved in the purchase and sales of equities when compared to that of Debt Instruments. In this process of trading with equities in huge quantities FII's increases the volatility of many of the share prices. Also for those foreign investors who don't want to burn their hands equities are a better option during forecasts or rumors of pessimism in the share markets.

Chart 5.12

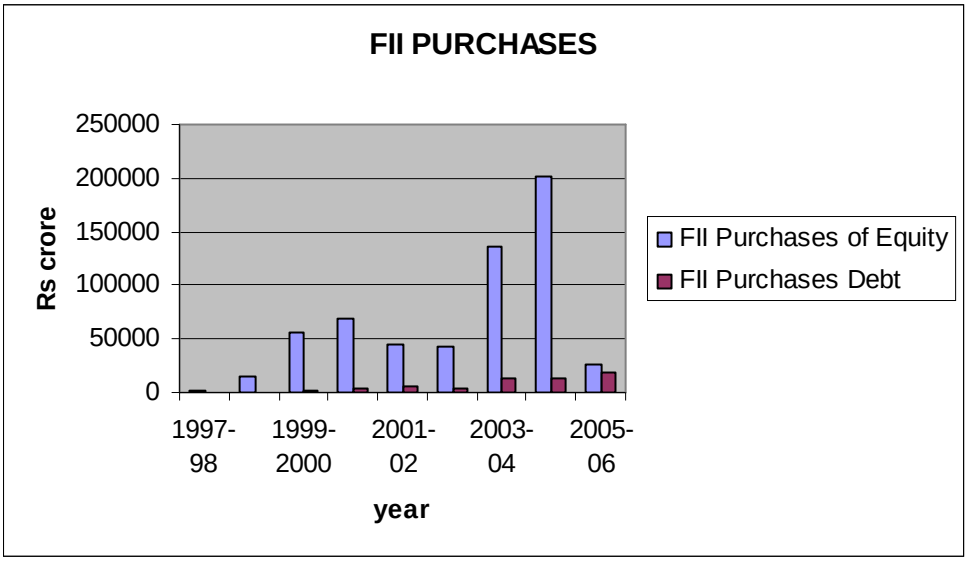
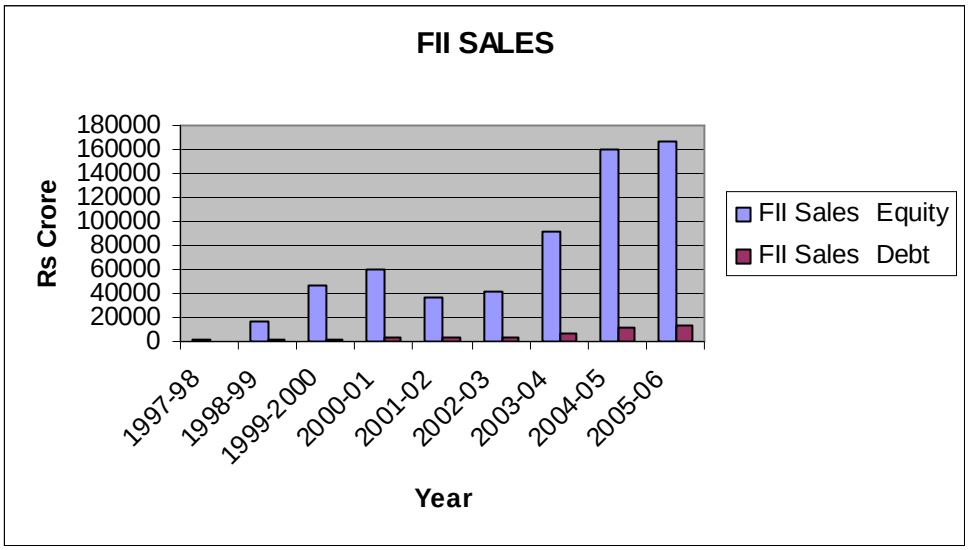
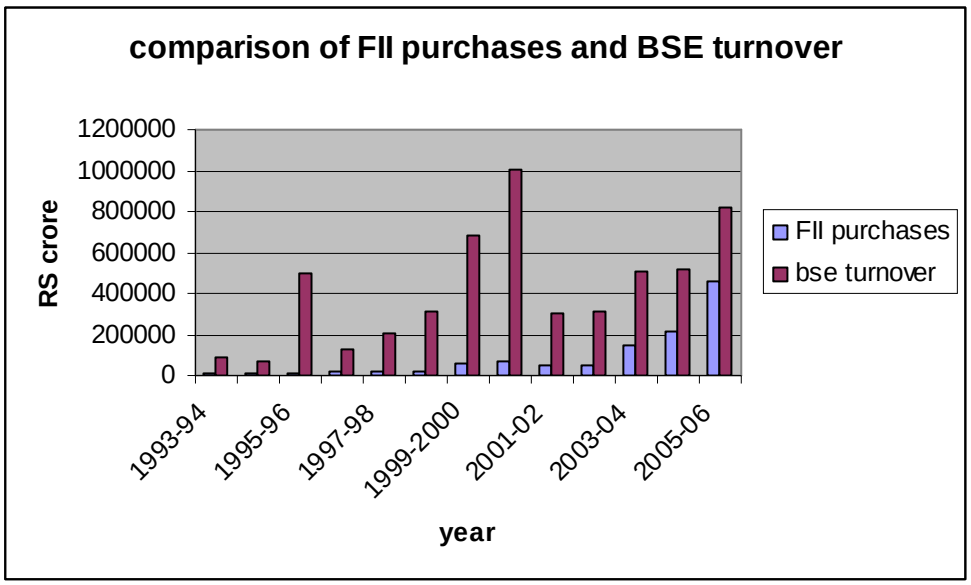


Chart 5.13



A comparison of the total turnover of BSE and FII purchases reveals that the total FII purchases was negligible compared to the turnover at BSE till 2000-2001.However it has improved from 2001-2006 see chart 5.14. Thus in comparison to the total trading values on the BSE, FII sales and purchases appear to be very small. A similar trend prevails when compared with NSE total turnover.

Chart 5.14



In 1998, out of the fifty three funds invested in India only five were specific to India .The others invested in India specific funds of USA or UK or directly in a few Indian companies .Apart from the five India specific funds, only six other funds invested in more than ten Indian companies in 1998. The five India specific funds whose investment pattern are taken into account for 1996 and 1998 are given in the following table

Table 5.2 – Basic details of five India specific funds

Name of the fund	Investment advisor	No: of companies invested in		Value of investment (Mn US$)	
		1996	1998	1996	1998
1)Morgan Stanley India Investment Fund Inc #	Morgan Stanley Asset Management Inc	255	165	387.59	291.34
2)India Growth Fund Inc	UTI investment Advisory Services India Ltd	224	174	134.31	276.02
3)India Fund Inc	(i)Advantage Advisers , A sub-sidiary of CIBC Oppenheimer Corp (ii)Infrastructure and Financial Services India Ltd India	188	27	282.08	95.21
4)Jardine Fleming India Fund Inc #	Jardine Fleming Intel. Management Inc , British Virginia Island	77	77	79.97	84.24
5)Pioneer India fund	i) Pioneer Management Corp ii) Kothari Pioneer AMC Ltd , India	93	52	31.02	14.78
All the Five Funds		535	375	914.97	761.59

claimed tax residency status in Mauritius

Note: The Number of companies does not add up to the total because more than one fund invested in some of the companies.

Source : Based on the funds N30-D filings with the US Securities and Exchange Commission (SEC).

All the above funds have different investment advisors and the official estimates for 1996-97 was that the FII's have been active in over 600 scrips out of more than 6000 listed scrips. It should also be noted that out of the 435 registered FII's 130 were active in any given month and about two thirds of the purchases and sales were accounted for by only 25 FII's .The East Asian crises and the nuclear test of India along with the general sluggish conditions in the economy resulted in a decline in the number of registered FII's and the funds invested by them. Analyzing the nature of trading at BSE and NSE it becomes evident that out of the companies listed at the exchange the largest 500 companies account for 99 percent of the turnover. FII investments have generally confined to this set of high turnover companies as the share of these companies in the market value of investments increased from 86 to 98 percentage between 1996 and 1998.

TABLE 5.3 – Shares of Different Categories of Companies in the market values of investments

Company Category	Market Value (US$mn.)		Percentage in Total	
	1996	1998	1996	1998
Top Market Turnover Companies $	791.64	746.84	86.52	98.06
A Group #	623.70 (521.76)	619.58	68.17 (57.03)	81.35
Sensex Companies	326.27	256.33	35.66	33.66
Foreign-Controlled Cos. (FCCs)	190.29	214.04	20.80	28.10
Public Sector Companies	151.98	157.29	16.61	20.65
Large Indian Houses	339.85	108.63	37.14	14.28
All Companies	914.97	761.59	100	100

Percentage do not add upto 100 because of overlapping of the groups.

$ Ranked according to the total market turnover at BSE in the corresponding year.

The A Group was expanded in February 1998 to include 50 companies. Figures in brackets indicate the aggregate and percentage with regard to the composition of the group prior to its expansion.

This points out that FII‘s prefer liquid shares. However the five India specific funds invested in practically all the Sensex and Nifty companies. It therefore becomes clear that the five funds could potentially influence the two indexes. From table 5.4 it is evident that the share of the foreign controlled companies (FCC’s) in the value of investment increased from about 21 percent in 1996 to 28 percent in 1998. The share of public sector companies increased from about 17 to 21 percent. Though the number of companies in which the funds invested during the time period decreased, the share of top companies in terms of market value of investment increased substantially. The share of top ten companies witnessed an increase of 19 percent and that of top hundred companies increased by 17 percent. The value of investment by the five funds is concentrated in about 150 companies

TABLE 5.4 – Share of Top Companies in the market value of Investments by five India specific funds

Top Companies #	Percentage in total value of investment	
	1996	1998
1	2	3
10	25.90	44.77
50	61.01	82.82
100	77.33	93.87
150	86.54	98.06
All Companies	100 (525)	100 (375)
Total Amount (Mn. US dollars)	914.97	761.50

Based on the value of investment and includes investment in GDRs. Figures in brackets are the No. of companies invested in respective years.

A sector wise classification of the companies in which the funds have invested shows that Software (development and training) group of companies gave a miraculous performance and reached the top most position in 1998. Drugs and pharmaceuticals improved their position while food and beverages and personal care products entered into the top ten lists as is evident from the table5.5.

Table 5.5 – Investment Exposure of Five India specific US Funds: Changing sectoral importance between 1996 & 1998.

Ranking		Industry	Market Value (US$mn.)		Percentage in Total	
1996	1998		1996	1998	1996	1998
		1	2	3	4	5
1	2	Automobiles	93.77	85.21	10.25	11.19
2	14	Metals & Metal products	65.72	19.54	7.18	2.57
3	4	Non Electrical Machinery	60.85	55.85	6.65	7.33
4	6	Diversified	59.43	44.28	6.50	5.81
5	3	Pharmaceuticals	53.07	67.16	5.80	8.82
6	13	Auto Ancillaries	50.84	20.82	5.56	2.73
7	19	Textiles	42.38	6.03	4.63	0.79
8	17	Electrical Machinery	41.56	11.73	4.54	1.54
9	18	Cement	39.02	10.99	4.26	1.44
10	16	Entertainment/Multimedia	33.33	16.22	3.64	2.13
14	1	Computer Software (Development & Training)	25.68	133.94	2.81	17.59
19	5	Food, Beverages & Tobacco products	19.06	47.14	2.08	6.19
16	7	Personal Care products	20.61	44.02	2.25	5.78
11	8	Telecommunications	37.92	27.94	4.14	3.67
15	9	Refineries	22.83	25.53	2.50	3.25
12	10	Public Sector Banks	30.64	24.73	3.35	3.25
		Total (including others)	914.96	761.58	100	100

Source : Compiled on the basis of the funds N-30D filings with the US SEC

Another interesting feature about the FII investment is that those sectors preferred by FII's soon became hot spots for the Indian investors. The software pharmaceuticals and personal products soon became important determinants of the BSE and NSE market turnover. For example the Prudential ICICI growth plan managed by Prudential ICICI Asset Management Company, a joint venture of Prudential Corp. Plc of UK and ICICI by the end of 1998 had 1/4th of its net asset value (excluding cash) in consumer goods companies, 17.01 percent in pharmaceuticals and 15.91 percent in software companies i.e. a total of 58.56 percent. Taking advantage of the boom in the software field a few companies changed their names indicating at least a remote connection with the software development or training. It was during this time that the Prudential ICICI introduced a new fund, specializing in scrips of FMCG (Fast moving consumer goods). FMCG includes tea, coffee, bread, butter, cheese, biscuits, soaps, detergents and various other products that are used daily. The companies favored by these FMCG were Hindustan Lever, Cadbury, Britannia, Procter and Gamble, Nestle, Reckitt and Colman, Henkel Spic, Marico and SmithKline Beecham. A closer look reveals that all these are great brand names, with strong distribution network, excellent management and solid financial background. Moreover the stocks of these companies have reaped an annualized return of 34.3 percent while that of the BSE 200 and Sensex amounted to only 4 percent. What does these points to? It implies that the TNC's play an important role in the market turnover of BSE and NSE .When we analyze it in

the Indian market it becomes evident that the existing listed ones will continue to get the upper hand as the investors have limited options.

FII's in Primary market

SEBI says that during 1995-96 FII's mobilized very little capital from the primary market. The capital mobilized by the FII's from the primary market amounted to less than 1percent of their total capital mobilization from India till 2000. Due to further reduction in controls and loosening up FII's became slightly more active in the primary market in 2000-2001. However this trend did not continue for long. In 2002 and 2003 the FII resource mobilization from the primary market fell again. During 2004-2005 the FII's have shown an active involvement in the primary market and their share in the total capital mobilized increased to almost 2 percent. This is a healthy trend because it strengthens up the primary market as in the case of the developed countries where foreign players are active in the primary markets. It is hoped to bring the much needed capital to the new issues by industries.

FII's and the Indian Mutual Fund Industry:-

Following the SEBI guidelines of 1993, Private sector mutual funds were launched in India for the first time.

Table 5.6 – Mutual Funds

Category		At the end of		Increase	
		1998	1999	Amount	Percent
1		2	3	4	5
A	Unit Trust of India	54,339	67,207	12,868	23.68
B	Banks Sponsored MFs (6)	4,504	7,290	2,786	61.86
C	Institutions (4)	1,993	2,999	1,006	50.48
D	Private Sector incl. (22)	4,924	19,532	14,608	296.67
	a) Indian Companies (6)	776	2,225	1,449	186.73
	b) JVs : Predominantly Indian (7)	2,163	7,977	5,814	268.79
	c) JVs : Predominantly Foreign (9)	1,985	9,330	7,345	370.93
(A+B+C+D) Total		65,760	97,028	31,268	47.55

Source : Based on the data provided by the association of Mutual funds in India (AMFI) at its website www.amfiindia.com Figures in brackets indicate number of funds.

Assets under the management of UTI are at book value. JVs: Joint ventures.

Private sector mutual funds have been performing much better since the tax break allowance in the Union Budget of 1999-2000. (It exempted US-64 and other open-ended equity oriented schemes of UTI and other mutual funds from the payment of dividend tax.). In the Indian Mutual fund industry context one could see that not only the MF's with foreign tie-up followed the investment pattern of FII's, even the domestic one's followed suit. The three sectors favored by the Mutual funds account for a substantial portion of the net assets under the control of many Mutual funds. UTI too started favoring these three sectors .For example the US-64's tie-up with information technology sector rose from 5.68 percent in 1998 to

19.13 percent in 1999.UTI also floated five sector specific funds like Brand value fund (FMCG), Pharma and health care fund , Software fund , Petro fund and Services sector fund . Soon Birla Mutual, IL & FS, Kothari pioneer, Prudential ICICI, SBI Mutual and Tata Mutual issued sector specific funds.

Thus it becomes clear that mutual funds are gaining prominence in the Indian Stock Market. It is also interesting to note that the shares of foreign affiliated mutual funds are growing and that they influence the investment strategies of the domestic firms. The latest change in BSE Sensex ie., from April 10 ,2000 onwards Sathyam Computer services , Zee Telefilms, Reddy Labs and Reliance Petroleum would replace Tata Chemicals ,Tata Power, IDBI and Indian Hotels Co in the Sensex testifies the growing importance of these sectors.

5.2.2 ADR /GDR TRENDS AND PATTERNS

The depository receipt is a bank issued certificate which allows investors to hold shares in equity of other countries without directly going to the foreign markets. American Depository Receipts were introduced as early as April 29 ,1927 with the launching of the JP Morgan ADR programme for UK based Selfridges Provincial Stores Limited. ADR's were created in response to a British law which prohibited British companies from registering shares overseas without a British transfer agent. This enabled the authorities to ensure that the UK shares never left UK. The brains behind ADR listed it on the New York curb exchange [predecessor to the US stock exchange] .The ADR's were constructed solely for American investors soon their popularity

extended them to other parts of the world in the form of GDR(Global Depository Receipts),EDR(Euro Depository receipts) and IDR(International Depository Receipts). However it was the 90's which specifically revolutionized the growth and diversification of ADR's.

Table 5.7 HISTORY OF DEPOSITORY RECEIPTS

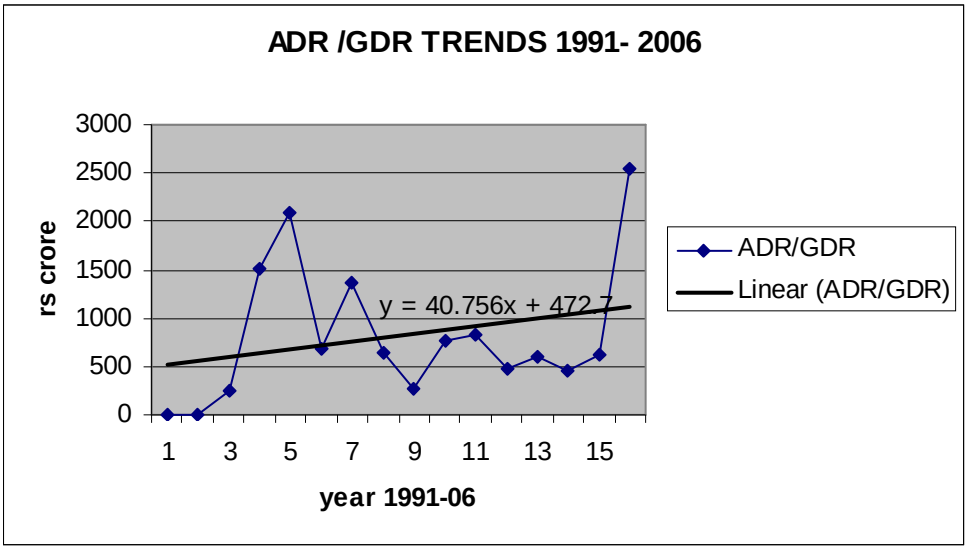
1927	1st ADR: Selfridge's created by J.P.Morgan
1931	1st Sponsored ADR: Electrical & Musical Industries
1970	1st ADR public offering: British Petroleum
1984	1st Interim ADR Listed on NYSE: Privatization of British Telecom
1987	1st ADR through Warrants: British Petroleum
1988	1st Discounted ADR registered rights offering: Barclays PLC
1990	1st Depositary receipts pursuant to the Rule 144A: Huhtamaki, Finland
1990	1st Global Depositary Receipt: Samsung Corporation, introduced by Citibank
1992	1st Hungarian and Eastern European ADR: Fotex Rt.
1993	1st ADD: LM Ericsson
1994	1st Singapore depositary receipt: Daimler Benz AG
1995	1st Czech DR: Komerční banka
1996	1st Direct Purchase Plans for ADRs
1998	Largest-ever acquisition of a U.S. company using ADRs as acquisition currency: BP Amoco ($54 billion)
1999	1st Company sponsored Direct Purchase Plan: BP Amoco

Source: J.P.Morgan Chase & Co., Citibank, the Bank of New York, Deutsche Bank

The history of the depository receipts shows that the ADR has evolved a lot, incorporating new policies and programmes over the years. In the

context of Indian economy RBI provides data on ADR and GDR together, therefore before proceeding further it becomes important to examine the trend line of ADR/GDR. The trend analysis of ADR/GDR shows a positive linear trend and a compound growth rate of 31.84 percent during the period 1991-2006 see fig 5.15.

CHART 5.15 TREND LINE OF ADR/GDR



Indian companies issuing ADR

The total number of companies issuing ADR is more than 80 in 2006. Among them, eleven major Indian companies had their ADR's listed on the stock exchanges in the US. Analyzing the nature of the ADR inflows into India reveals many interesting facts. The general trend in the ADR inflows is positive in nature with the eleven big sharks playing the lead role and eating the lions share. Hence we concentrate on these companies; table 5.16 shows the average ADR premia of major eleven Indian companies from 2000-2006 .These eleven companies have a market capitalization of more than $ 1

billion, average daily trading of at least 1000 ADRs and a history of trading for at least four days in a week

TABLE 5.8 AVERAGE ADR PREMIA FROM 2000-2006

Company	ADR	AVG	AVG	AVG Local	AVG Local	AVG ADR	AVG Shares
	Ticker	Close	% change	Equivalent	Close	Premium (%)	ADR
Dr. Reddy's	RDY	17.10	+1.06	744.62	775.90	-4.03	1.0
HDFC Bank	HDB	47.89	+2.97	695.12	631.70	+10.04	3.0
ICICI Bank	IBN	22.0	+0.69	479.00	429.15	+11.61	2.0
Infosys Technologies	INFY	76.47	-1.46	3329.89	2394.85	+39.04	1.0
MTNL	MTE	6.58	+3.95	143.26	121.85	+17.57	2.0
Ranbaxy Labs	RBXD	24.70	-0.04	1075.56	1078.40	-0.26	1.0
Reliance Industries	RIGD	29.53	+1.48	642.94	643085	-0.14	2.0
Satyam Computers	SAY	26.40	+1.54	574.79	511.00	+12.48	2.0
SBI	SBID	41.75	+0.60	909.00	710.60	+27.92	2.0
Tata Motors	TTM	9.70	+0.21	422.39	426.75	-1.02	1.0
Wipro	WIT	20.58	-1.34	896.16	744.00	+20.45	1.0

Source: www.bloomberg .com, AVG= Average

The table 5.8 provides a list of the Indian companies with ADR listings in the US, ADR prices in the US and a comparative analysis of the equity share prices of these companies in the US and India . Data reveals that in the case of Infosys, Wipro, SBI and MTNL the premium is substantial i.e. greater than 15%

while in the case of others it forms a material figure. These high premiums have prevailed since a long time, in the case of Infosys the above 30% premium can be traced back to its listing in the US since March 1999. Wipro was listed on October 2000, ICICI bank in March 2000, Satyam computers in May 2001, HDFC Bank in July 2001 and MTNL in January 1998.

However common knowledge says that if we comply along the lines of an efficiency stock market theorem the existence of these high premiums are impossible due to the activities of the arbitrageurs. Also the reporting of the ADR premia by websites like Bloomberg makes it public information which all the more accentuates the scope for arbitrageur's activity. In order to examine whether this was a peculiar Indian experience Indian ADR premia was compared with that of other countries as shown in the table 5.9.

TABLE 5.9 COMPARISONS OF AVERAGE ADR PREMIUMS OF INDIA AND OTHER ECONOMIES

Economy	# of Stocks	Year	Average ADR Premium (%)	Maximum (%)	Minimum (%)
India	11	2000-2006	12.15	39.04	-4.03
Germany	18	2000-2006	0.26	0.96	-1.58
China(listed Hong Kong)*	15	2000-2006	0.15	2.44	-1.76
South Korea	11	2000-2006	1.32	6.22	-1.41
Hong Kong	17	2000-2006	-0.14	2.22	-2.59
Taiwan	13	2000-2006	1.95	12.51	-2.70
Singapore	4	2000-2006	-0.14	1.35	-1.77
Australia	19	2000-2006	0.41	3.12	-1.35

UK	48	2000-2006	1.23	4.48	-5.35

Source: NYSE .NASDAQ, SEC reports 2006

*Excludes Yanzhou Coal, a significant outlier

The table reveals that Indian ADR's trade at a relatively huge premium when compared to the selected countries. It can be seen that apart from Taiwan the ADR premiums of other countries are negligible. This remarkable phenomenon of high premium raises some questions regarding the factors which lead to the existence of such phenomenon. There could be three major causal factors.

1] Legal/ institutional- some structural rigidities, conditions or clauses prevailing in the host countries leads to the existence of high ADR premiums. Also the policy options available to the investors may lead to unequal premiums in home and abroad markets. This situation can be referred to as dichotomy in premium; it throws light on the fact that the home market has not reached the desired level of development in terms of institutional and legal structure. Example: If laws regarding capital account transactions in India, including the rules and exact procedures for investment by foreign nationals in Indian securities market and repatriation of those funds makes the foreigners access limited then ADRs in the US markets will be valued under different assumptions compared to the valuation of underlying equity in the Indian stock markets.

2] Relative liquidity – sometimes the liquidity options available to the investors differ in the home and abroad markets this leads to the existence of high ADR premiums. In case the liquidity of ADRs is higher, the ADRs would carry certain liquidity premium vis-à-vis equity listed on the Indian stock markets.

3] Risk preferences of investors- investors nature differs from country to country as well their preferences for taking up risk. For example Indian investors normally show a preference towards foreign multinationals despite the risk elements. They assign different risk reward characteristics to Indian equities and Indian ADRs on account of currency risk, repatriation risk or risk of procedural delays. Such factors also contribute to the prevalence of two types of premiums in the home and foreign markets.

Since the listing of these eleven Indian companies started mainly during the end of 1990's the ADR premiums of these companies over the last six years are analyzed (2000-2006)

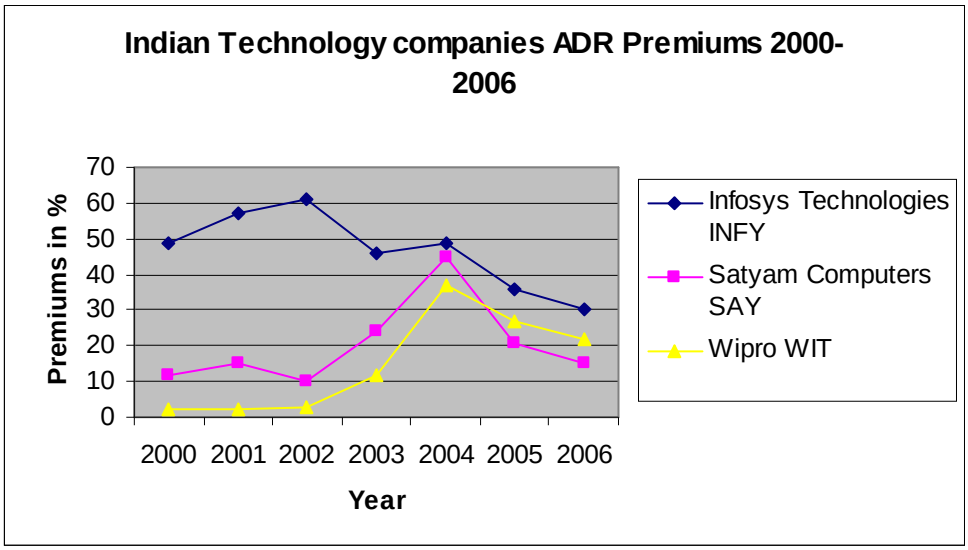
Table 5.10 – ADR PREMIUMS OF 11 MAJOR INDIAN COMPANIES 2000-2006

ADR Stock	**Ticker**	**Premium (%)**							**Average**
		2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	
Dr. Reddy's	RDY	4	7	2	1	3	2	2	3
HDFC Bank	HDB	3	5	8	14	21	12	11	11
ICICI Bank	IBN	3	3	13	16	15	11	11	11
Infosys Technologies	INFY	49	57	61	46	49	36	30	47
MTNL	MTE	3	5	1	1	21	15	13	8
Ranbaxy Labs	RBXD		13	8	9	2	1	1	6
Reliance Industries	RIGD	24	38	38	37	43	31	29	34
Satyam Computers	SAY	12	15	10	24	45	21	15	20
SBI	SBID	6	8	18	29	31	26	20	20
Tata Motors	TTM	0	0	0	0	1	0	0	0
Wipro	WIT	2	2	3	12	37	27	22	15
Average			14	15	17	24	16	14	16

Source: NYSE .NASDAQ, SEC reports 2006

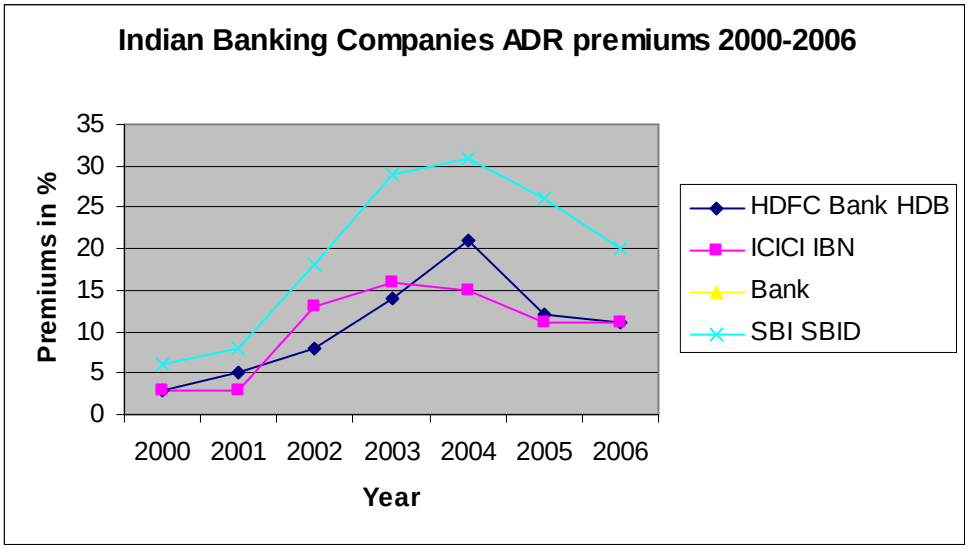
From the table 5.10 the industry wise segregation of ADRs were done and are presented below in charts 5.16 to 5.18.

CHART 5.16



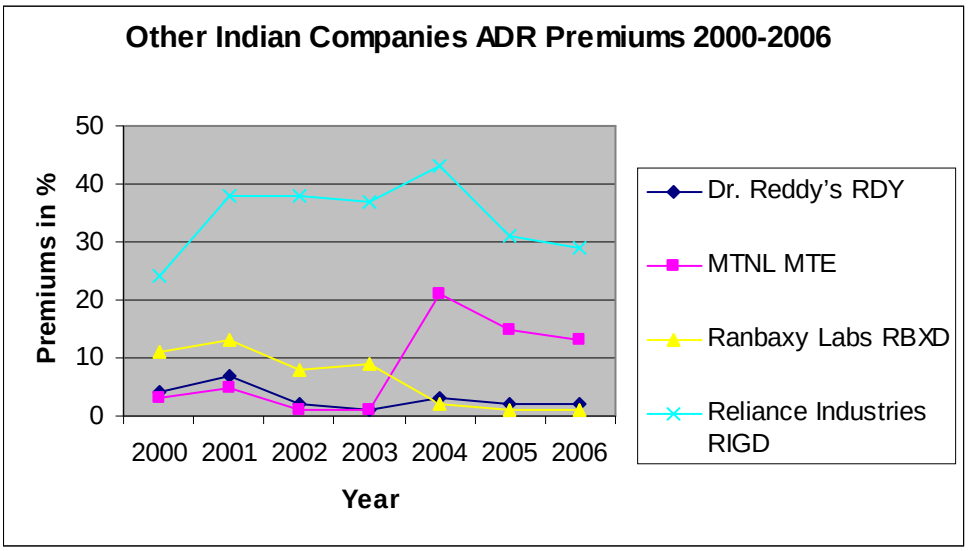
The chart 5.16 shows that ADR's in the information technology sectors have always traded at premiums and Infosys records the highest premiums among Indian ADR's. However over the last two years they show a downward trend.

CHART 5.17



Till 2005 the banking sector ADR's of India have shown a constant increase in their premiums. However after 2004 they show a downward trend. Currently they trade at 13 percent to15 percent premiums.

CHART 5.18



Of the remaining companies Reliance Industries have shown a stable premium rate of 30-40 percent till 2005 however in 2006 the premium went below 30 percent. A similar decline in premiums can be observed in the case of other industries too. The average values of all the 11 ADR's have declined from 24 percent in 2004 to 14 percent in 2006. There exists significant difference in the ADR prices when compared with the price of the underlying equity (i.e. ADR premium). To have a better understanding of the ADR price

movements the S&P 500 (where the ADR's trade) is compared with the BSE Sensex.

TABLE 5.11 CORRELATION OF ADR PREMIUMS, S&P500, AND BSE SENSEX

CORRELATION COFFICIENT		
ADR NAME	S&P 500	BSE SENSEX
Dr. Reddy's	0.36	0.75
HDFC Bank	0.4	0.71
ICICI Bank	0.85	0.62
Infosys Technologies	0.84	0.46
MTNL	0.44	0.61
Ranbaxy Labs	0.32	0.71
Reliance Industries	0.23	0.69
Satyam Computers	0.84	0.34
SBI	0.26	0.57
Tata Motors	0.30	0.83
Wipro	0.27	0.48

It is interesting to note that the correlation between Sensex and S&P 500 is very low (0.4 percent). However Infosys, Satyam Computers and ICICI Bank have higher correlations with S&P500 than with Sensex and Nifty clearly indicating that these stocks move more in to the tune of the US Stock market than with the Indian stock markets. Though Indian capital markets have a structure similar to the developed capital markets there exists a crucial difference

when it comes to the ADR provisions. This explains why the ADR premiums of Infosys, Satyam and ICICI have a higher correlation with S&P 500 than Sensex see table 5.11. The "limited two way fungibility of ADR's in India makes it difficult to convert ADR' s into equity shares and vice versa. On the contrary this facility to convert ADR's exists without restrictions in Germany and many of the emerging markets in Asia. In India ADR's can be freely converted into equity shares however equity shares can be converted into ADR's only to the extent of past conversions of ADR in that company into shares. This is technically called as *Headroom i.e* if a company's ADR has not been converted into equity shares implying a zero conversion rate into equity then no investor can buy the shares of this particular company in India and convert it into ADR's. This implies that the arbitrageur's activity is not possible unless headroom is available thus allowing the ADR's to trade at a premium

Indian companies issuing GDR's

GDR's are securities available in one or more markets outside the company's home country. ADR is actually a type of GDR issued in the US, since ADR's originated much before GDR's they kept their denotation. Unlike ADR's the GDR's allow to raise capital in two or more markets simultaneously. This automatically increases the shareholders base and this flexibility offered by the GDR's made them very popular. The GDR shares are held in custody of a depository bank in the home country. A GDR investor lacks voting rights unlike the ordinary share holders however sometimes the voting rights are executed by the depository receipts on behalf of the GDR holders. Though typically denominated in US $ the GDR's can also be

denominated in Euros. Indian companies started issuing GDR's from 1994 onwards. The comprehensive GDR listing of Indian companies is as shown in the table 5.12.

TABLE 5.12

THE COMPREHENSIVE GDR LISTING					
GDR Companies # euro convertible bond **adjusted for bonus	**Industry Segregation**	**Date Of GDR Issue**	**Size Of GDR Issue US $ Mill**	**Shares per GDR**	**GDR Issue Price** (US$)**
Arvind Mills	Textiles	03-Feb-94	125.00	1.0	9.78
Ashok Leyland	Autos	20-Mar-95	137.77	3.0	12.79
Bajaj Auto	Autos	27-Oct-94	110.00	1.0	16.89
Ballarpur Ind.#	Paper	27-May-94	35.00	1.0	8.77
Bombay Dye	Textiles	16-Nov-93	50.00	1.0	9.20
BSES Ltd	Power	04-Mar-96	125.00	3.0	14.40
Century Textiles	Diversified	21-Sep-94	100.00	2.0	254.00
CESC	Power	14-Apr-94	125.00	1.0	10.67
Core Parent	Pharma	21-Jun-94	70.00	1.0	12.60
Crompton Greaves	Electrical	02-Jul-96	50.00	1.0	7.56
DCW	Diversified	19-May-94	25.00	5.0	13.55
Dr. Reddy's	Pharma	18-Jul-94	48.00	1.0	11.16m
E. I. Hotels	Hotels	07-Oct-94	40.00	1.0	9.30
EID Parry	Fertiliser	07-Jul-94	40.00	1.0	8.39
Finolex Cab	Cables	19-Jul-94	55.00	1.0	16.60
Flex Industries	Packaging	30-Nov-95	30.00	2.0	8.05
G.E. Shipping	Shipping	17-Feb-94	100.00	5.0	15.94

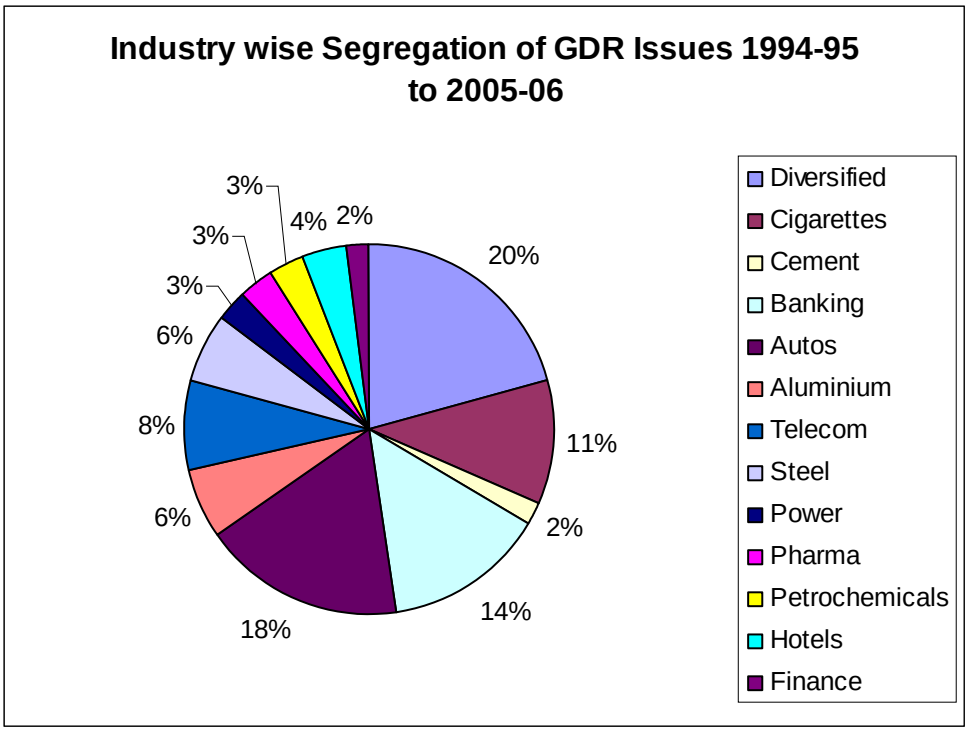
G.N.F.C	Fertiliser	06-Oct-94	61.11	5.0	12.75
GAIL	Oil & Refineries	04-Nov-99	22.50	6.0	9.67
Garden Silk	Textiles	04-Mar-94	45.00	5.0	26.28
Grasim (1st)	Diversified	25-Nov-92	90.00	1.0	12.98
Grasim (2nd)	Diversified	09-Jun-94	100.00	1.0	20.50
Guj Ambuja #	Cement	26-Nov-93	80.00	1.0	5.95
Himachal Futuri	Telecomm.	02-Aug-95	50.00	4.0	9.30
Hindalco (1st)	Aluminium	22-Jul-93	72.00	1.0	10.73
Hindalco (2nd)	Aluminium	08-Jul-94	100.00	1.0	16.00
Hindustan Dev.	Diversified	21-Sep-94	76.00	1.0	2.05
India Cements	Cement	11-Oct-94	90.00	1.0	4.23
Indian Alum.	Aluminium	22-Feb-94	60.00	1.0	6.77
Indian Hotels	Hotels	28-Apr-95	86.25	1.0	16.60
Indian Rayon	Diversified	25-Jan-94	125.00	1.0	15.01
Indo Gulf	Fertiliser	18-Jan-94	100.00	1.0	4.51
Indo Rama	Textiles	21-Mar-96	50.00	10.0	11.37
ICICI	Finance	02-Aug-96	230.00	5.0	11.50
ICICI (ADR)	Finance	22-Sep-99	315	5.0	9.80
Infosys	IT	11-Mar-99	70.38	0.5	34
IPCL	Petrochemicals	08-Dec-94	85.00	3.0	13.87
ITC	Cigarettes	13-Oct-93	68.85	1.0	7.65
J.K. Corp	Diversified	17-Oct-94	55.00	1.0	8.00
Jain Irrig	Plastics	25-Feb-94	30.00	1.0	11.13
JCT Ltd.	Textiles	29-Jul-94	45.00	10.0	16.96
Kesoram Ind	Diversified	31-Jul-96V	30.00	1.0	1.60
L & T (1st)	Diversified	18-Nov-94	150.00	2.0	16.70

L & T (2nd)	Diversified	01-Mar-96	135.00	2.0	15.35
Mah & Mah	Autos	30-Nov-93	74.75	1.0	4.46
MTNL	Telecom	04-Dec-97	418.53	2.0	11.958
NEPC Micon	Diversified	07-Nov-94	47.70	1.0	3.18
Nippon Denro#	Steel	03-Mar-94	125.00	10.0	21.36
Oriental Hotels	Hotels	14-Dec-94	30.00	1.5	12.75
Ranbaxy Labs	Pharma	29-Jun-94	100.00	1.0	19.38
Raymond Woolen	Textile	09-Nov-94	60.00	2.0	10.61
Reliance	Diversified	27-May-92	150.00	2.0	16.35
Reliance (2nd)	Diversified	15-Feb-94	300.00	2.0	23.50
Reliance Petroleum	Diversified	18-Oct-99	100	15.0	23.0
S.A.I.L.	Steel	07-Mar-96	125.00	15.0	12.97
Satyam Infoway	IT	19-Oct-99	75.00	1.0	18.0
S.I.E.L.	Diversified	14-Oct-94	40.00	3.0	14.64
Sanghi Poly	Textiles	28-Jul-94	50.00	5.0	9.56
SIV Ind	Textiles	01-Aug-94	45.00	1.0	6.37
SPIC	Fertiliser	28-Sep-93	65.00	5.0	11.15
SBI	Banking	03-Oct-96	369.95	2.0	14.15
Sterlite India#	Diversified	22-Dec-93	100.00	1.0	17.86
Tata Electric	Power	22-Feb-94	65.00	100.0	710.00
Telco (1st)	Autos	15-Jul-94	115.00	1.0	8.75
Telco (2nd)	Autos	06-Aug-96	200.00	1.0	14.25
Tube Invest	Cycles & Acc.	20-May-94	45.60	1.0	6.58
United Phos.	Pesticides	25-Feb-94	55.00	1.0	20.50
Usha Beltron	Cables	06-Oct-94	35.00	1.0	10.70
Videocon Int.	Electronics	26-Jan-94	90.00	1.0	8.10
VSNL	Telecomm.	24-Mar-97	527.00	0.5	13.93

Wockhardt	Pharma	25-Feb-94	75.00	1.0	14.35

Source: www.gdr.co.in

CHART 5.19



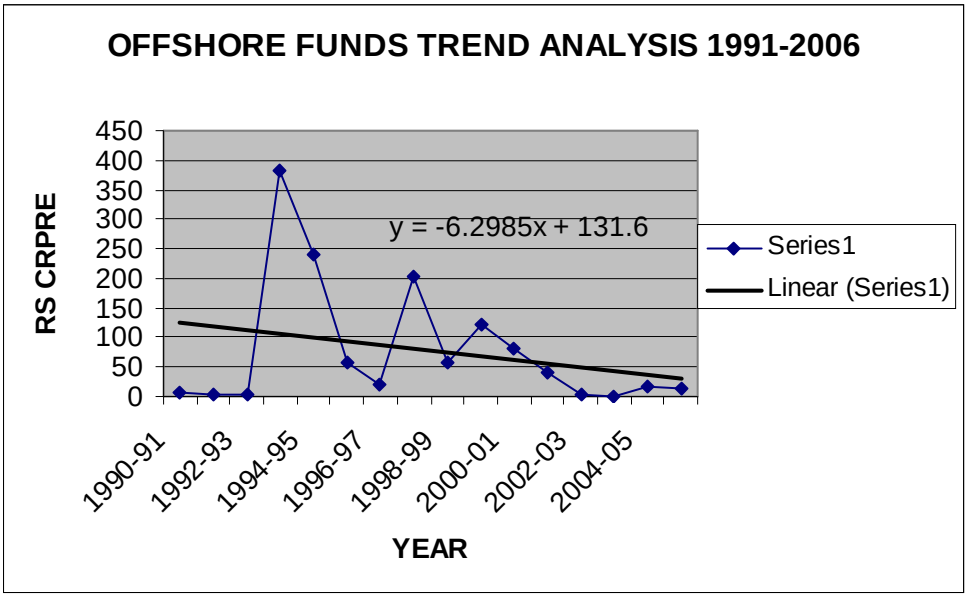
The industry wise segregation of GDR issues by Indian companies shows that the diversified sector which represents the IT and related industries are the top scorers with average total share of 21 percent see chart 5.19. All most all other characteristics of GDRs are similar to that of ADRs and they exhibit the same trends

5.3 OFF SHORE FUNDS

Off shore funds are collective investment funds registered in tax havens, typically small islands in the Caribbean, Europe and Asia Pacific. The host countries do not tax these funds and do not forward the financial

information to other tax and financial authorities. Also the regulation on these funds in the tax havens is often less stringent than that of major industrialized countries where most of the onshore investment funds are located. Offshore funds have greater flexibility , less procedural delays in changing the nature , structure or operation of their products , fewer investment restrictions , less short term trading limitations , capital structure requirements , governance provisions and restrictions on performance based fees. As a result offshore funds trading behavior is different from their onshore counterparts. In India compared to other two components of FPI offshore funds play very little role i.e. they contribute to only 2% of the total FPI flows from 1994-95 to 2005-06. To have a better understanding of these funds and their influence a trend analysis of the same was done using the offshore funds flow to India from 1991-2006 as shown in the chart 5.20.

CHART 5.20



Offshore funds showed a negative trend and their compound growth rate also reflects this negative trend. The compound growth rate of offshore

funds was found to be -5.04 percent. Offshore funds are normally viewed with trepidation by policy makers as these funds open provisions for positive feedback trading (PFT). PFT refers to buying in a booming market and selling in a declining market. With the characteristic features of herd behavior they ignore the information on market fundamentals. Hence the policy makers fear that they could exacerbate a financial crisis to unmanageable degrees. This renews the debate on capital controls and the need for regulation of the capital account convertibility. It should be noted that these funds played a major role in blowing the East Asian financial crisis out of proportions. Hence care should be taken so as to always keep these funds under control.

Thus the analysis of the trend and pattern of FPI revealed many interesting insights. On the whole FPI has shown a positive trend suggesting the fact that the vast market potential of this country has attracted many foreign investors through the portfolio investments .The FIIs, ADRs and GDRs have a positive growth rate while the offshore funds shows a negative growth rate. However the success of the new economic policy and the resultant liberalization package depends on how these capital inflows are absorbed by the economy. The next chapter (chapter 6) provides an analysis of the influence of these flows on the capital market as well as on the economy as a whole.

CHAPTER 6

IMPACT OF FPI ON INDIAN CAPITAL MARKETS

True to the saying that two economists never reach an agreement in the process of debating an issue, there are two views regarding the Impact of FPI inflows. A group of main stream economists believe that, increased inflow of foreign capital increases the allocative efficiency of foreign capital in a country. According to this view, FPI, like FDI can induce financial resources to flow from capital rich to capital scarce countries i.e., from where the expected returns are low to where the expected returns are high. However according to another view Portfolio investment does not result in a more efficient allocation of capital, because international capital flows have little or no connection to real economic activity. Consequently they believe that Portfolio investment has no effect on investment output or any other real variable with non trivial welfare implications.

As such the objective of this chapter is to analyze the impact FPI on i) Capital Markets and ii) to examine whether the benefits of these flows trickle down to the real economy .The structure of the analysis can be divided into five: i) Ratio analysis ii) Correlation iii) Regression iv) Co-integration and Unit root test and v) Granger Causality test.

Empirical studies suggest (chapter 5) that FPI has significantly influenced the stock markets .It is also evident that these flows have helped India to tide over its foreign exchange shortage and build high

level of foreign exchange reserves .How far this huge amount of portfolio capital influenced the secondary and primary segment of the capital market? Has the supposed linkage effects of the FPI with the real economy via the capital markets worked as predicted by the optimistic mainstream view? This chapter attempts to reveal the answers to these questions.

6.1 STOCK MARKET TRENDS

During the decade of 1990's, the stock markets registered considerable growth in India. Eg: BSE Sensex which registered 221 in 1982-83 crossed the 12000 mark in 2006. To illustrate the growth of the stock market two indicators are used (i) stock market depth and (ii) structure size

$$\text{Stock Market Depth} = \frac{\text{Stock Market Capitalization}}{\text{GDP}} \qquad (1)$$

This measure indicates how the stock market is growing compared to the economy. It is also called as the rough (and inverse) indicators of the transactions cost of the capital market. From the table 6.1 it is evident that the stock market capitalization has increased over the years. The increase in the market capitalization can be attributed to many factors, especially the loosening of many tight restrictions through the measures of capital market liberalizations.

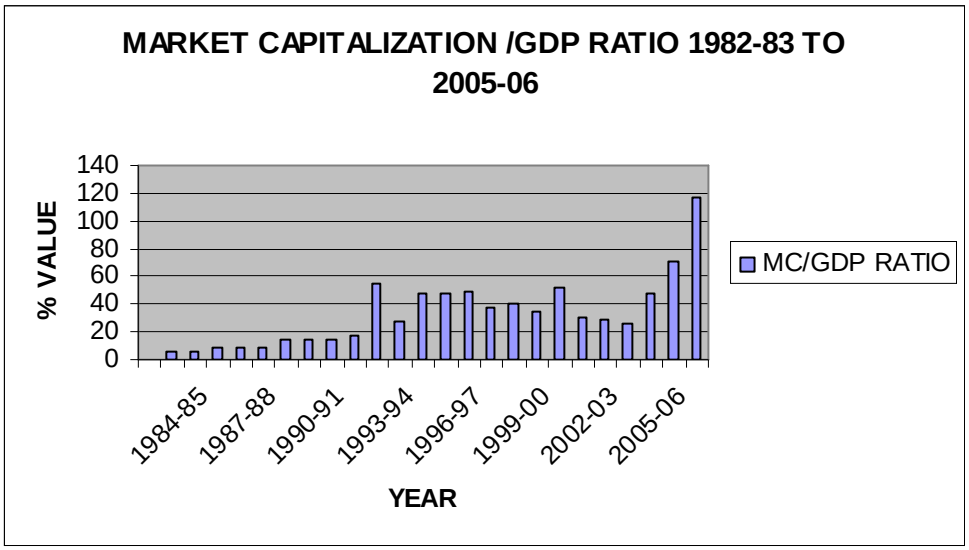
TABLE 6.1 MARKET CAPITALIZATION TO GDP RATIO

YEAR	MARKET CAPITALIZATION	GDP AT FACTOR COST	MKT CAP/GDP RATIO (IN %)
1982-83	9769	169525	5.76
1983-84	10219	198630	5.14
1984-85	20378	222705	9.15
1985-86	21636	249547	8.67
1986-87	25937	278258	9.32
1987-88	45519	315993	14.41
1988-89	54560	378491	14.42
1989-90	65206	438020	14.89
1990-91	90836	510954	17.78
1991-92	323363	589086	54.89
1992-93	188146	673221	27.95
1993-94	368071	781345	47.11
1994-95	435481	917058	47.49
1995-96	526476	1073271	49.05
1996-97	463915	1243547	37.31
1997-98	560325	1390148	40.31
1998-99	545361	1598127	34.13
1999-2000	912842	1761838	51.81
2000-01	571553	1902998	30.03
2001-02	612224	2090957	29.28
2002-03	572198	2249493	25.44
2003-04	1201207	2523872	47.59
2004-05	1698428	2393617	70.98
2005-06	3022190	2595339	116.44

Source: calculated from RBI Handbook of Statistics on Indian Economy various issues

The market capitalization to GDP ratio (stock market depth) is expressed in the form of chart 6.1.

CHART 6.1 STOCK MARKET DEPTH



The above chart clearly shows that the market capitalization to GDP ratio in the pre liberalization era (i.e. before FPI was allowed in India) is much smaller when compared to the post liberalization period. This indicates that the FPI has played a significant role in increasing the stock market depth of the country. Given the optimism prevailing in the market in 2006 and the strong fundamental signals emitted by the market it can be said that the market capitalization is bound to increase in 2007

Next the structure size ratio was calculated, the formula for calculating Structure Size Ratio is as given below

$$\text{Structure Size} = \frac{\text{Market Capitalization Ratio}}{\text{Bank Credit Ratio}} \quad (2)$$

$$\text{Bank Credit Ratio} = \frac{\text{Commercial Bank Lending}}{\text{GDP}} \quad (3)$$

$$\text{Market Capitalization Ratio} = \frac{\text{Market Capitalization}}{\text{GDP}} \quad (4)$$

After solving equations (3) and (4) the results were applied in equation (2) this gave the structure Size ratio from1982 to 2006 as shown in the table 6.2

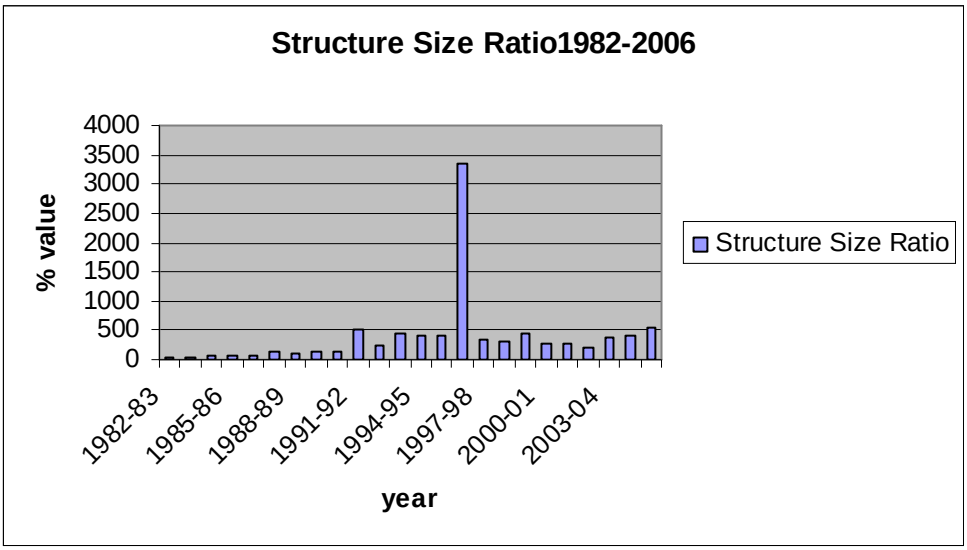
Table 6.2 Structure Size ratio (SSR)

Year	Structure Size Ratio
1982-83	50.21
1983-84	47.36
1984-85	84.9
1985-86	78.5
1986-87	82.9
1987-88	120.17
1988-89	118.2
1989-90	121.25
1990-91	147.31
1991-92	495.84
1992-93	239.3
1993-94	457.38
1994-95	425.54
1995-96	421.4
1996-97	3361.26
1997-98	348.1
1998-99	304.73
1999-00	456.07
2000-01	261.13
2001-02	266.18
2002-03	193.75
2003-04	383.79
2004-05	398.09
2005-06	550.28

Source: Calculated from SEBI handbook of statistics 2004, 2006.

The table 6.2 shows that the SSR has increased over the years. While attempting to analyze the impact of FPI on capital markets the structure size ratio helps to get a better view. The Structure Size Ratio measures the relative growth in the stock markets Vis-a -Vis that of the banking system in India. A graphical analysis of the SSR is given in chart 6.2.The chart 6.2 shows that since 1991-92 stock market capitalization has been much higher than total bank credit to the industrial sector. The average value of structure size ratio for the time period 1982-83 to 1993-1994 was only 170.28 while the same for 1995-2006 was 614.19 indicating the huge influence of FPI on the structure size ratio. Thus the SSR shows the importance of stock markets in the Indian financial market structure as well as gives an indication as to the strong performance of the capital market.

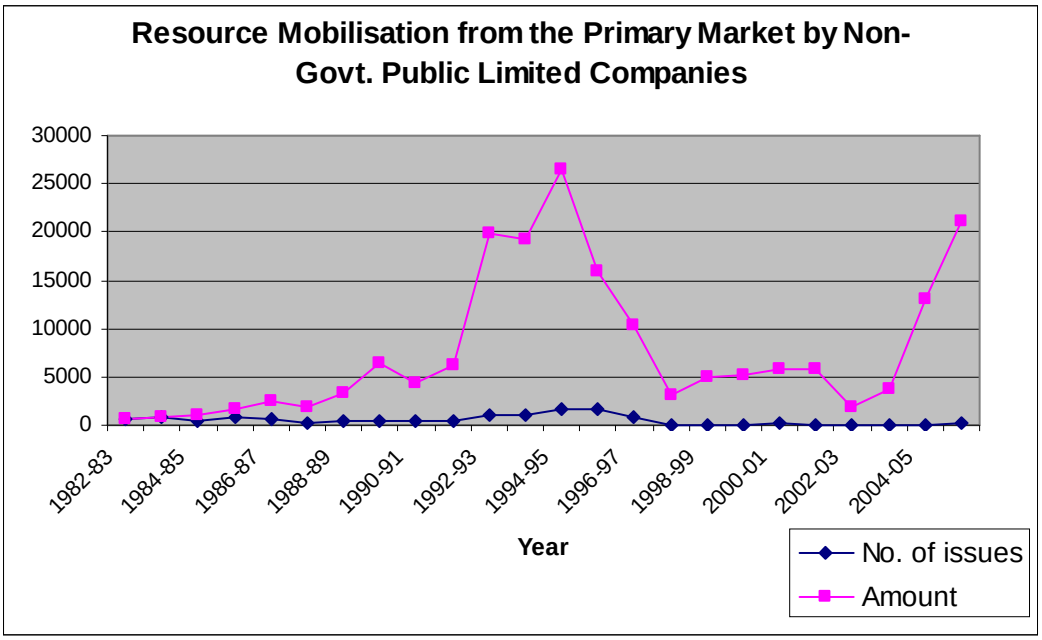
Chart 6.2



It becomes clear that overall, the secondary segments of the stock market has performed quite well in the post liberalization period. With the opening allowed for FII's after 1992, the stock markets in India witnessed a boom. The market capitalization to Bank Credit Ratio also suggest that the Indian stock markets have been transformed from a predominantly bank based financial system towards a more stock market based one.

Taking into account the optimistic main stream argument, it was expected that these new developments would open up fresh sources of funds for Indian firms. Many policy reforms (chapter 4) were introduced to act as catalysts to resource mobilization .All these favourable environments resulted in a sharp increase in capital mobilized through equity related investments. The amount mobilized through the new capital issues by non government public limited companies shows two phases. During 1991-92 to 1994-95 their annual average growth rate was more than 43 percent. However this trend was reversed during the second phase (1995-96 to 2003-04). The number of issues and the amount mobilized declined drastically during this period .The IT boom of 2000-01 though resulted in a recovery with regard to IT related stocks, but soon it lost its count. To be more accurate, it can be stated that the resource mobilization during 1998-99 to 2002-03 adds up to only less than half of what these companies raised during the single year 1994-95 .During the period 2004-05 to 2005-06 the resource mobilization has shown a small positive recovery as shown in chart 6.3 .

Chart – 6.3



Now, it is a well known fact that the resource mobilization from the primary market depends on domestic demand and capital formation of the corporate sector i.e.

RMp = f [E (DD) + E (C+ CS)]

Where RMp = Resource mobilization from the primary market.

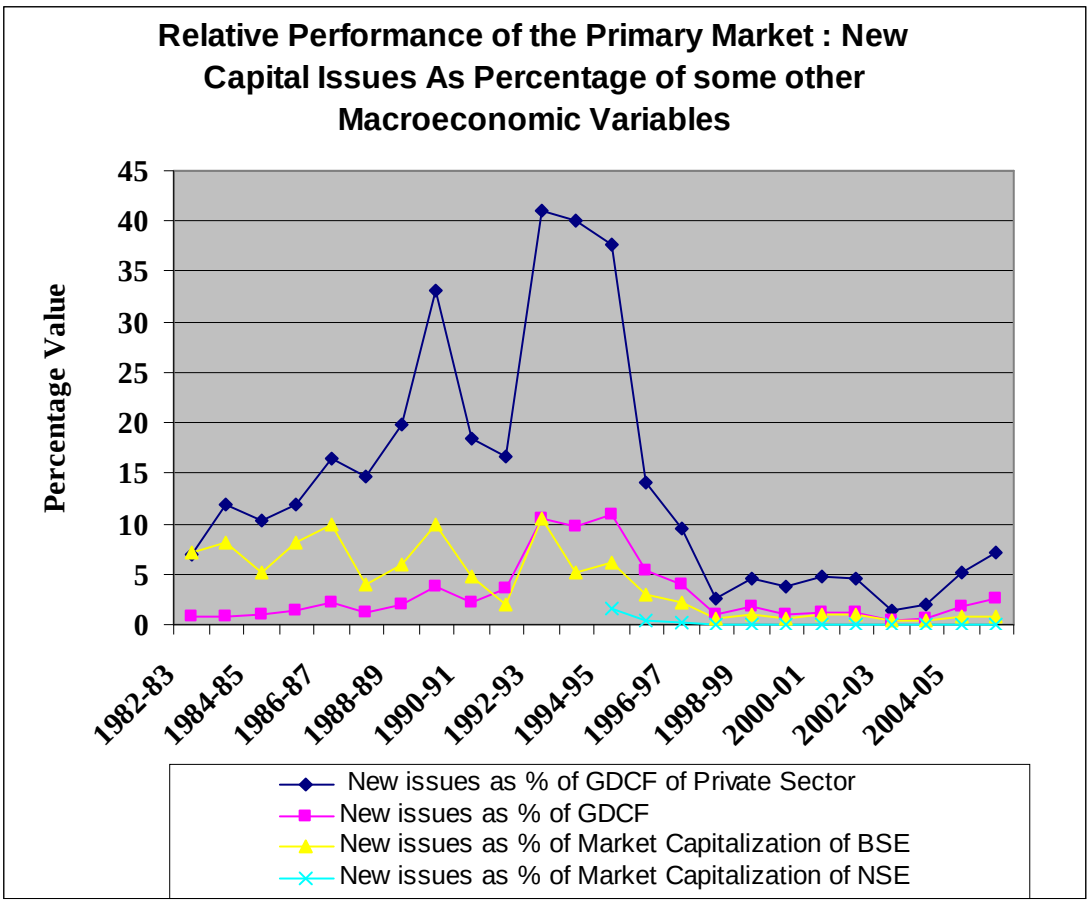
E (DD) = Expected Domestic demand

E(C+CS) =Expected capital formation of the corporate sector.

If the domestic demand is not strong enough, then it will lead to low capital formation and low resource mobilization from the primary market. The same is the case when there are excess capacities in the private sector .To analyze this the amount raised from the Primary market was compared with (a) GDCF and (b) Gross Capital Formation by the Private Corporate sector .These benchmarks helps us to understand whether domestic demand

constraints were the major causes behind the decline in the performance of primary market during 1994-95 period. In order to facilitate a comparison between the performance of the primary and secondary capital market, resources raised from the secondary market is benchmarked against the market capitalization of BSE as shown in chart 6.4.

Chart 6.4 Performance of Primary Market



From the chart 6.4, it is evident that lack of domestic demand was not the major constraint in resource mobilization from the primary market .During 1992-93 and 1993-94 resource mobilization from the primary market was about 40 percent of the GDCF of the Private Corporate sector. The average value of resource mobilization from 1987-88 to 1995-96 by the

new issue market was more than 26 percent of GCF of private sector. However this trend did not last long, during 1997-98 to 2002-03 the ratio was around 5 percent, it further declined to 1.6% of gross capital formation of the private sector in 2002-03 .The ratio of primary market resource mobilization to GDCF was only 0.33 percent in 2002-03. The years 2004-2006 witnessed a healthy trend towards increased resource mobilization from the primary Market. During 2004-05 the ratio of Resource mobilization from primary market as percentage of GDCF of private corporate sector increased to 5.08 percent and during 2005-06 to 7.08 percent.

Another indicator of the performance of primary markets in India is the growth of the private placements market in India. Merchant bankers and other intermediaries play a crucial role in this market. These arrangers place securities with a small numbers of financial institutions, banks, mutual funds and individuals of high net worth. As such many of the regulations and registration requirements do not apply to these securities. For example corporate firms issuing bonds in the private placement market need not obtain and disclose credit rating from approved agencies like CRISIL, CARE etc .They need not divulge the use of funds mobilized from the private placement market. Seeing this unregulated nature of the private placement market SEBI issued a set of rules to bring this market under control in September 2003.Still Private Placements play a leading role in resource mobilization. The interesting fact is that though these markets can involve in the issue of debt or equity, in reality it has always remained as a market for corporate debt.

Chart 6.5

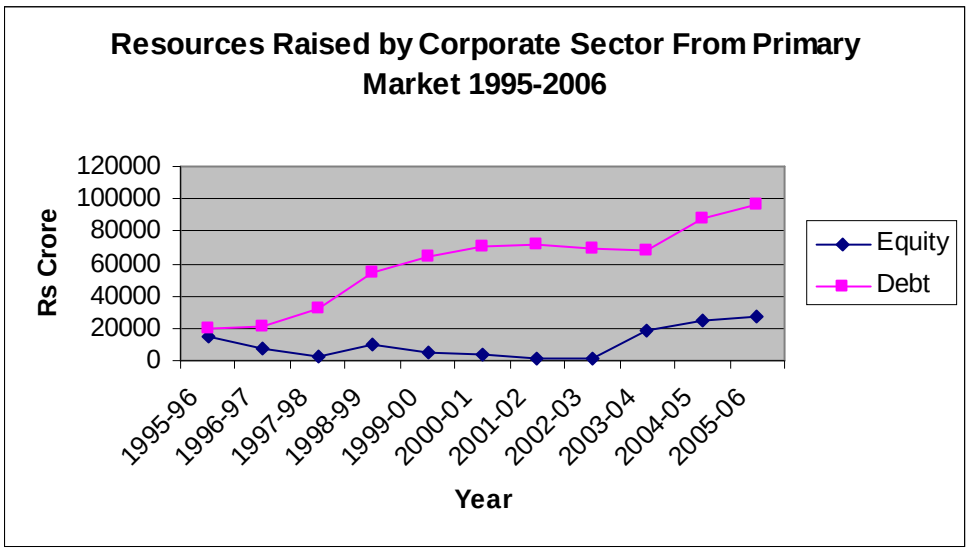


Chart 6.6

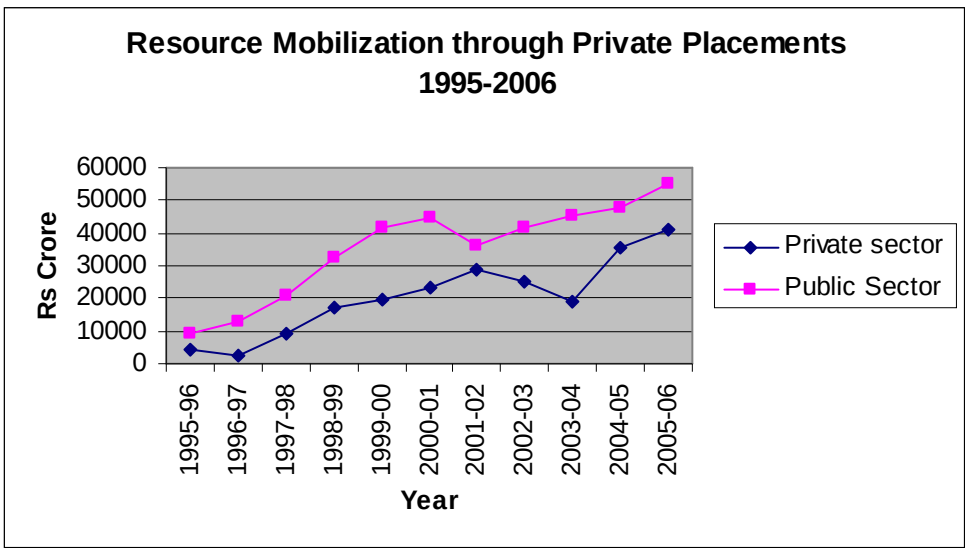


Table 6.3 Share Percentage of Private Placement in Total Debt Issues

Year	Share Percentage of Private Placement in Total Debt Issues
1995-96	69.1
1996-97	70.3
1997-98	91.8
1998-99	91.4
1999-00	95
2000-01	96.1
2001-02	91.2
2002-03	96.2
2003-04	93.7
2004-05	95.6
2005-06	100

Source: Calculated from SEBI handbook of statistics 2004, 2006.

Both listed and unlisted public and private sector companies raise funds from the private placement market. Chart 6.5 shows that of the total resources mobilized from the primary capital market by the corporate sector during 1995-2006 debt issues score over the equity issues. Public sector financial institutions are the major players in this market as is evident from chart 6.6. In order to examine the significance of private placement market in mobilizing resources through debt issues the share of private placements in total debt issues were calculated as shown in table 6.3. Table 6.3 shows that during 1995-2006 the average share of private placement market in resource mobilization through debt issues is 90.04 percent which reemphasizes the fact that this market acts as a market for corporate debt rather than equity issues.

Table 6.4 – Comparison of Private placement & Primary market in India.

	The Private Placement Market – Money Raised by						
	Private sector Financial Institutions	Private Sector Non-Financial Institutions	Total Private Sector (2+3)	Public Sector Financial Institutions	Total Private Sector + Public Sector Financial Institutions (4+5)	New Capital Issues by non govt pub. Ltd. cos.	(7/6) x 100
1	2	3	4	5	6	7	8
1995-96	2136.0	1934.0	4070.0	4552.0	8622.0	15997.6	185.5
1996-97	1847.0	646.0	2493.0	6541.0	9034.0	10409.5	115.2
1997-98	4323.7	4878.5	9202.2	9659.7	18861.9	3138.3	16.6
1998-99	12174.2	4823.5	16997.7	20382.4	37380.1	5013.1	13.4
1999-00	10875.2	8528.3	19403.5	17981.3	37384.8	5153.3	13.8
2000-01	13262.6	9843.0	23105.6	26201.2	49306.8	5818.1	11.8
2001-02	16019.0	12601.0	28620.0	17358.0	45978.0	5692.4	12.4
2002-03	9454.0	15623.0	25077.0	20407.0	45484.0	1877.7	4.1
2003-04	12551	6209	18760	26461	45221	3722	8.2
2004-05	20974	14820	35794	25531	61325	13079	21.3
2005-06	26553	14652	41205	39395	80600	21154	26.2

Source : Calculated from SEBI handbook of statistics 2004,2006.

It is evident from the table 6.4 that the Private placement segment of the primary market has been performing much better than the primary segment of the stock market since 1997-98. During 1995-96 to 2005-06 the resource mobilization from the private placement market has increased more than six fold, while money raised from the primary market showed a declining trend. From the table 6.4 it is evident that the ratio of the resource

mobilization from the new issue market by non government public limited companies as percentage of resource mobilization from the private placement market has shown a declining trend till 2003 while a small increase was visible during 2004-06.

The search for the popularity cause of the private placement market revealed that it is a method which significantly reduces the cost and time involved in raising funds, popularly denoted by the term cost and time effective method . The second advantage of this method arises out of the fact that it can be tailor made to suit the needs of the entrepreneurs. An important aspect to be noted out of this phenomenon is that the demand for funds has not declined in the economy. Rather, the corporate sector firms have preferred the private placement market over the new issues for raising funds.

The analysis of the private placement market necessitates enquiring into the pattern of fund raisers from the market. To understand the major players in the Private placement market the share of the industries in this market was analyzed. This reveals another distinctive feature- the huge role played by the public and private sector financial institutions in mobilizing resources from these markets. Banks and financial institutions account for more than 70 percent of the money raised from the private placement market during the period of analysis. This was compared with the industry wise capital mobilization from the primary markets in India. The industry wise capital mobilized from the primary markets in India is as shown in the chart 6.7.

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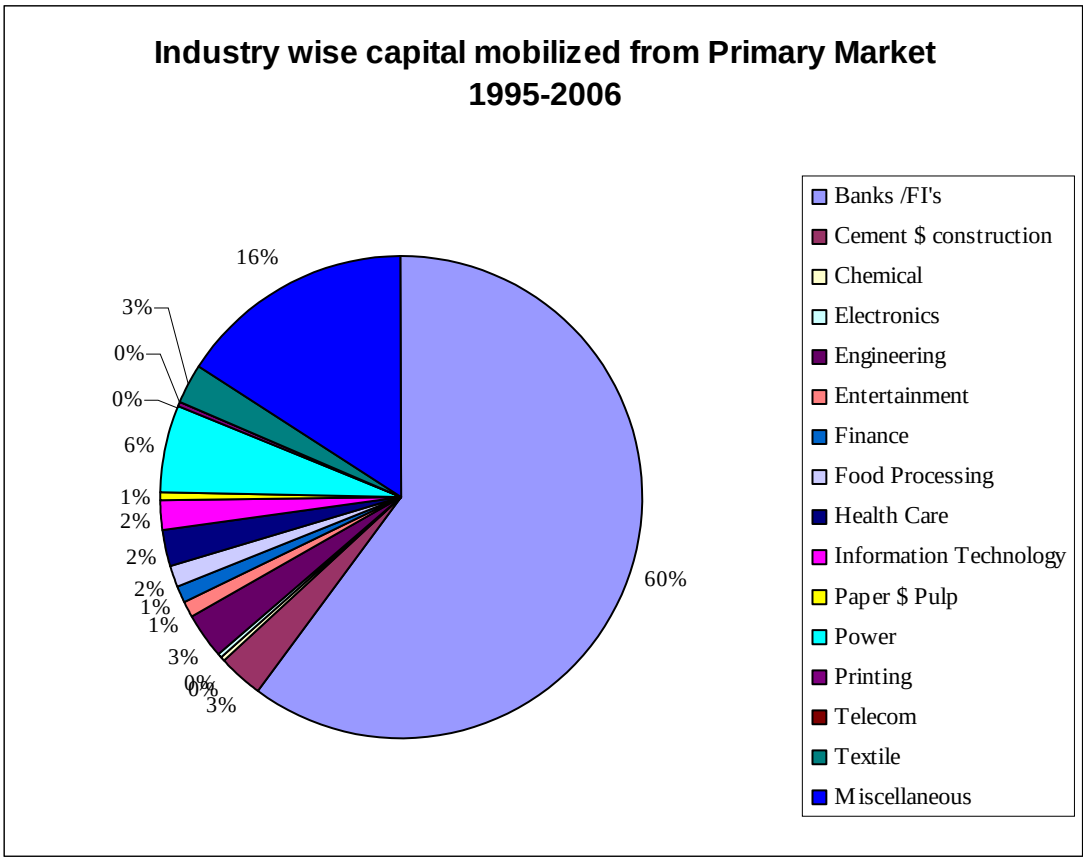
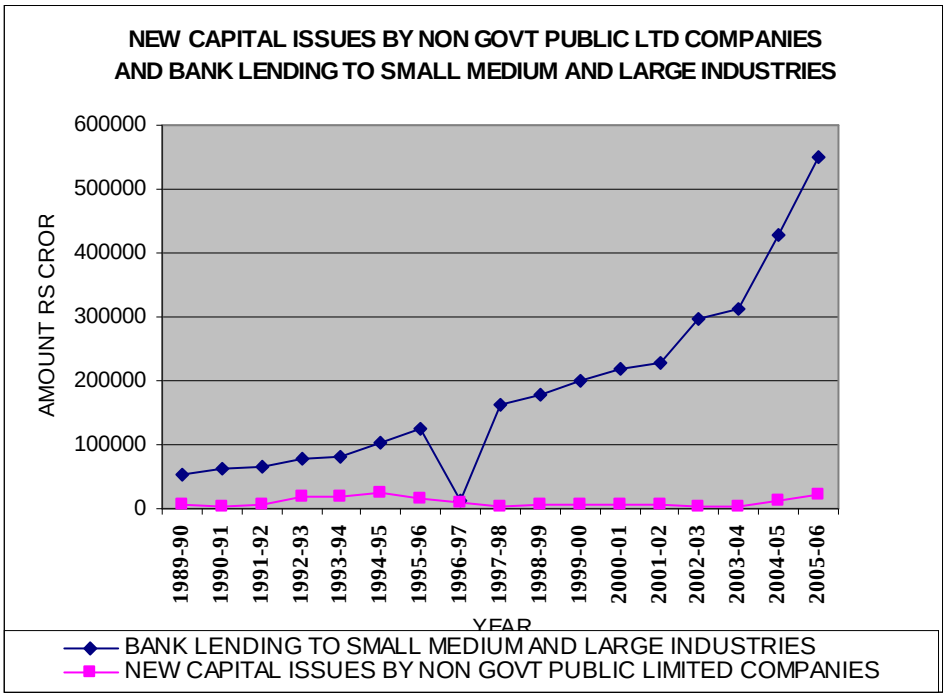
Chart 6.7 Industry wise capital raised from the primary market in India



The breakup of the new capital issues in the primary market shows that *60% of* the total resources mobilized belongs to the banks and other financial institutions .The SEBI annual report of 1998-99 states that an emerging trend in the Indian primary market is that the FI's mobilize funds from the primary and private placement market which is later advanced to industries and firms as loans. Thus the Indian corporate sector prefers debt based borrowing instruments. The steady growth of bank credit to industries as shown in chart 6.8 further testifies this tendency of the Indian corporate

sector. Putting together the two facts i.e. degenerating trend in the primary markets till 2004 and active participation and manipulation of financial intermediaries, one can arrive at the conclusion that only a very small percentage of Indian firms directly approach the stock markets to raise resources from the market. .This implies that though the secondary segment of the capital market in India showed a boom, the primary market lagged behind indicating the absence of any trickling down of benefits from secondary to primary markets in India.

Chart 6.8 New capital issues by non Government public limited companies and total bank credit to small, medium and large industries.



The three charts 6.2, 6.4 and 6.8 points out certain important features and trends in the Indian capital markets. Chart 6.2 shows that the market capitalization to bank credit has increased over the period of analysis. Chart 6.4 points out the significant decline in new capital issues to market capitalization. Finally the chart 6.8 says that since 1994-95 growth of bank

credit has been more than three times when compared to the new capital issues. Rational thinking on the above three findings leads to only one conclusion i.e. there exists dichotomy in the Indian capital market indicating that the primary and secondary markets have not moved in unison. The primary market has been unable to capture the boom experienced in the secondary markets during the 1990's. The fact that the ratio of new capital issues to market capitalization was 10 percent during 1989-90 to 1992-93 and decreased drastically during 2002-03 to 0.3 percent substantiate these findings. Also during 1998, 1999, 2000, 2002 and 2003 the ratio remained below 1 percent. In 2000-01 however it went above the 1 percent mark due to the boom in the IT stocks. During 2003-06 there has been a small positive change in the performance of the primary market. It gives hope that the primary markets are beginning to fare better.

A firm level analysis of equity as source of finance too shows that the share of equity has declined but the degree of this decline is much less than what is portrayed by the aggregate level data i.e. we may assume that firms are raising some equity issues through private placements. However a detailed analysis is not possible because even RBI and SEBI do not publish data on the amount of equity raised by the individual firms through private placements.

6.2: DICHOTOMY OF SECONDARY AND PRIMARY MARKETS: POSSIBLE CAUSES

Every finding ultimately leads to the twin questions- Why? How? Here also the dissociation of the two segments of the Indian capital markets raises

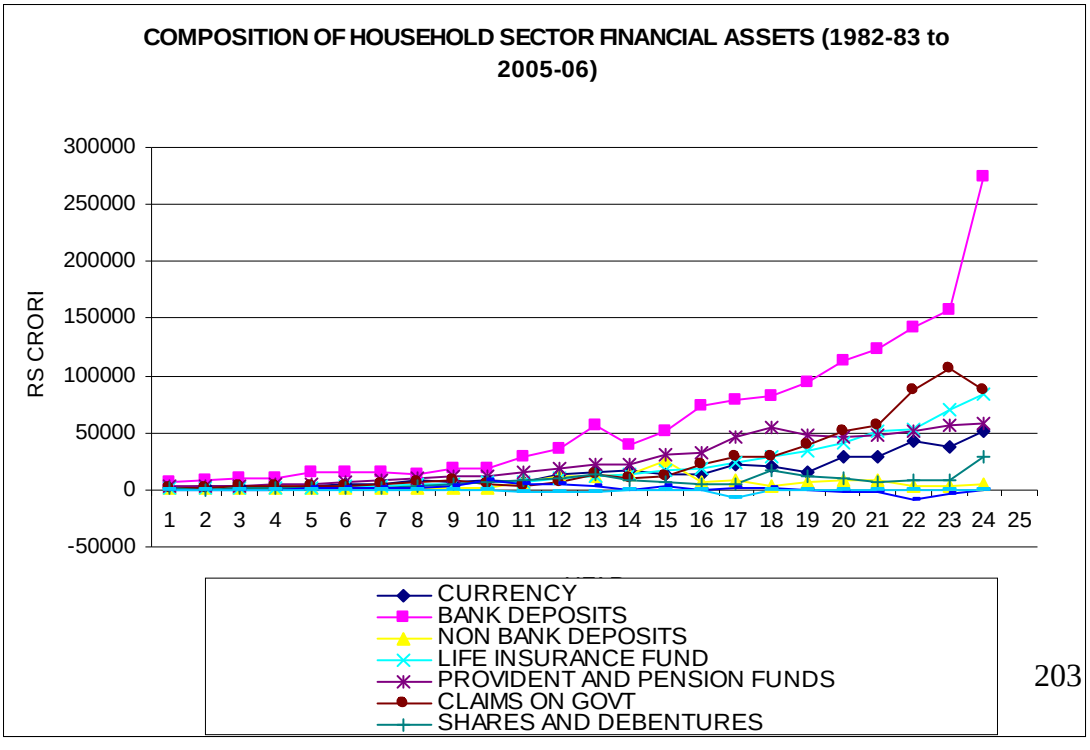
these crucial questions as it is a cause of concern. These concerns arises due to the following facts

(i) Secondary market boom directly benefit the corporate sector only if these boom leads to spill over effects in the primary market. This facilitates mobilization of cheap resources for the corporate sector from the primary market.

(ii) Unhealthy primary market leads to low capital formation via the capital market which further stagnates the development of the financial markets

So what are the factors that prevent the resource mobilization and capital formation via the primary market? A number of factors have been identified to operate behind the weak primary markets in India. An important factor behind the dichotomy can be identified as the withdrawal of the domestic retail investors from the stock markets. Average Indian investors have always preferred the bank deposits to investment in shares and debentures during both pre and post liberalization periods.

Chart 6.9 Composition of household savings in financial assets.



The chart 6.9 shows that household savings in equity related instruments (shares and debentures+ units of UTI) have declined during 1992-93 to 1998-99. Though small increase was visible during 1999-2000, again it declined during 2000-01 to2003-04. During 2003-04 only 1.37 percent of total household financial savings came from these instruments while bank deposits accounted for 42.8 percent of the same. Also the share of the bank deposits during the pre liberalization period 1982-83 to 1992-93 was 36 percent which increased to 39 percent during the post liberalization period 1993-94 to 2005-06 while the same for shares and debentures decreased from 7 percent to 4 percent. This evidence proves that the average Indian households prefer banks to stock exchanges for investing their savings. The uncertainties and irregularities associated with stock market speculation is the major cause which debars the entry of these small savers into the market. Also majority of the Indian households fall under the category of risk averse investors. A study conducted by L.C Gupta, C.P Gupta and Naveen Jain[*] reveals that these retail investors are afraid to invest major chunk of their savings in the stock market. The share holding pattern of the public limited companies shows that even among the major Sensex companies more than 20 companies thrive on a retail holding of less than 1 percent.

Now the question arises, if these retail investors are risk averse then why the secondary markets are performing well? Who are the major players in the secondary market? The exoduses of the household savers were more

[*] Gupta L.C., C.P. Gupta and Naveen Jain (2001) "Indian households Investment Preferences" Society for Capital Market Research and Development, New Delhi.

than balanced by the foreign institutional investor's entry into the market. FII's dominate more than 50 percent of the non- promoter shares in most of the Sensex companies. Majority of the tradable shares of the Sensex companies are also controlled by the FII's. However the primary markets have remained unattractive to the FII's due to the long lock-in period, which arises out of the post processing delay in listing of primary securities. Though SEBI does not publish the breakup of FII investment in primary and secondary markets , SEBI's annual report of 1996, 1998, 2001 and 2004 mentions that only a very few amount of FII flows are channeled to the primary markets in India . For example SEBI reports that 96.8 percent and 93.9 percent of public allotments in the primary markets belonged to Indian residents while the share of FII was negligible and 0.1 percent during 1999-2000 and 2000-01 respectively.

The third reason behind the weak primary markets stems from the relative change in the price of debt and equity capital .This phenomenon was first explained by Hamid and Singh[*] and is commonly called as the *Singh paradox.* They believe that the financing of firms in developing countries exhibit a paradoxical behavior i.e. Developing country firms rely on external financing rather than on internal financing. This explains the huge contribution of the equity market in their resource mobilization. One important factor which leads to this kind of paradoxical situation is the skyrocketing of interest rates after financial market liberalization. Equities now become a cheaper source of finance resulting in an unprecedented increase in the tempo of stock market activities and share prices. The trends

[*] Singh. A and Hamid J (1992) "Corporate Financial structures in Developing countries". IFC Technical Paper I, Washington D.C.

exhibited by the primary market in India can be explained at least partly by the change in the cost of debt financing.

Tracing out the changes in the cost of debt financing in India reveals many interesting facts. The host of financial liberalization programmes implemented during the initial stages of the structural adjustment policies clustered around the deregulation of interest rates. All term lending institutions were allowed to charge interest rates as per the risk perception of the project under consideration (floor rate 15 percent). As though lead by the 'invisible hand' this high interest rate period coincided with the boom in the stock market. Hence the period (early 90's) witnessed a shift from borrowing to equity based funds as a major source of finance in the corporate sector. The flourishing of secondary markets via the high prices and returns attracted many corporate firms who raised funds through these markets. Initially primary markets also reflected these trends, however in the case of primary markets these trends soon reversed themselves.

During 1994-95 the secondary markets as well as the interest rates declined sharply. An interesting thing to be noted is that the cost of capital did not decline simultaneously. The cost of capital declined till 1994 after liberalization, and then it started increasing gradually. By 1999-2000 the cost of capital increased to as much high as it was before liberalization. Now these two things i.e increase in the cost of capital coupled with a decline in the interest rate made the investment decision of the corporate sector in favor of the debt instruments.

Another factor which accentuated the already weak primary markets drastic decline was the new strict norms imposed by SEBI especially after the 1994-95 primary market scams. These regulations were essential in the context of a series of scams and malpractices in the primary market. For example as per recommendations of the Malegam committee on disclosure requirements and issue procedures, SEBI made the following regulations

(i) Entry barriers on new issues

(ii) Specified minimum issue size requirement for companies who wish to get listed and

(iii) Special requirements on finance companies seeking funds.

These regulations have done away with the much needed flexibility and clarity in the primary market. Hence firms flock into the private placements market and avoid the primary market which is more formal and rigid in nature.

6.3 MEASURING THE IMPACT OF FPI 1994-95 to 2005-06

For measuring the impact of FPI first the correlation coefficient between FPI and selected capital market and macro economic variables were analyzed.

The selected variables are as shown in the table 6.5. These are the variables which influence the FPI inflows according to SEBI and published as related macroeconomic indicators in the SEBI handbook of statistics on Indian economy.

Table 6.5

Selected Macroeconomic Variables

Sl. Number	Variable Name	Time Period
1	Gross Domestic Product	1994-95 to 2005-06
2	Gross Fixed Capital Formation	”
3	Employment	”
4	Export Based Real Effective Exchange Rate	”
5	Export Based Nominal Effective Exchange Rate	”
6	Foreign Exchange Reserves	”
7	Total Foreign Investment	”
8	BSE Sensex Annual Average	”
9	NSE Nifty Annual Average	”
Selected Capital market Variables are given in table 6.9		

Table 6.6 Correlation of FPI and selected macroeconomic variables.

Variable 1	Variable 2	Correlation Coefficient
FPI	Foreign Exchange Reserves	0.79
FPI	Export Based NEER	0.03
FPI	Export Based REER	0.48
FPI	GFCF	0.50
FPI	GDP	0.60
FPI	Employment	-0.03
FPI	NSE NIFTY	0.57
FPI	BSE SENSEX	0.70
FPI	Total Foreign Investment (TFI)	0.96

The correlation analysis between the selected macro economic variables revealed that Foreign Exchange reserves, GDP, S&P CNX Nifty, BSE Sensex, and Total foreign Investment showed high positive correlation with FPI inflows while GFCF and REER showed positive correlation though not high. In the case of Export based NEER there was very low positive correlation with FPI inflows where as Employment showed a negative correlation with FPI inflows. The low correlations between FPI and NEER can be attributed to the fact that the nominal value as compared to the real value is not void of the concept of money illusion. Hence when correlated with a highly fluctuating variable like FPI the correlation coefficient becomes low. In the case of employment the aggregation of the sector wise data leads to the expression of only a very negligible amount of change in the value of employment. Moreover in order to examine the relationship between FPI and employment one needs to take into account changes in employment with special reference to the growth of companies in the financial sector e.g.: Asset management companies, Share broking firms etc but this beyond the scope of the study at present .

Secondly the simple linear regressions of (i) the selected variables on FPI and (ii)FPI on these variables were performed

The simple linear regression model used is

$$Y_t = \beta_1 + \beta_2 X_t + U_t \qquad (6.1)$$

Where Y_t = FPI,

X_t = Selected macro economic variables as shown in table 6.5.

The results of the regression are as shown in table 6.7

Table 6.7 Results of Simple linear regression analysis of selected macroeconomic variables on FPI

Y variable	X variable	R Square	β_1	β_2
FPI	Employment X_1	0.21	12652.52 *(2.25)**	-610.062 *(-1.61)*
FPI	GDP X_2	0.36	-1691.55 *(-0.699)*	0.004257 *(2.374)*
FPI	GFCF X_3	0.25	-345.69 *(-0.143)*	0.010138 *(1.816)*
FPI	Sensex X_6	0.49	-3152.59 *(-1.360)*	1.594979 *(3.124)*
FPI	Nifty X_7	0.49	-5053.82 *(-1.718)*	7.05712 *(3.080)*
FPI	Forex Reserves X_8	0.43	974.39 *(0.777)*	0.010108 *(2.7549)*
FPI	TFI X_9	0.43	400.6357 *(0.281)*	0.394724 *(2.764)*

* Figures in parentheses indicates *t*- value

The Simple regression analysis of selected macroeconomic variables on FPI revealed that

i) Only Sensex, Nifty, Forex Reserves and TFI showed a goodness of fit of above 40 percent with a positive and significant influence on FPI at 5 percent confidence interval.

ii) GDP could explain 36 percent of the changes in FPI and showed a positive and significant influence at 5 percent confidence interval.

iii) REER and NEER had a positive but insignificant influence on FPI at 5 percent confidence interval (very low R square value, less than 1percent)

iv) In the case of GFCF the goodness of fit of the model was 25 percent and it had a positive and significant influence at 10 percent confidence interval.

v) Employment had a negative but significant influence on FPI at 10 percent confidence interval at 21 percent goodness of fit of the model.

The confluence analysis with S&P CNX Nifty as the base regression also points to the fact that REER and NEER does not have much influence on the FPI inflow. The multiple regression analysis of the selected macroeconomic variables showed a goodness of fit of 94 percent. However the t values of only Employment, TFI and Forex reserves were found to be significant at 5 percent level of significance with t values of *(2.522953), (-2.15377)* and *(2.998249)* respectively. It also points to the existence of multicollinearity among the selected variables.

Next we analyze the influence of FPI on the selected macroeconomic variables using single linear regressions with FPI as the independent variable and each of the selected macroeconomic variables as dependent variables.

The simple linear regression model used is

$$Y_t = \beta_1 + \beta_2 X_t + U_t \qquad (6.2)$$

Where Y_t= Selected macro economic variables as shown in table 6.5.

X_t = FPI

The results of the regression are as shown in table 6.8.

Table 6.8 Results of Simple linear regressions of FPI on selected macroeconomic variables

X Variable	**Y Variable**	**R Square value**	β_1	β_2
FPI	NSE NIFTY Annual AVG Y_1	0.76	932.543 (11.707)	0.074621 (5.611)
FPI	BSE Sensex Annual AVG Y_2	0.67	3038.203 (8.04)	0.286452 (4.54)
FPI	Employment Y_3	0.20	15.855 (15.565)	-0.00033 (-1.586)
FPI	GDP Y_4	0.36	961030.8 (5.521)	84.19567 (2.366)
FPI	GFCF Y_5	0.25	311656.4 (4.74)	24.38648 (1.817)
FPI	FOREX Reserves Y_8	0.35	162138 (1.6295)	47.43258 (2.332)
FPI	Total Foreign Investment Y_9	0.89	2167.446 (2.965)	1.318616 (10.150)

* Figures in parentheses indicates *t*- value

Regression analysis between FPI and selected Macroeconomic variables reveals that apart from total foreign investment, Sensex and Nifty the degree of influence between FPI and other variables, though

significant is not very high as revealed by their low R square values. It is also evident that these variables influence FPI more than FPI's influence on these variables. This can be accounted to the fact that the FPI inflow depends on the general economic environment of boom or depression created by these variables while the selected real variables are influenced much more by many other real and monetary factors than FPI .This points to the low trickling down effect of FPI in the economy. India has still not been able to absorb the benefits of FPI inflows because of this low trickling down effect.

Now the impact of FPI on Selected capital market variables during 1994-95 to 2005-06 is analyzed using the Unit Root test, Co integration analysis and Granger Causality as described in section 6.3.1

6.3.1The Unit Root Test

In the case of time series data pertaining to capital markets large fluctuations are generally observed. So any study relating to capital markets is faced with the crucial issues of stationarity v/s non stationarity .Empirical works based on time series data assumes that the underlying time series is stationary . Therefore tests of stationarity should precede any other technique of time series data analysis. Hence in this analysis first we test for the stationarity of the underlying time series data using the unit root test. It precedes the tests for co-integration and Granger causality. The variables used in the analysis are given in the table 6.9.

TABLE 6.9 CAPITAL MARKET VARIABLES USED IN THE ANALYSIS

Table Number	Variable Name	Variable Type
1	FPI Inflows 1994-95 To 2005-06	INDEPENDENT VARIABLE
2	S&P CNX Nifty Index 1994-95 To 2005-06	DEPENDENT VARIABLE
3	BSE Sensex Index 1994-95 To 2005-06	”
4	S &P CNX Nifty Index Volatility 1994-95 To 2005-06	”
5	S &P CNX Nifty Index Total Returns 1994-95 To 2005-06	”
6	NSE Total Number Of Scrips Traded 1994-95 To 2005-06	”
7	BSE Total Number Of Scrips Traded 1994-95 To 2005-06	”
8	BSE Sensex Total Returns 1994-95 To 2005-06	”
9	BSE Sensex Volatility 1994-95 To 2005-06	”
10	BSE Sensex Market Capitalization 1994-95 To 2005-06	”
11	NSE Market Capitalization 1994-95 To 2005-06	”
12	NSE Listed Companies 1994-95 To 2005-06	”
13	BSE No: Of Companies Listed 1994-95 To 2005-06	”
14	BSE Total Turnover 1994-95 To 2005-06	”
15	NSE Total Turnover 1994-95 To 2005-06	”

The monthly data from 1994-2006 of these variables were obtained from SEBI Handbook of Statistics 2000, 2004 & 2006.

Methodology

We know that in a random walk model

$$Y_t = \rho Y_{t-1} + U_t \qquad -1 \leq \rho \geq 1 \qquad (6.3)$$

Where Y_t= selected capital market indicators

If ρ=1 we face the unit root problem i.e. there exists a situation of non stationarity. The terms random walk unit root and non stationarity can be treated as synonymous.

Subtracting Y_{t-1} from both sides of equation (6.3) we get

$$Y_t - Y_{t-1} = \rho Y_{t-1} - Y_{t-1} + U_t$$

$$= (\rho - 1) Y_{t-1} + U_t \qquad (6.4)$$

Eq. (6.4) can be written as

$$\Delta Y_t = \delta \; Y_{t-1} + U_t \qquad (6.5)$$

Where $\delta = \rho - 1$

Δ = First difference operator.

For estimating Eq. (6.5) we take the first difference of Y_t and regress it on $Y_{t=1}$. If estimated δ = 0, Y_t is non stationary. If estimated δ = negative we conclude that Y_t is stationary. Since the estimated coefficient of Y_{t-1}does not follow the *t* distribution even in large samples under the null hypothesis that δ = 0, we go in for the Dickey Fuller (DF) Test. Dickey and Fuller have shown that under the null hypothesis δ = 0 estimated *t* value of the coefficient of Y_t in (6.5) follows the τ (tau) statistic.

Dickey fuller Test

While implementing the Dickey Fuller test one has to test for the three possibilities as listed below.

Y_t is a randomwalk $\Delta Y_t = \delta Y_{t-1} + U_t$ (6.6)

Y_t is a randomwalk with drift $\Delta Y_t = \beta_1 + \delta Y_{t-1} + U_t$ (6.7)

Y_t is a randomwalk with drift around a stochastic trend

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + U_t \quad (6.8)$$

Where t = time or trend variable

In each case, the null hypothesis is $\delta = 0$ which states that there exists a unit root i.e. the underlying time series is non stationary.

H_0: $\delta = 0$ – time series is non stationary

H_1 : $\delta < 0$ – time series is stationary.

If the null hypothesis is rejected in Eq. (6.6) Y_t is a stationary time series with zero mean. If H_0 rejected in Eq. (6.7) then Y_t is stationary with a non zero mean $[=\beta_1/ (1- \rho)]$. Y_t is stationary around a deterministic trend in case of rejection of null hypothesis of Eq. (6.8).

Estimation procedure

After estimating Eq. (6.6), (6.7) & (6.8) by Ordinary Least Squares (OLS) the estimated coefficient of Y_{t-1} is divided by its standard error to compute the 'τ' (tau) statistic. If the computed absolute value of τ statistic $|\tau|$ is greater than the DF critical τ values we reject the null hypothesis $\delta = 0$ (i.e. the time series is stationary) otherwise we accept the null hypothesis.

Results of unit root test

The Unit Root Model was applied to the selected fifteen variables in the study. The results are depicted in the table given below; each variable name corresponds to the variables given in Table 6.10.

Table 6.10 Results of unit root test

Variable Name	Predicted equation	τ-value	R^2	Durbin Watson Value
FPI Inflow	$\Delta Y_t = -0.372\ Y_{t-1}$	-5.473	0.174	2.231
	$\Delta Y_t = 910.110 - 0.549\ Y_{t-1}$	-7.105	0.264	2.072
	$\Delta Y_t = -173.217 + 17.558\ t - 0.676\ Y_{t-1}$	-8.325	0.332	2.001
Nifty Index	$\Delta Y_t = 0.014\ Y_{t-1}$	1.949	0.026	1.69
	$\Delta Y_t = -43.886 + 0.046\ Y_{t-1}$	1.815	0.023	1.765
	$\Delta Y_t = -34.996 + 0.429\ t + 0.0138\ Y_{t-1}$	0.420	0.038	1.739
Sensex Index	$\Delta Y_t = 0.0157\ Y_{t-1}$	2.881	0.055	1.789
	$\Delta Y_t = -169.998 + 0.05154\ Y_{t-1}$	3.053	0.062	1.919
	$\Delta Y_t = -169.79 + 1.089\ t + 0.0328\ Y_{t-1}$	1.570	0.077	1.914
Nifty volatility	$\Delta Y_t = -0.110\ Y_{t-1}$	-2.886	0.005	2.700
	$\Delta Y_t = 1.010 - 0.696\ Y_{t-1}$	-8.658	0.347	2.070
	$\Delta Y_t = 1.027 - 0.0002\ t - 0.696\ Y_{t-1}$	-8.626	0.347	2.071
Nifty Total return	$\Delta Y_t = -0.944\ Y_{t-1}$	-11.26	0.472	2.019
	$\Delta Y_t = 0.970 - 0.962\ Y_{t-1}$	-11.44	0.481	2.010
	$\Delta Y_t = -0.737 + 0.024\ t - 0.983\ Y_{t-1}$	-11.62	0.491	2.00
NSE Scrips Traded	$\Delta Y_t = 0.00199\ Y_{t-1}$	0.625	0.003	1.314
	$\Delta Y_t = 54.071 - 0.0487\ Y_{t-1}$	-3.602	0.089	1.380
	$\Delta Y_t = 165.039 - 0.639\ t - 0.110\ Y_{t-1}$	-8.046	0.379	1.895
BSE Scrips	$\Delta Y_t = -0.000733\ Y_{t-1}$	-0.198	0.0001	1.790

Variable Name	Predicted equation	τ-value	R^2	Durbin Watson Value
Traded	$\Delta Y_t = 53.011 – 0.0177\ Y_{t-1}$	-1.148	0.009	1.776
	$\Delta Y_t = 209.146 - 0.848\ t – 0.0498\ Y_{t-1}$	-2.45	0.048	1.776
Sensex total return	$\Delta Y_t = -0.951\ Y_{t-1}$	-11.34	0.475	2.016
	$\Delta Y_t = 1.249 – 0.980\ Y_{t-1}$	-11.64	0.490	2.004
	$\Delta Y_t = -0.945 - 0.0306\ t – 1.011\ Y_{t-1}$	-11.94	0.505	1.992
Sensex volatility	$\Delta Y_t = -0.0958\ Y_{t-1}$	-2.664	0.048	2.595
	$\Delta Y_t = 0.870 – 0.599\ Y_{t-1}$	-7.786	0.301	2.073
	$\Delta Y_t = 0.964 - 0.00115\ t – 0.606\ Y_{t-1}$	-7.840	0.305	2.072
BSE Mkt Capitalisation	$\Delta Y_t = 0.03295\ Y_{t-1}$	5.072	0.153	2.093
	$\Delta Y_t = -24799.2 + 0.05545\ Y_{t-1}$	4.664	0.143	2.214
	$\Delta Y_t = -26323.8 + 61.532\ t +0.05166\ Y_{t-1}$	2.879	0.134	2.207
NSE Mkt Capitalisation	$\Delta Y_t = 0.03251\ Y_{t-1}$	5.017	0.157	1.830
	$\Delta Y_t = -22115.9 + 0.05347\ Y_{t-1}$	4.414	0.127	1.924
	$\Delta Y_t = -22493.3 + 13.789\ t + 0.0526\ Y_{t-1}$	2.708	0.127	1.923
NSE Listed co’s	$\Delta Y_t = 0.006791\ Y_{t-1}$	7.366	0.310	1.976
	$\Delta Y_t = 8.191 – 0.00369\ Y_{t-1}$	-0.859	0.006	2.057
	$\Delta Y_t = 36.391 +0.358\ t – 0.0814\ Y_{t-1}$	-2.678	0.059	2.012
BSE Listed co’s	$\Delta Y_t = 0.000924\ Y_{t-1}$	0.689	0.003	1.866
	$\Delta Y_t = 239.765 – 0.0424\ Y_{t-1}$	-3.320	0.072	1.934
	$\Delta Y_t = 290.384 - 0.724\ t – 0.0420\ Y_{t-1}$	-3.502	0.188	2.211
BSE Turnover	$\Delta Y_t = -0.00914\ Y_{t-1}$	-0.404	0.001	1.982
	$\Delta Y_t = 2926.33 – 0.0634\ Y_{t-1}$	-1.741	0.021	1.932
	$\Delta Y_t = 344.625 +62.207\ t – 0.122\ Y_{t-1}$	-2.723	0.053	1.891
NSE Turnover	$\Delta Y_t = -0.101\ Y_{t-1}$	-2.392	0.041	2.805
	$\Delta Y_t = 18853.04 – 0.282\ Y_{t-1}$	-4.466	0.130	2.56

Variable Name	Predicted equation	τ-value	R^2	Durbin Watson Value
	$\Delta Y_t = -1529.568 + 435.011\ t - 0.492\ Y_{t-1}$	-6.426	0.237	2.315

Table values at 1% and 5 % significant levels

For model with no constant $t_{nc} = -2.59$ and -1.95

For model with constant $t_c = -3.50$ and -2.89

For model with constant and having trend term in the regression $t_{ct} = -4.03$ and -3.44

If estimated τ-value is smaller than the table value in absolute term then that time series is not stationary and it has unit root. If estimated τ-value is greater than the table value in absolute term then that time series is stationary.

In the case of FPI inflow, estimated τ-value is greater than the table value in absolute term so the FPI inflow time series is stationary. Similarly for S &P CNX Nifty Index Volatility, S &P CNX Nifty Index Total Returns ,NSE Total Number of Scrips Traded, BSE Total Number Of Scrips Traded, BSE Sensex Total Returns, BSE Sensex Volatility, BSE Sensex Market Capitalization, NSE Market Capitalization, NSE Listed Companies, BSE No: Of Companies Listed, BSE Total Turnover, NSE Total Turnover the estimated τ-value is greater than the table vale in absolute terms. Hence the underlying time series data is stationary. All the variables in the analysis were identified to be stationary. Hence we proceed to the analysis of their relationship with FPI inflows; the co integration model applied in the study is analyzed in the next section 6.3.2

6.3.2Co-integration Model

Two variables are said to be co-integrated if they have a long term, or equilibrium relationship between them. Granger says that "A test for co integration can be thought of as a pre test to avoid spurious regression situations."

Let $Y_{it}^{n} = \beta 1 + \beta_2 FPI_t + U_t$ (6.9)

Where i = 1… n Where Y = selected capital market variables.

Eq. (6.9) can be written as

$U_t = Y_t - \beta_1 + \beta_2 FPI_t$ (6.10)

Eq. (6.9) is called as a co-integrating regression as β_2 (slope parameter) is called as co-integrating parameter.

Testing for co-integration

To analyze whether FPI influence the capital market variables or so to speak before we analyze the impact of FPI on Indian capital market we have to make sure that there exists no spurious regression between them. Hence it becomes imperative to test for co-integration. There are two methods for testing co-integration (i) the DF or ADF unit root test and (ii) the CRDW test (Co-integrating Durbin Watson test). The DF and ADF tests in the context of co-integration testing are known as Engle-Granger (EG) or Augmented Engle Granger (AEG) Test.

DF or ADF Test

After estimating Eq. (6.9), obtain the residuals and use the DF or ADF tests. However, since the estimated U_t is based on the estimated co-integrating parameter β_2, DF and ADF critical significance values are not quite appropriate. Engle and Granger have calculated these values hence DF and ADF tests in the context of co-integration testing are known as Engle-Granger (EG) or Augmented Engle Granger (AEG) Test.

CRDW Test

Here we use the Durbin Watson'd' obtained from the co-integrating regression. Instead of the standard DW hypothesis d = 2, we use the null hypothesis d = 0 in this case; because we know that $d \approx 2(1-\rho)$, so if there is to be a unit root then the estimated ρ should be equal to 1 which implies that d will be about zero. The 1%, 5% and 10% critical values to test d = 0 are 0.511, 0.386 and 0.322 respectively. If the computed d value is smaller than the table value, we reject the null hypothesis d=0 i.e. there is no co-integration. If computed d value is greater than table value we accept the null hypothesis d = 0 i.e. the two variables have a stable long run relationship between them (they are co-integrated).

Results of Co-integration

Co integration model was applied to the selected variables shown in table 6.9 whose results are given below.

Table 6.11 Result of co-integrating regression of S&P CNX Nifty Index on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of S&P CNX Nifty Index on FPI inflow	Y = 1102.725 +0.106 X	10.390**	0.432	0.670
Unit root test on residual	$\Delta e_t = -0.314\ e_{t-1}$	-4.608	0.130	2.269

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. S&P CNX NIFTY and FPI inflows are co integrated

Table 6.12 Result of co-integrating regression of BSE Sensex Index on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of BSE Sensex Index on FPI inflow	Y = 3717.287 + 0.367 X	8.475**	0.336	0.506
Unit root test on residual	$\Delta e_t = -0.231\ e_{t-1}$	-3.894	0.096	2.395

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. Sensex and FPI inflow are co integrated.

Table 6.13 Result of co-integrating regression of S &P CNX Nifty Index Volatility on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of S &P CNX Nifty Index Volatility on FPI inflow	Y = 1.532 – 0.0000519 X	-2.422*	0.040	1.412
Unit root test on residual	$\Delta e_t = – 0.709\ e_{t-1}$	-8.850	0.355	2.096

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. NIFTY Volatility and FPI Inflows are Co integrated

Table 6.14 Result of co-integrating regression of S &P CNX Nifty Index Total Returns on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of Table 5 on FPI inflow	Y = -0.197 – 0.0007328 X	3.056**	0.062	2.009
Unit root test on residual	$\Delta e_t = – 1.009\ e_{t-1}$	-11.982	0.503	1.987

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. NIFTY Total Return and FPI inflows are co integrated

Table 6.15 Result of co-integrating regression of NSE Total Number of Scrips Traded on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of NSE Total Number Of Scrips Traded on FPI inflow	Y = 1053.765 – 0.0253 X	3.247**	0.073	0.115
Unit root test on residual	$\Delta e_t = – 0.0956\ e_{t-1}$	3.395	0.079	2.361

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. NSE total number of scrips traded and FPI inflows are co integrated.

Table 6.16 Result of co-integrating regression of BSE Total Number of Scrips Traded on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of BSE Total Number Of Scrips Traded on FPI inflow	Y = 3000.863 – 0.0395 X	1.583^{ns}	0.017	0.058
Unit root test on residual	$\Delta e_t = – 0.311\ e_{t-1}$	-1.545	0.017	2.035

Since the computed τ-value is not much more negative than the table value; the residuals from the regression are non stationary. Therefore regression is a non co-integrating regression i.e. BSE Total Number of Scrips traded and FPI inflows are not co integrated

Table 6.17 Result of co-integrating regression of BSE Sensex Total Returns on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of BSE Sensex Total Returns on FPI inflow	Y = 0.0617 + 0.0007432 X	3.024**	0.061	2.016
Unit root test on residual	$\Delta e_t = -1.012\ e_{t-1}$	-12.02**	0.504	1.988

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. BSE Sensex total return and FPI inflows are co integrated

Table 6.18 Result of co-integrating regression of BSE Sensex Volatility on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of BSE Sensex Volatility on FPI inflow	Y = 1.554 – 0.0000671 X	3.146**	0.065	1.243
Unit root test on residual	$\Delta e_t = -0.626\ e_{t-1}$	-8.084	0.315	2.093

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. BSE Sensex volatility and FPI inflows are co integrated.

Table 6.19 Result of co-integrating regression of BSE Sensex Market Capitalization on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of BSE Sensex Market Capitalization on FPI inflow	Y = 594695.4 + 126.052 X	8.306**	0.327	0.498
Unit root test on residual	$\Delta e_t = -0.230\ e_{t-1}$	-3.930	0.098	2.453

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. BSE Sensex Market Capitalization and FPI Inflows are co integrated.

Table 6.20 Result of co-integrating regression of NSE Market Capitalization on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of NSE Market Capitalization on FPI inflow	Y = 585031.6 + 116.216 X	8.078**	0.326	0.499
Unit root test on residual	$\Delta e_t = -0.232\ e_{t-1}$	-3.876	0.100	2.470

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. NSE Market Capitalization and FPI inflows are co integrated

Table 6.21 Result of co-integrating regression of NSE Listed Companies on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of NSE Listed Companies on FPI inflow	Y = 700.817 + 0.02766 X	5.363**	0.192	0.268
Unit root test on residual	$\Delta e_t = -0.151\ e_{t-1}$	-3.334	0.084	2.530

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. NSE Number of companies listed and FPI inflows are co integrated.

Table 6.22 Result of co-integrating regression of BSE No: Of Companies Listed on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of BSE No: Of Companies Listed on FPI inflow	Y = 5566.931 – 0.0567 X	3.008**	0.060	0.098
Unit root test on residual	$\Delta e_t = -0.0867\ e_{t-1}$	-3.434	0.077	2.535

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. FPI inflows and BSE number of companies listed are co integrated

Table 6.23 Result of co-integrating regression of BSE Total Turnover on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of BSE Total Turnover on FPI inflow	Y = 27366.655 + 4.143 X	4.745**	0.137	0.299
Unit root test on residual	$\Delta e_t = - -0.140\ e_{t-1}$	-3.079	0.063	2.226

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. BSE Total Turnover and FPI inflows are co integrated.

Table 6.24 Result of co-integrating regression of NSE Total Turnover on FPI inflow

Variable	Predicted equation	t-value	R^2	Durbin Watson Test
Regression of NSE Total Turnover on FPI inflow	Y = 48225.472 – 8.718 X	5.198**	0.167	0.806
Unit root test on residual	$\Delta e_t = - 0.405\ e_{t-1}$	-5.778	0.198	2.354

Since the computed τ-value is much more negative than the table value; the residuals from the regression are stationary. Therefore regression is a co-integrating regression i.e. FPI inflows and NSE Total Turnover are co integrated.

The co integration analysis reveals that except the total number of scrips traded at BSE all other variables and FPI are co integrated. Once the Stationarity and co integration is proved the next step is to identify the impact of FPI on these variables. For identifying the impact variables Granger causality was analyzed which is discussed in detail in section 6.3.3

6.3.3 Granger Causality

Regression analysis shows whether there exists any dependence or relationship between two variables. However it does not prove causality or the direction of the influence. In time series econometrics, we see that events in the past cause events in the present and future. This is the basic idea behind the Granger causality test. In the context of the study causality test assumes a greater significance because there exists a research gap in analyzing the causation between FPI and selected capital market variables. Regression analysis shows that the selected Capital Market Variables significantly influence the FPI inflows. Hence it becomes imperative to analyze whether FPI causes these variables. Also the Granger causality helps us to identify the impact variables.

The model used for studying the influence of FPI inflows on different market variable is of the form

$$Y_t = \sum_{i=1}^{n} \alpha_t \, FPI_{t-i} + \sum_{i=1}^{n} \beta_i Y_{t-i} + U_t \qquad (6.11)$$

Where Y_t = selected capital market variables

After regressing the current capital market variables on all lagged capital market variable the unrestricted regressions including the lagged FPI

terms is obtained. From these unrestricted regressions the RSS_{UR} (unrestricted residual sum of squares) is obtained. The null hypothesis is $H_0 : \Sigma\alpha_I = 0$ i.e. the lagged FPI terms do not belong to the regressions. To test the null hypothesis we use the F test i.e.

$$F = \frac{(RSS_R - RSS_{UR})\, fpi}{RSS_{UR}/(n - k)} \qquad (6.12)$$

Where fpi = Number of lagged FPI terms

k = No. of parameters estimated in the unrestricted regression

If the computed F value exceeds the critical F value at the chosen level of significance, we reject the null hypothesis in which case the lagged FPI terms belong to the regression. i.e. FPI causes Y.

Assumptions of the model

i) FPI and all Y are stationary

ii) Akaike or Schwarz information criterion is used to determine the number of lagged terms in the test. However the direction of causality may depend critically on the number of lagged terms included.

iii) Error terms are uncorrelated.

Table 6.25 GRANGER CAUSALITY RESULT

	DEPENDENT VARIABLE Y	LAG 1	LAG 2	LAG 3	LAG 4
TABLE 2	S & P CNX NIFTY INDEX	0.231	1.285	1.739	1.225
TABLE 3	BSE SENSEX – INDEX	-0.955	-0.869	-0.007	-0.259
TABLE 4	***S & P CNX NIFTY INDEX (Volatility)***	5.016**	4.76**	2.519**	1.485
TABLE 5	S & P CNX NIFTY INDEX (Total Returns)	1.212	-0.561	-0.618	-0.63
TABLE 6	NSE TOTAL NO. OF SCRIPS TRADED	-0.95	-0.685	-0.788	-0.75
TABLE 7	BSE TOTAL NO: OF SCRIPS TRADED	-0.001	-0.532	-0.568	-0.561
TABLE 8	BSE SENSEX – (Total Returns)	2.241	0.149	0.023	0.057
TABLE 9	***BSE SENSEX – (Volatility)***	4.073**	5.144**	3.277**	2.188
TABLE 10	***BSE SENSEX – (market cap)***	1.128	0.746	2.552**	3.705**
TABLE 11	***NSE-MARET CAPITALIZATION***	-0.105	1.051	2.212	2.352**
TABLE 12	NSE LISTED COMPANIES	-0.059	-0.155	-0.794	-1.186
TABLE 13	BSE NO OF COMPANIES LISTED	-0.834	-0.663	-0.181	1.945
TABLE 14	BSE TOTAL TURN OVER	-0.976	-0.645	1.891	1.111
TABLE 15	NSE TOTAL TURN OVER	2.144	0.031	0.454	0.326

From the Results of the Granger causality test it becomes evident that only in the case of NSE Nifty market capitalization, BSE Sensex market capitalization, and Nifty and Sensex volatility the null hypothesis is rejected (computed F greater than Critical F value) indicating that FPI causes these variables . As stated in research problem, the unidirectional causality between the selected capital market variables and FPI has already been proved by other authors and here the reverse causality was analyzed. The reverse causality i.e. FPI causing the selected capital market variables revealed the impact variables as mentioned above. So during policy formulation and manipulation of FPI the volatility and market capitalization of BSE and NSE should be given prime thrust.

CHAPTER 7

FINDINGS SUMMARY AND CONCLUSIONS

A large volume of the economic literature today focuses on the flow of capital from the capital rich to the capital poor countries. The crisis of 1991 and the New Economic Policy had metamorphosised the Indian economy. With the globalization and opening up policy the ripples of international events could be felt in our economy too. The capital inflows and outflows emerged as a strong factor determining the growth of the economy. Capital flows may be classified into Foreign Direct investment and Foreign Portfolio investment India allowed FPI in its domestic capital markets since 1993 and soon it emerged as a major source of private capital inflow in the country.

STATEMENT OF THE PROBLEM

During the late 80's and early 90's Foreign Portfolio Investment emerged as an important form of capital inflow into developing countries. After the East Asian crises of 1997 FPI's importance declined in many developing economies. However this did not hold true in the case of India for the period 1993-2006 more than 50 percent of the foreign investment in India came in the form of FPI .This high dependence necessitates to assess whether and how FPI has contributed to the development of the capital market and the economy. These speculative capital flows can seriously disrupt the economic prospects of a developing country by imposing huge fiscal costs and by reducing the policy options available to the policy makers in managing these

flows. . It needs to be investigated whether the benefits of FPI has trickled down to the real economy. It is also important to examine whether the supposedly beneficial aspects of a stock market based financial systems are actually being realized in India.

OBJECTIVES:

The objectives of the study which were framed to facilitate answers to the problem under study are

1) To analyze the trend and pattern of Foreign Investment from (a) 1984-85 to 1993-94 and (b)1994-95 to 2005-06.
2) To examine the trend and pattern of FPI from 1994-95 to 2005-06.
3) To analyze the impact of FPI on Primary and Secondary capital markets as well as on selected Macroeconomic indicators of India from 1994-95 to 2005-06.

HYPOTHESIS

Pertaining to the statement of the problem and theoretical and methodological frameworks discussed in the review the main hypothesis and sub hypothesis of the study are as follows.

Main Hypothesis

H_0: FPI has no impact on the Indian capital market.

H_1: FPI has an impact on Indian capital market.

Sub Hypothesis

H_0: FPI has no impact on the volatility and market capitalization of BSE and NSE.

H_1: FPI has an impact on the volatility and market capitalization of BSE and NSE.

IMPORTANCE OF THE STUDY

An economy's degree of financial integration with the rest of the world is a key determinant of many of its most important macroeconomic properties. The phenomenon of globalization thus attracted much attention to the capital flows across nations because of the following reasons. First during the past three decades private capital inflows to developing economies have led to an almost equal increase in domestic investment. Second the private capital flows have strengthened productivity growth over time. Third and the most important concern for policy makers is that capital flow volatility significantly dampens economic growth and it contributes to widening of income differentials between developing countries.

The inflow of capital in the Indian economy is interesting when analyzed in two phases, the *pre* and *post* globalization periods. The inflow of capital comprises mainly of FDI, Aids and loans till FPI was allowed in 1993. In an economy like India which has huge potential for development but remains non- tackled due to the financial constraints the inflow of FPI has serious implications .FPI affects the economy through its many linkage effects Via the domestic capital markets. It gives an upward thrust to the domestic stock market prices .This leads to higher P/E ratio of firms which in

turn leads to a lower cost of finance and higher amount of investment. The competition from foreign financial institutions stimulates the domestic stock market and leads to import of new financial technology which requires greater investment in information processing and financial services. This result in overall enhancement of efficiency of the capital market, leads to derivatives trading, encourages more savings in equity related instruments and thus raises the domestic savings rate as well as capital formation. It thus provides a non debt creating source of capital to the developing economies.

However despite all these celebrated virtues of FPI in 1997 the Southeast Asian crisis led to a rethinking on the major policy proposals with respect to FPI. The hero and villain of this Asian Drama were the huge capital inflows and quick outflows. Though the crisis weakened the inflow of capital to India it couldn't seriously affect the Indian economy as a whole. Now the question arises is India vulnerable to such a crisis? Though the Indian economy moves congruent with the rest of the world it exhibits certain trends and patterns of its own. Hence it is important to understand the nature of the volatile FPI flows to India. The review of the existing literature shows that there exists research gap in analyzing the FPI inflows and their economic impact on the capital markets as well as on the real economy as most studies concentrate on the determinants of capital flows. As the policy makers challenge would be to prepare their economies to best absorb the potential benefits of capital flows the while reducing the risks of sudden capital outflows it becomes essential to analyze the impact of these flows on the domestic capital markets and the real economic variables.

METHODOLOGY AND DATA

The study relies on secondary data (Time series) collected from various sources like RBI publications, SEBI publications, CMIE publications, as well as the data collected from the research and analysis wing of BSE. The period of analysis was taken as 1984-85 to 2005-06 with special thrust from 1994-95 to 2005-06

For analyzing the first objective linear trend, graphs, pie charts averages, compound Growth rate and percentage analysis was used. This helped to reveal the trend and pattern of Total foreign investment, FPI and FDI during the pre and post liberalization period.

The second objective was investigated with the help of capital market ratios, simple linear regressions on FPI and selected Macroeconomic indicators, correlation matrix between FPI and selected macroeconomic indicators and Granger causality analysis of FPI and selected capital market indicators. As a precondition for testing the causality the tests for stationarity (unit root test) and tests for co integration was applied to the selected capital market variables and FPI.

SUMMARY OF CHAPTERS

Various theories discussed in the 2nd chapter reveal that saving, investment and capital accumulation triggers off growth and development and capital markets act as channels for mobilizing the savings. The integration of spot and forward markets act as a key to explanation of international short term capital movement while the effect of capital movements on domestic money supply lacks a clear theoretical explanation .Solow model, augmented

neoclassical model and modified Lucas model believes that capital movements will benefit the developing economies while Romer believes that it will benefit the larger and developed economies. Rebelo links tax rate with the capital flows and say that if the tax rate is high in developing countries than the developed ones then capital outflow takes place. OLG model traces out negative links between population growth and MPK. Manzocchi and Martin believe in conditional convergence while Obtfeld says that unlimited capital mobility can be consistent with absolute convergence even if preferences differ among countries. However gross country studies say that absolute convergence takes place only in the case of developed economies while poor countries lag behind. Existence of co-ordination failure and lack of productive specialization negatively affects capital inflows. The theories on capital market stresses various aspects of capital market efficiency, risk return relationship, stock prices and rates of return. Thus from the theoretical discussion it is clear that the phenomenon of capital flows is complex and affects numerous economic variables. These variables differ from country to country. Also 90 percent of the existing theories concentrate on what attracts capital flow rather than how these flows affect the capital market and the economy.

Chapter three examines the capital flows to developing countries. Historical patterns of capital movements to developing countries have been a part of international lending and borrowing. While external factors are regarded as the major determinants of capital flows to developing countries, it is also important to note that debt crisis in DC's leads to financial market distortions in the west. Also different countries or regions do not receive the same amount of resources; it varies from time to time. After the

Latin American domination during early 19th century, African and Asian countries became important destinations of foreign capital after 1890 especially due to debt crisis in Argentina. The defaults of 1930's , the protracted negotiations (some lingering into the 1950's) and above all the collapse of the world trade financial system prevented substantial capital inflows into the DC's for almost three decades. Capital transfers to the DC's were slowly revived in the 60's, reached the zenith in 1970's and crashed with the 1982 debt crisis. The next lending cycles began in 1990's and the new generation portfolio flows culminated in the South East Asian Crisis. So an enquiry into the nature and causes of these flows revealed that the push (external) and pull (internal) factors were the major determinants of these flows .When push factors predominate national policy will be constrained only when rates of return on substitute investments are relatively high and host country policies are ineffective in controlling these flows. National policy will be more under pressure when capital inflows are pulled rather than pushed. Patient investors pulled by the emerging markets when compared to the other categories of investors provide better conditions for development and growth. Thus for the capital flows to achieve the much coveted growth and development every developing country should satisfy certain basic requirements like favorable investment environment. More over sound and credible policies are required to assure that the impact of foreign finance on long term growth in DC's is positive. This together with liberalization policies effectively promoting and supporting the accumulation of infrastructures and human capital (education, healthcare, on-the-job training, and so on) will bring in the much desired growth and development.

Chapter four provides a review of the reforms in the Indian capital market. An overview of the four major phases of India's policies on foreign investment revealed that the gradual liberalization phase of 1948-67 welcomed foreign capital on mutually advantageous terms while the restrictive phase of 1968-79 witnessed a reversal in government policy capped by tightening of foreign exchange restrictions through FERA and MRTP act. This led to decline in exports and many other constraints ultimately leading to the opening up phase of 1990's with special features like liberalized import of capital goods, dismantling of the licensing system and dilution of FERA and MRTP. However it was the BOP crisis of 1990-91 which precipitated the Structural Adjustment Programme with emphasis on globalization and liberalization. With the removal of the administrative controls on bank credit and the primary market for securities, the capital markets came to occupy a larger role in shaping the resource allocation in the country. The capital market now became an active source for corporate capital mobilization. The liberalization policies of the government led to the simplification of the public issues, setting up of SEBI and NSE, permission to issue ADR's and GDR's establishment of ELOB etc. These measures enhanced the global integration of the markets, reduction in transaction costs, better risk management, market determined pricing and greater liquidity. The examination of the institutional reforms and policy issues revealed that the political pressures played a crucial role in determining the policies (e.g. Badla reforms of 1995 and weakening of prudential regulations in 1997). The investigations of the crises of 1995, 1997, 1998 and 2001 revealed that prior to each crisis there emerged manipulative cartels which built up large leveraged positions in the secondary market .Thus

the limited institutional capacity of the stock markets often led to its own collapse under highly leveraged spot market conditions. Hence the future policy formulation should emphasize on enforcement, incentive compatible institutional mechanisms and policy reforms. Also SEBI should try to incorporate into its decision making the interest of those economic agents and market intermediaries who are stakeholders with good technical knowledge of the market.

The summary of 5th and 6th chapters is provided below as findings as these chapters present the graphical, statistical and econometric analysis conducted as part of the study.

FINDINGS

1) Net capital flows to developing countries increased from $ 123 billion in 1991 to $ 295 billion in 2000.From 2000 to 2005 a fluctuating but positive trend was observed.

2) Net portfolio equity flows to developing countries showed a highly fluctuating trend. Gross market based flows surged and was more than three times higher when compared to gross bank lending to developing countries

3) The compound growth rate of FPI in India from 1990-91 to 2005-06 was 41.04 percent, for FDI the compound growth rate was 29.66 percent.

4) The pattern of FPI inflows showed that FII had the highest CGR (64.36 percent) followed by ADR/GDR (31.84 percent) and offshore funds (–5.04 percent)

5) For the period 1985-06 BSE Sensex had a CGR of 13.77 percent. BSE market capitalization for the same period was 25.40 percent while all India market capitalization was only 13.22 percent.

6) The compound growth rate of absorption of private capital issues for 1985-06 was 1.46 percent.

7) All the components of FII have a positive growth rate except offshore funds.

8) Total Foreign investment showed a positive trend. TFI's CGR for 1984-85 to 1993-94 was 7.65 percent while from 1994-95to 2005-2006 it was 23.2 percent.

9) Market Capitalization to GDP ratio increased from 8.67 percent in 1985-86 to 116.4 percent in 2005-06.Average Market Capitalization to GDP ratio was 25.69 percent from 1985-86 to 1994-05 while it was 48.4 percent for 1995-96 – 2005-06.

10) The mean value of the structure size ratio from 1982-83 to 1993-94 was 170.28 while from 1993-94 to 2005-06 it was 614.19.

11) A comparison of resources raised by corporate sector showed that the corporate sector faired much better than the bonds issued by the public sector companies. The average amount raised by corporate sector was Rs.56180.75crore while that of public sector bonds was only Rs.9989.08cror. A difference of Rs.46191.67crore.

12) 74 percent of the new capital issues by non-government public limited companies were prospectus issues with right issues only 26 percent

during 1994-2006. Among new issues and existing issues new issues comprised of 27 percent while existing issues came to around 73 percent.

13) From 1984-85 to 1993-94 external funds were used much higher than the internal sources of funds for non government non financial public limited companies. From 1994-95 to 1998-99 the share of external funds started declining and from 1999-2000 to 2005-06 share of internal funds increased much higher than external sources of funds.

14) New capital issues as percentage of GDCF of private sector, as percentage of GDCF and as percentage of market capitalization of NSE all showed a declining trend.

15) Ratio of new capital issues by non-government public limited companies and amount raised by private placements showed a declining trend from 1995-96 to 2002-03. However it has improved during 2004-06.

16) Among the industry-wise capital raised from the primary market services registered the highest with 46%.Among the institutions banks and FI's accounted to 60 percent of the funds raised from the primary market.

17) A comparison of the new capital issues by non-government public limited companies and bank lending to small, medium and large industries showed that new capital issues showed a declining trend. For bank lending from 1989-2006 average value was 185534.5 rupees crore and average was10212.94 crore for new capital issues.

18) In the household sector financial assets bank deposits registered the highest (39 percent) while shares and debentures accounted for only 4 percent.

19) FPI could explain 75 percent of variation in NSE index annual average, 67 percent of BSE Sensex annual average and 89 percent of total foreign investment

20) FPI has a positive but insignificant impact on , GFCF, export based REER &NEER, GDP, FOREX reserves

21) FPI has a negative but insignificant impact on employment

22) FPI thus does not have much impact on the real economic variables

23) All the selected capital market variables were found to be stationary time series. Except in the case of BSE total number of scrips traded all other variables were found to be co-integrated with FPI.

24) Granger causality identifies the impact variables as the volatility and market capitalization of BSE and NSE.

25) The null hypothesis in both main and sub hypothesis in the study are rejected and we accept the alternate hypothesis. i.e.

Main H_1: FPI has an impact on Indian capital market.

Sub H_1: FPI has an impact on the volatility and market capitalization of BSE and NSE.

The findings listed above are eye-openers to many facts. They suggest that the FPI inflow has not benefited the Indian economy the way the mainstream model predicted. The impact of these flows- both positive as well

as negative can be described as having a secluded effect within the secondary segment of the capital market. The trickling down effect or to be more precise the transmission of these impacts to the real economy is sponged up by certain elements in the Indian economy. However one thing to be remembered is that unlike FDI, FPI lacks a direct relationship with investment. Still it is imperative to enquire into the causes of these findings.

Portfolio investment is basically confined to the secondary market. The benefit from these flows has to penetrate to the real economy via the stock market activity. The theoretical concept of stock market boom leading to development of the real sectors of the economy becomes illusionary in the Indian context because of the following reasons. The first is the dilemma created by the over enthusiastic modern stock markets. These modern investment avenues try to meet the social need for investment through the preference of individual investors risk, return and liquidity i.e. their preference mechanism is believed to play the role of the '*invisible hand'* in equating the demand for and supply of social investment function .This opens up new vistas for speculation, where the players are bent on predicting the changes in the short term financial ratios even before the entire market dreams about it. The resultant speculative edge over others is believed to help in reaping the best profit available in the bunch. Keynes compared this situation to a casino where people speculate over other people speculation.

Secondly securities market looses their immunity to crises due to the prevalence of the problem of adverse selection. The asymmetries of information are acute in these markets which result in over issue of

securities by low quality firms. This accentuates the problem of adverse selection in these markets. As a result of these destabilizing speculative activities and the problem of adverse selection prevailing in the stock markets the supposed benefits of stock market booms fail to materialize in reality. A characteristic feature of the individual investors is that they neither have the means nor the incentives to control the corporate management. Corporate managements engage themselves in takeovers in a world of cut throat competitions. Take over threats hanging like Damocles sword above the corporate managements pressurizes them to adhere to short term gains. These myopic goals are crucial as far as the firms are concerned because markets evaluate them based on their short term performances. All these features prevents the trickling down of the beneficial effects though they catalyses the spread of negative effects.

Moreover efficiency gains from short term capital movements can be fully realized only in the absence of herd behavior and moral hazard. It also depends on the vigilant tracking of changes in economic fundamentals by the investors. The renaissance of the international financial markets began with the IT revolution which drastically eased the difficulties in fund transfer from one market to another. The double click fund transfer syndrome leads to serious moral hazard problem, despite its many virtues i.e. the investors refrain from examining the financial health of the firms. Another factor which accentuates the problem of moral hazard is the IMF bailout packages granted to the crises affected countries. Usually these packages compensate foreign investors by immunizing them against any harm of financial crises, thereby boosting their confidence in investing in risky ventures. So what are the

policy implications from the results of the study on impact of foreign portfolio investment on Indian capital markets? This question is answered in the next section.

POLICY IMPLICATIONS

Coming to the Indian economic scenario, it becomes evident that the influx of FPI has created a basket of problems for policymakers especially in crucial macroeconomic management issues. These problems further prevent the penetration of gains from FPI into the real sectors. The risk, uncertainty and volatility of the FPI have seriously decreased the malleability and ductility of policy instruments available to the framers of macroeconomic policy. In certain instances sometimes they are pressurized to adopt policies which result in huge fiscal cost for the economy. The policy implications of the results of the study can be traced with regard to the

(i) Capital account convertibility and the issue of full account convertibility of rupee.

(ii) Policies like abolishment of long term capital gains tax to ensure high returns from domestic stock market.

(iii) Policies to absorb the benefits of portfolio flows

From the light of the results of the study full account convertibility of rupee in the Indian context will definitely backfire as it increase chances for capital flight. Also one should note that the South East Asian economies had reverted to the full account convertibility of their respective currencies before their crises. As the impact of capital flows are felt in the volatility of the BSE

and NSE indices, full account convertibility once coupled with the volatile swings in the market exacerbates the chances of capital outflows in adverse times.

In order to enhance India's competitiveness in attracting FPI, authorities have to ensure that the returns from the domestic stock markets are high. The Indian policy makers too in tune with the above statement had to introduce measures like abolishing long term capital gains tax on equities. The signing of double taxation treaties resulting in provision of tax-free investment opportunities in India for the investors from these countries can be looked upon as another example. These measures have increased the burden of the government exchequer and reduced the policy options available to the government.

The problems of market imperfection and asymmetric information amplify the volatility inherent in the FPI flows. To add oil to the fire we have herd behavior and contagion experienced in high degree in markets where portfolio investment is allowed. All the above stated facts combined with the speculation mania somehow or other attracts the focus of the authorities on the methods to prevent capital flights rather than successfully absorbing these flows into the real sectors of the economy. It is here that we require innovative methods like long term investment portfolios, key sector portfolios with attractive risk spreads and creation of headroom for successfully reducing the high premiums of ADR's and GDR's .

CONTRIBUTION OF THE RESEARCHER

The contributions of the researcher on the impact of FPI flows are as follows.

(i) Identifying the research gap in the studies on foreign portfolio investment in India. Most of the studies tested for only the determinants of portfolio capital flows rather than the impact of these flows. In this study hence the focal theme itself as the title suggests has been the analysis on the impact of foreign portfolio investment on Indian capital markets.

(ii) The impact variables were identified to be (a)Volatility of BSE Sensex and NSE S&P CNX Nifty and (b) Market capitalization of BSE and NSE

(iii) It was very interesting to find that the FPI flows are not much active in the primary market. Also FPI inflows did not have much trickling down effect in the real sectors of the economy.

AREAS FOR FUTURE RESEARCH

At this juncture, when the analysis and interpretation of the problem under study is over one expects to get solutions, instead more issues and problems raise their heads. These can be referred and suggested as areas for future research. The areas for future research in this context can be pointed out as follows

(i) *Portfolio flows and exchange rate regime*. In the study REER and NEER was found to have only negligible impact on FPI inflows however the devaluation of rupee significantly reduces the portfolio

investor's earnings. This creates anti–devaluation sentiments among the investors, resulting in sudden capital outflows even at the onset of a currency devaluation rumor. Here RBI finds itself between the deep sea and the devil because any currency appreciation leads to decline in its exports. Hence RBI is forced to manipulate the foreign exchange market by maintaining the value of currency within a predetermined narrow band, though officially we claim our exchange rate to be market determined. An investigation into these aspects might trigger off quest for new tools which could capture the two way causality between FPI and exchange rates unlike the already existing ones.

(ii) *Portfolio flows and foreign exchange reserves*. The policy constraint on exchange rates compresses RBI's available policy choices for effective forex markets. RBI is forced to maintain very high foreign exchange reserves. Accumulation of these reserves is costly for the economy as these huge reserves means swapping of high yielding domestic assets with low yielding foreign assets. Analysis of this particular aspect is much needed in a globalized world.

(iii) *Portfolio flows and vulnerability to crises.* This is another area which needs much research but not in simply identifying the much researched causal factors instead in developing mechanisms which could predict the precipitation of crises.

(iv) *Policies for increasing the trickling down effect of FPI into real macroeconomic variables.* It is extremely important to develop policy frameworks which could absorb the benefits of portfolio flows into the

country. Framing policies without much planning and future orientation might lead to crises hence much research is needed in this respect.

With these future areas for research in mind, the next section finally winds up the study.

CONCLUSION

Mysteries are always a challenge and as such the movements of capital flows and their intangible impacts have been pursued enthusiastically in this research. The results brought to light many hidden facts and figures which have actually sparked off further quest in this area .Presenting the essence of this research one could say that the impact of Foreign Portfolio Investment pertains only to the secondary segment of the Indian capital market. Not much impact was found in the primary market. Among the capital market variables FPI's impact was mostly felt in the volatility and market capitalization of the two major stock exchanges in India – BSE and NSE. Also the benefit of FPI has not trickled down much into the real variables as the mainstream model predicts. Hence careful planning and policy formulation is needed to avoid sudden capital flight as well as for optimum utilization of this much debated "Hot Money".

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