Chapter- 2

REVIEW OF LITERATURE

2.0. Introduction

Review of literature surveys scholarly articles, books and other sources such as dissertations, conference proceedings relevant to a particular issue and area of present research. It is a body of text that aims to review the critical points of current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. Its ultimate goal is to bring the researcher up to date with current literature on a topic and forms the basis for future research that may be needed in the area.

Since our topic of study is “An Analysis of Capital inflows into India since 1991”, therefore, we would try to review the important works on this topic. For this, we reviewed theoretical literatures as well as empirical works which may be divided into topic wise for convenience. The reviews of literature on topic wise are as follow:

2.1. Capital Inflows and its Determinants

Lucas (1990) analyzed the issue by examining the question of why capital does not flow from rich to poor countries and critically explored some candid answers that are based on human capital and capital market imperfections. With regard to human capital, he showed that the rich country’s optimal policy is to retard capital flows so as to maintain real wages at artificially low levels in the poor country. As far as capital market imperfections are concerned, Lucas’s paper analyzes a borrowing contract between poor and rich countries. In his paper, the focus is on linkages and on the rational behaviour of different foreign investors in the face of reform uncertainty.

Findings of Chuhan, Claessens, and Mamingi (1993) were contradictory to Taylor and Sarno (1997). Their finding was that equity flows were more sensitive than bond flows to global factors, while bond flows were more sensitive to country-specific factors. However, the former was primarily interested in identifying the long-term determinants of the large capital flows to developing countries rather than in fully modeling the dynamics of capital flows. Hence, their conclusions were drawn
Taylor and Sarno (1997) analyzed the determinants of the large portfolio flows from the United States to Latin American and Asian countries during January 1988 - September 1992. As country specific factors, they took country credit rating and black market exchange rate premium. For global factors, they took long-term nominal interest rate - the Treasury bill rate and the government bond yield and the level of the real U.S. industrial production. They estimated a parsimonious error correction model in the panel data framework for the purpose. They found the bond flows to be relatively more strongly determined by global factors than by domestic factors, while equity flows to be relatively more responsive to changes in country specific factors. Change in the U.S interest rates explained the dynamics of bond flows better than the other global factor considered in their study, i.e., the growth of the U.S. industrial production. Moreover, interest rates were found to be a more important short-term determinant of portfolio flows in Latin American countries than in Asian countries.

Mohanty et al (2000) analyzed the behaviour of NRI deposits by separately studying the determinants of Rupee denominated non-resident deposits (NR (E) RA) and foreign currency denominated deposits (FCNR (B)) to bring out the differential behaviour of the two. For the OLS estimate of NR (E) RA deposits they took the period from January 1990 to June 2000. They found Cash Reserve Ratio (CRR) (which took the value of 1 when CRR was imposed and 0 otherwise) to be negatively significant. Nominal exchange rate depreciation turned out to be positive and significant. Interest rate turned out to be of wrong sign indicative of multi-co linearity problem. Accordingly, nominal exchange rate was replaced by the variable ‘NR (E) RA interest rates minus depreciation over the past 12 months.’ which turned out to be significant and with the expected positive sign. International crude oil prices were found to have a positive and significant impact though with 12 month lag. In case of FCNR (B) deposits OLS estimation was made for the period April 1994 to June 2000. In this case also they found CRR to be negative and significant. The coefficient of exchange rate expectation proxied by REER was found to be negative. The negative sign would indicate that as the Rupee gets overvalued, it signals a likely depreciation and balances flows out of FCNR (B) deposits. Interest rate variable was not found to
be significant due to policy of keeping FCNR (B) rates close to LIBOR making depositors neutral to interest rate movements. Impact of crude oil prices on FCNR(B) accretions turned out to be insignificant unlike the case of NR(E)RA deposits. The authors ascribe this to divergent source of FCNR (B) and NR (E)RA deposits: predominant part of NR(E)RA deposits coming from oil exporting countries while FCNR(B) deposits from non-oil exporting countries. Through VAR and error correction model, they found a long-run stable relationship between NR(E)RA deposits and forex reserves and found that changes in exchange rate, CRR and international crude oil prices variable were exogenous to the model. In case of FCNR (B) deposits, the authors found a long term stable relationship between FCNR (B) deposits and REER. CRR was found to be exogenous.

Taylor and Kim (2001) gave capital flow forecasts for 32 developing countries using a dynamic vector error correction framework (using partial derivative approach and integrated approach of low case scenario) based on underlying domestic (pull) fundamentals and international (push) factors. For country specific factors, they took consumer price index, level of domestic credit, short term debt to forex reserves ratio, level of industrial production, domestic short term interest rate, credit rating, reserves to import ratio and the level of domestic stock market index. In global or ‘push’ factors they included factors such as the strength of the US output growth, the US short-term and long-term interest rates, the Emerging Markets Bond Index (EMBI), the US swap rate and the US high-yield spread (as proxies for a measure of risk aversion). Variance decomposition analysis suggested that domestic, or ‘pull’ factors were relatively more dominant in the determination of capital flows for the countries examined. Under the partial derivative approach, shocks to global financial variables, including the US high-yield, swap rate and the US interest rates, caused an immediate drop in inflows, but flows began to recover after 6–8 months and resumed their original trend. Under the scenario of shock to global real factors, such as, zero growth in the US industrial production, the flows to emerging markets dropped substantially, and continued to decline without any signs of recovery. For the integrated low case scenario approach, changes in both the US interest rates and the US high yield spreads had significant effects on capital flows to most emerging markets. However, these were mediated through significant shifts in the US real activity.
Mody, A., Mark P. Taylor and Jung Yeon Kim (2001) provided capital flow forecasts to 32 developing countries using a vector error correction framework based on underlying domestic (pull) fundamentals and international (push) factors. In general, pull factors have a heavier weight in determining these capital flows. However, short-term dynamics of capital flows can be significantly influenced by external developments. Simulations under various economic scenarios show that while financial variables (such as the US interest rate and high-yield spread) are important, real US activity may be even more potent in influencing capital flow movements.

Ying and Kim (2001) applied structural VAR method to investigate the macroeconomic factors of capital flows and economic fluctuations in Korea and Mexico for the period 1960:1 to 1996:4. As push factors, they took foreign output and foreign interest rate and as pull factors, they took domestic productivity and domestic money supply as determinants of capital flows. Their empirical results revealed that foreign output shock accounted for more than 50 percent of the variation in capital flows for both countries. It suggested that capital flows in the two countries were very sensitive to business cycles in industrial countries. To the extent capital flows were "pushed" by external conditions, they were beyond the immediate control of domestic policy making and could reverse when foreign economic conditions change. They also found that foreign interest rate shock became more important towards the end period of their study. A foreign interest rate shock generated a moderately negative effect on domestic output in both countries.

Chakrabarti, R. (2001) did pair-wise Granger causality test between FII inflows (as a proportion of preceding months' BSE market capitalization) and return on BSE National Index using monthly data between 1993 and 1999 and found bi-directional causality between the two. During the pre-Asian Crisis period, however, there seems to be some support for the causality running from flows to returns, while with the onset of the Asian Crisis, there is mild evidence of a reversal of causality. On the whole then, the issue of which is the cause and which is the effect remains indeterminate with monthly data. However, using daily data at various lags for the period January 1, 1999 to December 31, 1999, he found that FII flows were more an effect than a cause of market returns in India. Regression of FII flows (as a proportion
of the previous month’s BSE capitalization) on monthly rupee returns on the BSE National Index over the period 1993:05-1999:12 indicated that returns on the BSE Index explained over three-tenths of the total variation in FII flows during the entire period. The explanatory power rose considerably with the onset of the Asian crisis when the regression accounted for over four-tenths of the variation. The results of a Chow breakpoint test showed that the onset of the Asian Crisis marked a structural break in the relationship implying a rise in the effect of market return in explaining FII flows. If in the regression framework some other variables were included, only exchange rate movement (in addition to stock return) turned out to be significant.

Fedderke, J.W. and W. Liu (2002) analyzed the determinants of capital flows and capital flight for South Africa for the period 1960 to 1995. They applied ARDL cointegration for the analysis. They found that aggregate growth measure contributed to the long-run determination of capital flows, implying that capital inflows followed the creation of favourable growth prospects. Further, they found that normal capital flows to be responsive to changes in interest differential (a rate of return proxy).

Gordon and Gupta (2003) analyzed factors affecting portfolio equity flows into India using multivariate regression on monthly data for the period 1993-2001. They found that portfolio flows were affected by both external and domestic factors, and quantitatively both were found to be equally important. Among external factors, an increase in external interest rate adversely affected FII flows into India; while the performance of emerging stocks positively influenced FII flows. Among domestic factors, lagged domestic stock market returns, credit rating downgrades and depreciation of the exchange rate were found to affect FII flows negatively. The existence of negative relationship between lagged domestic stock return and FII flows and positive relationship between portfolio flows and expected domestic returns has been explained by the authors in terms of FIIs being bargain hunters (i.e. “buying on the dips”). Alternatively, the authors have explained this in terms of global investors allocating a fixed share of their portfolio to India, which results in FIIs selling after the market rises and buying after the market falls. To test the robustness of this relation they estimated a VAR model using daily data of FII flows, BSE returns and forward exchange rate. They found the coefficient of the lagged stock market return with respect to the FII flows to be negative.
Gordon, J P and P Gupta (2004) analyzed the determinants of non-resident deposits in India for the period March, 1994-December, 2002 using multivariate regression on monthly data. For dependent variables, they took both foreign currency denominated deposits and rupee denominated deposits separately and also totals NRI deposits. In explanatory variables, they took broadly interest variables and non-interest variables. As part of interest rate variables, they took Cash Reserve Ratio (not-significant), change in interest rate differential on dollar deposits and LIBOR for dollar deposits (positive association), change in interest rate differential on rupee deposits and LIBOR for rupee deposits (positive association) and lagged month on month exchange rate change (negative, not-significant). In non-interest rate variables they took dummy variable for downgrade in India’s sovereign ratings (not significant) and political (insignificant) and geo-political events (negative, significant). In addition they also took monthly return on the Dow Jones Industrial Average (not significant), return on Bombay Stock Exchange (positively associated with foreign currency deposits) and to capture the wealth of NRIs oil price variable (positively significant for foreign currency deposits) was used.

Chakrabarty, I. (2006) tested for co-integration between net capital inflows, interest rate differential and the real exchange rate using quarterly data for the period 1993 to 2003. He found that variables were co-integrated. Dynamics of capital inflows to India in the post-liberalization period were such that an error-correcting mechanism was operating which related dynamic adjustment to capital inflows to the movements in the real exchange rate and the interest rate differential. Presence of the error-correction mechanism implied that the mechanism of short-run dynamic adjustment was operating from the real exchange rate to net capital inflows. Since 1993, the changes in the real exchange rate in India have mainly been due to the intervention by the Reserve Bank of India in the foreign exchange market. These changes in the real exchange rate were, therefore, followed by the changes in net capital inflows, such that a long-run equilibrium relationship held good between capital inflows, real exchange rate and interest rate differential. The policy of exchange market intervention was, therefore, instrumental in preventing the volatility of the real exchange rate, which could have resulted from the volatility of the net capital inflows into India.
Culha (2006) analyzed determinants of capital flows into Turkey using Structural Vector Auto Regression (SVAR) model, impulse response function and variance decomposition functions for the period 1992:01 to 2005:12. He used push-pull factors approach. For capital inflows he used the sum of portfolio and short term capital flows. As push factors, he took interest rate on 3-month US T-Bills and US industrial production index. As pull factors, he took real rate of interest on Turkish T-Bills, Istanbul stock exchange price index, budget balance and current account balance. He found a general dominance of pull factors over push factors in determining capital flows into Turkey. More specifically, he found a positive association between stock exchange price index and capital inflows. He found a negative relationship of capital inflows with budget balance and current account balance. A shock to real interest rate in Turkey induced an immediate capital outflow in Turkey during sub-period 1992:01-2001:12. The unexpected effect of real interest rate on capital flows was mostly due to the risk premium inherited in the T-bill rates in Turkey. At times of economic and/or political instability, the enhanced risk premium is immediately reflected in the interest rates, which simultaneously triggers massive capital outflows. When the crisis prone and unstable nature of the Turkish economy during the whole 1990s is considered, this outcome is understandable. In the sub-period 2002:01-2005:12, it was seen that a shock to real interest rate tended to initially enhance capital inflows while keeping it in the positive territory over the twelve-month horizon. This outcome, which is also consistent with the theory, reflects once again the improved economic and political stability and, hence, ‘normalization’ of the Turkish economy in the post crisis period.

Ralhan (2006) did a cross-sectional study of eight countries, viz. Australia, India, Indonesia, Argentina, Brazil, Chile, Colombia and Mexico using Non-linear Seemingly Unrelated Regression (SUR) analysis for determinants of capital flows. He found gross foreign exchange reserves as one of the important factors affecting capital flows in all of the countries considered, regardless of any region or group. The level of gross domestic product was another factor influencing capital flows, although this seemed to be more relevant for countries in the non-Latin American group. Growth in the size of an economy could lead to an increase in capital flows because of growing investors’ confidence. But LIBOR turned out to be insignificant in this study.
Singh, B. (2007) using quarterly data for the period 1993: Q1 to 2007: Q4 estimated a cointegration and ECM model for the determinants of the Indian external commercial borrowings. He found that real activity (proxied by IIP), interest rate differential and liquidity (proxied by broad money supply) had a statistically significant long-run effect on the demand for external borrowings. The real activity and interest differential had a positive association while liquidity had an inverse relation with the external borrowings. The coefficient of the error correction term in the error correction equation suggested that there is a rapid and complete adjustment to deviation from the long run path of ECBs in about three quarters. Variance decomposition analysis revealed that interest rate differentials, real activity and money supply together explained three-fourths of the variation in external borrowings. Real activity alone explained about 38 per cent of the variation in external borrowings over the 10 quarter horizon. Interest rate differentials (arbitrage) was found to be the second most important variable explaining changes in external borrowings with its contribution rising almost three fold from the initial to the terminal period. The contribution of the broad money – representing the liquidity conditions – though small over the shorter horizon, got prominent over the medium term with almost a six fold increase by the terminal period. Thus, credit constraint also assumed significance for corporate in their decisions about overseas borrowings.

Guillermo Felices and Bjorn-Erik Orskaug (2008) studied the determinants of capital flows defined as gross external bond and syndicated loan issuance to a group of emerging market economies (EMEs) since 1992. They follow the previous literature by estimating an explicit disequilibrium demand and supply model of capital flow using maximum likelihood techniques. They use the estimated supply and demand determinants to calculate time-varying probabilities of international supply-side rationing, estimating the model for the asset class as a whole. They then explore applications to individual EMEs including Brazil, Chile, China, Colombia, Korea, Mexico, Poland and Thailand using a longer time period than in previous work. For their selection of EMEs taken together, the main determinants of the supply of capital from the rest of the world are credit ratings, EME spreads, world growth and US high-yield spreads. On the demand side, the EME equity index has a positive effect on capital flows, while EME spreads and commodity prices have a negative one. The applications to individual countries show similar signs. Finally, they calculate the
probability of capital crunch for EMEs in aggregate and for some countries individually.

Dasgupta, D. and Dilip Ratha studied the drivers of private capital flows to developing countries and the apparent response of official lending during 1978-1997. Econometric results reveal that portfolio flows to a country tended to rise in response to an increase in the current account deficit; a rise in FDI flows; higher per capita income and growth performance. Once these variables were accounted for, location and regional factors did not seem to influence private flows. Finally, both private capital flows seemed to respond positively to World Bank lending commitments with a one year lag. Official flows including World Bank lending, appear to have played a stabilizing role in response to the volatility of private capital flows and fluctuations in commodity prices and GDP growth.

Singh, B (2009) analyzed the determinants of various components of private debt flows and equity flows to India. He found a high correlation between external commercial borrowing (ECB) disbursements and interest rate differential (i.e., the commercial banks’ prime lending rate minus the six-month LIBOR). He also observed strong co-movement of ECBs and domestic activity. He found that Indian corporates’ long-run demand for overseas commercial borrowings is predominantly influenced by the pace of domestic real activity, followed by interest rate differentials and the credit conditions in domestic markets. The author also found that while during the normal periods the overseas borrowings are influenced by the underlying domestic demand shocks, the external credit shocks seem to be the most dominant factor during the periods of financial crisis. For determinants of non-resident Indian (NRI) deposits, he applied vector error correction model (VECM) for the period 1993:1 to 2009:3 taking monthly data. He found that NRI deposits are significantly influenced by real economic activity in the host country (index of oil price was taken as a proxy), exchange rate movements and interest rate differential (between interest rate on NRI deposits and six month LIBOR). Thus, NRI deposits were found to be much unstable in nature. With regard to portfolio equity flows, he found co-movement in volatility of daily net foreign institutional investments (FII) inflows and stock returns. The Granger causal analysis revealed that portfolio flows and the stock prices have a simultaneous interaction due to their bidirectional causal relationship. The Johansen’s approach to the co-integration analysis suggested a long-run relationship between the two variables.
Kant, C. (2010) investigated whether US portfolio and direct investment in developing countries are perfect substitutes as was found in previous work for total US capital outflows. He found that they are not perfect substitutes and could have different effects. The former is complementary to the latter: the marginal effect of a one dollar increase in US direct investment is to increase portfolio investment in developing countries by 54 cents. It follows that developing countries capital markets are not globally well integrated, and/or recent direct and portfolio flows to developing countries are predominantly explained by the same factors.

Reinhardt, D., Luca Antonio Ricci and Thierry Tressell (2010) revisited the Lucas paradox (Does capital flow from rich to poor countries?) and explore the role of capital account restrictions in shaping capital flows at various stages of economic development. They found that, when accounting for the degree of capital account openness, the prediction of the neoclassical theory is confirmed: less developed countries tend to experience net capital inflows and more developed countries tend to experience net capital outflows, conditional of various countries’ characteristics. The findings are driven by foreign direct investment, portfolio equity investment, and to some extent by loans to the private sector.

Kaur, M. and Sharanjit S. Dhillon, (2010) explored the determinants of foreign institutional investors’ (FIIs) investment in India. They found that returns on Indian stock market have positive impact whereas US stock market returns have no significant influence on FIIs investment in India. Stock market risk has negative influence on FIIs inflows to India. Market capitalization and stock market turnover of India have significant positive influence only in short-run. Among macroeconomic determinants, economic growth of India has positive impact on FIIs investment both in long-run and short-run. But all other macroeconomic factors have significant influence whereas inflation in India has negative influence on FIIs investment. Further, US interest rate has adverse impact on FIIs investment while liberalization policies of India exhibited significant contribution to FIIs inflows. Their studies conclude that FIIs inflows in India are determined by both stock market characteristics and macroeconomic factors.

Anton Jevčák, Ralph Setzer, Massimo Suardi (2010) studied about capital flows to the new EU Member States from Central and Eastern Europe (NMS10) during the last decade. They analyze the role of various types of foreign capital flows
direct investment, portfolio investment, financial derivatives and other types of flows (mainly bank loans) – over time and across countries. They also explore the determinants of capital flows to the NMS10, distinguishing between factors relating to the external economic and financial environment ("push factors") and factors specific to the recipient NMS ("pull factors"). The econometric analysis shows that external determinants have been important in explaining capital flows to the NMS10. In particular, they found a strong role for euro area interest rates, business cycle, and risk sentiment. At the same time, the ability of the NMS10 to attract foreign capital has been also influenced by domestic economic and financial conditions and policies. Risk sentiment appears to be a robust driver for both the common component of aggregate capital flows to NMS10 and flows to individual countries. Overall, these results suggest a need for caution on the part of NMS in borrowing too heavily during periods of favourable external financial conditions. As the financial crisis has shown, this increases their vulnerability to a sudden reversal in the availability of financing, which can be largely driven by factors beyond their control.

Brano, S. and Lahet, D. (2010) investigated the impacts of both external factors and domestic fundamentals on the evolution of capital inflows with a panel of four Asian countries over the period 1990–2007. The objective is to test contagion variables, as defined by Masson (1999), as push factors in order to complete push factor literature and to secure a more integrated point of view of the determinants of capital inflows. They found that both push and pull factors are significant. Push factors as carry trade strategies, global liquidity and contagion factors; seem to be major determinants of capital inflows into Asia.

Byrne, Joseph P. and Norbert Fiess (2011) examined international capital flows to emerging and developing countries. They assess whether commonalities exist, the permanence of shocks to commonalities and their determinants. They consider individual country coherence with global capital flows and measure the extent of co-movements in the volatility of capital flows. Their results suggest that there are commonalities in capital inflows, although aggregate or disaggregate capital flows respond differently to shocks. They found that the US long run real interest rate is an important determinant of global capital flows, and real commodity prices are
relevant but to a lesser extent. They also found a role for human capital in explaining why some countries can successfully ride the wave of financial globalisation.

Broto, Carmen and Díaz-Cassou, Javier and Erce, Aitor (2011) analyzed the determinants of the volatility of the various types of capital inflows into emerging countries. After calculating a proxy of the volatility of FDI, portfolio and bank inflows, we use a panel data model to study their relationship with a broad set of explanatory variables. Our results highlight the difficulties policy-makers face in stabilizing capital flows. Thus, we show that since 2000 global factors beyond the control of emerging economies have become increasingly significant relative to country-specific drivers. However, we identify some domestic macroeconomic and financial factors that appear to reduce the volatility of certain capital flows without increasing that of others.

Verma, R. and Anand Prakash (2011) provided empirical evidence of sensitivity of capital inflows to interest rate differential in the India specific context. Using both causality and co integration analyses, this study suggests that FDI and FII equity flows, which together on a net basis accounted for around three fourth of the total net capital inflows during the 10-year period from 2000-01 to 2009-10, are not sensitive to interest rate differentials. In turn, debt creating flows, in particular ECBs, FCNR (B) and NR (E) RA deposits exhibit statistically significant sensitivity to interest rate differentials, even though other determinants of these inflows dominate significantly the impact of interest rate differential. At the aggregate level, cumulative gross capital inflows appear to increase by 0.05 percentage points in response to 1 percentage point increase in interest rate differential. Moreover, contrary to general perceptions, stronger growth in OECD countries actually coexists with larger capital inflows to India. The paper concludes that RBI’s monetary policy needs to continue its focus on objectives relating to inflation and growth. The magnitude and composition of capital flows that might change in response to monetary policy actions could be managed using other instruments, as has been the case in the past. Monetary policy should not be constrained by the explicit impact on capital inflows since other determinants of capital inflows could dominate the impact of interest rate differential most of the time.
2.2. Capital Inflows and Economic Growth

The relationship between the capital inflows and Growth has debated a lot in the empirical literature. There is a controversy about this relationship; some studies found the positive relationship between capital inflows and GDP, while some others found a negative relationship.

Lensik et al (1999) examined the impact of uncertain capital flows on the growth of 60 developing countries during 1990s. They distinguished between total capital flows, official capital flows and private capital flows. For the three types of capital flows, they derived a yearly uncertainty measure. They have used the yearly uncertainty measures in Ordinary Least Square (OLS) as well as Generalized Method of Moments (GMM) estimates, to explain the impact of uncertain capital flows on growth. They conclude that both types of estimates suggest that uncertain capital flows have a negative effect on financial market and growth in developing countries.

Rangrajan, C. (2000) investigated that the capital flows and its impact on the capital formation and economic growth taking into the variable as net private capital flows, net direct investment, net official flows, net portfolio investment and other net investments in 22 countries during 1992 to 2000. If capital inflows were volatile or temporary, the country would have to go through an adjustment process in both the real and financial market. Inflows, which take the form of direct foreign investment, are generally considered more permanent in character. Capital flows can be promoted purely by external factors which may tend to be less sustainable than those induced by domestic factors. Both capital inflows and outflows when they are large and sudden have important implication for economies. When capital inflows are large, they can lead to an appreciation of real exchange rate. He concludes that the capital account liberalization is not a discrete event.

Marwah and Tavakoli (2004) in their study the effect of imports on growth and productivity of four countries- Indonesia, Malaysia, the Philippines, and Thailand in addition to FDI inflows.

Eichengreen, B. (2004) discussed historical, theoretical, and empirical policy aspects of the effects, both positive and negative of capital flows. He focuses on the connections between capital flows and crises as well as on those between capital
flows and economic growth, he argues that international financial liberalization, like other forms of economic liberalization, can positively affect the efficiency of resource allocation and the rate of economic growth. But analyses of both recent and historical experience also show 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, he makes suggestions for policy design to maximize the benefits of international financial liberalization while minimizing the risks of financial instability.

Kamalankanthan, A. and J. Laurenceson (2005) analysed Krugman’s (1993) contention that foreign capital can hardly be considered an important income growth driver, when in most developing countries it only accounts for a fractional share of gross capital formation. In the case of contemporary China and India, the data suggests that Krugman’s critique holds largely true, even in the coastal regions that are considered magnets for foreign investment. They concluded that domestic factors, rather than the driving factors of globalisation, are more important determinants of income growth in both countries.

Sethi, N. and K. Uma Shankar Patnaik (2006) examined the impact of international capital flows on financial market and economic growth in India. Their study also examine trends and composition of capital inflows, changing pattern of financial markets in views of globalization, ascertain the impact of domestic financial policy variables on international capital flows and suggest policy implication. By using monthly time series data from April 1995 to December 2004. They found that FDI is positively affecting the economic growth.

Bhandari et al. (2007) have examined the impact of foreign aid and FDI on various East European Countries including Czech Republic, Estonia, Hungary, Latvia, Lithuania and Poland. They concluded that an increase in the stock of domestic capital and inflow of FDI were significant factors and foreign aid was ineffective factor to affect economic growth positively.

Bansal, A. and J. S. Pasricha (2010) investigated the impact of foreign capital (FDI and FPIs) on economic growth in India during the period 1992 to 2009. They concluded that the inflow of foreign investment plays a vital role in the economic growth of the recipient economy. They found that FDI and FIIIs have statistically
significant impact on GDP growth of Indian economy during the period of study. They also studied the impact of market opening to FIIs, on Indian stock market behaviour, using stock market data related to Bombay Stock Exchange, for both before and after the FIIs policy announcement day (14th September 1992). They conducted an empirical examination to assess the impact of the market opening on the returns and volatility of stock return and found that while there are no significant changes in the Indian stock market average returns, volatility is significantly reduced after India unlocked its stock market to foreign investors.

The relationship between private capital flows and growth has been examined extensively in the literature, yet numerous controversies still remain. Chee-Keong Choong, Siew-Yong Lam, and Zulkornain Yusop (2011) examined the relationships among private capital flows (foreign direct investment, portfolio investment and foreign debt), financial development and economic performance in a sample of 16 low-income developing countries over the period 1988–2006, by employing generalized method of moments (GMM) panel data analysis. They found that private capital flows have a positive impact on growth in low-income countries with well-developed financial sector but have a negative effect in the presence of poor financial sector development. Well-developed financial sectors are ones that are themselves crucial for economic growth. Their results indicate that private capital flows would be more effective if they were more systematically conditional on well-developed financial systems.

A large body of literature found the positive relationship between capital inflows and Growth, for example, North (1956) argued that Long-term foreign capital played an important role in meeting the capital requirements during the periods of development. Similarly, some further studies [like Chenery and Strout (1966); cited by Mahmood (1997)] also argued that foreign economic assistance stimulate the economic growth and concluded, on the basis of empirical evidence that foreign capital has a positive effect on the economic growth. Chen (1977) applied simultaneous-equation (2SLS) model on panel data of the seven Asian countries between the domestic savings and capital inflows and found diverse results for the different countries. Khan and Rahim (1993), using single-equation (OLS) model, in Pakistan during the period of 1960 to 1988 concluded that the aid has accelerated the rate of growth of GDP. Mahmood (1997) found that foreign aid has helped to promote
the economic growth, helped in structural transformation of economy in Pakistan. Burnside and Dollar (2000) using panel growth regressions for 56 developing countries (1970-93) found that aid has a positive impact on growth in developing countries with good fiscal, monetary, and trade policies. Berthélemy and Démurger (2000) using model based on a sample of 24 Chinese provinces, from 1985 to 1996, found the fundamental role of foreign investment in provincial economic growth in China. Hansen and Tarp (2000) run a regression between per capita aid and the real GDP growth for cross-country data and found that aid increases the growth rate through increasing investment, and this result is not conditional on good policy. Bailliu (2000), using panel data for 40 developing countries from 1975-95, found that capital inflows promote higher economic growth, but only for economies having improved and developed financial (banking) sector. Reisen and Soto (2001), used panel data analysis covering 44 countries over the period 1986-1997, and suggested that developing countries should not solely depend on the national savings, but rather should encourage the foreign direct investments and portfolio equity inflows to stimulate the long-term growth prospects. Chowdhury and Mavrotas (2005) applied Toda-Yamamoto test for causality to study the direction of causality between FDI and GDP to time-series data of three developing countries. The study suggested that GDP causes the FDI in the case of Chile and not vice versa, while in case of Malaysia and Thailand, there is a strong support of bidirectional causality between FDI and GDP. Hatemi and Irandoust (2005), using panel data co-integration on cross-country panel data of six developing countries, and found that foreign aid has a positive and significant effect on economic activity. Kiong and Jomo (2005) applied OLS technique to the Malaysian data from 1966-1999 and found that capital inflows augmented domestic investment funds to accelerate the growth rate. Yasmin (2005) applied the Simultaneous Equation Model on the aggregate time series data for the years 1970-71 to 2000-2001 for capital inflows, GNP and Savings in Pakistan and found a two-sided positive and statistically significant relationship between capital inflows and growth. Frimpong and Oteng-Abayie (2006) utilizing Toda-Yamamoto Granger no-causality test on annual time-series data of Ghana and found that FDI caused GDP growth during the post-SAP period. Baharumshah and Thanoon (2006) used dynamic generalized least square model (ECM/co-integration) on the panel data of growth process of eight the East Asian countries, including China and found that FDI is growth enhancing and its impact is felt both in the short and long run.
Bhandari, Dhakal, Pradhan, and Upadhyaya (2007) developed an error-correction model and estimated it by using a fixed-effects estimator. The findings of the study indicated that the inflow of foreign direct investment is significant factors that positively affect economic growth while, foreign aid did not seem to have any significant effect on real GDP.

The studies, discussed above, suggest that capital inflows has a positive relationship with GDP growth but some other studies argue against these and found the negative relationship between capital inflows and GDP. For example, Griffith-Jones (2000) found that the private capital flows to Latin America are much more volatile than capital flows to developed countries. This volatility of capital flows, passed on to volatility of other macroeconomic variables, is very negative for both growth and investment. Similarly, Lensink and Morrissey (2001) also found that volatility of FDI has negative impact on growth. Parai (2003) re-examined implications of foreign capital inflow in a neoclassical model of economic growth and found that, the inflow of foreign capital induced through tax policy, could not be enough to achieve long run per capita growth. Chowdhury and Mavrotas (2005) examined the causal relationship between FDI and economic growth by using a Toda-Yamamoto test for causality and suggested that FDI didn't cause GDP while GDP causes the FDI in the case of Chile. Burhop (2005) constructed bivariate level VARs, using (1960-1999) data of foreign aid, income per capita and investment for 45 developing countries and found no causal link between foreign aid and economic development. Kamalakanthan and Laurenceson (2005) found that foreign capital can almost not be considered as an important driver of income growth in case of contemporary China and India. Similarly, Carkovic and Levine [2005] used dynamic panel model with data averaged over five-year periods and re-evaluated the relationship between economic growth and FDI for a panel data of 72 countries (1960-95). Carkovic and Levine found that FDI inflows do not exert an independent influence on economic growth. Likewise, Frimpong and Oteng-Abayie (2006) utilized Toda-Yamamoto Granger causality test and found no causality between FDI and growth for the total sample period and pre-SAP period in Ghana. Prasad, Rajan and Subramanian (2007) also found that there is no any evidence that an increase in foreign capital inflows directly boosts growth. Consequently, the literature remained inconclusive about the relationship between the capital inflows and GDP growth,
most of the studies found positive relationship while some found negative linkages between capital inflows and GDP.

2.3. Capital Inflows and its Effects on Macroeconomic Variables

Chakraborty, I. (2001) explained the effects of inflows of private foreign capital on some major macroeconomic variables in India using quarterly data for the period 1993-99. She analyses the trends in private foreign capital inflows and some other variables indicate instability. She has taken the net inflows of private foreign capital as well as macroeconomic variables foreign currency assets, wholesale price index, money supply, real and nominal effective exchange rates and exports. The co integration test confirms the presence of long-run equilibrium relationships between a few pairs of variables. But the dependence of each variable on private capital flows invalidates such co integration except in two cases: co integration exists between foreign currency assets and money supply and between nominal effective exchange rate and exports, even after controlling for private capital flows. The Granger causality test shows unidirectional causality from private capital flows to nominal effective exchange rates-both trade-based and export based-, which raises concern about the RBI strategy in the foreign exchange market. Finally, instability in the trend of foreign currency assets could be partially explained by the instability in private capital flows with some lagged effect.

Kohli, R. (2001, 2003) examined how capital flows affect a range of economic variables such as exchange rates, interest rates, foreign exchange reserves, domestic monetary condition and financial system in India during the period 1986 to 2001. She examined how capital inflows induce real exchange rate appreciation, stock market and real estate boom, real accumulation and monetary expansion as well as effects on production and consumption. She investigates the impact on capital flows upon the domestic financial sector in India. Inflows of foreign capital have a significant impact on domestic money supply and stock market growth, liquidity and volatility. She finds that correlation between domestic and foreign financial market highlights India’s vulnerability to external financial shocks. For India on the relationship between portfolio flows and some stock market indicators suggest that market price are not unaffected by capital inflows.
Khanna, S. (2002) examined the macroeconomic impact on Indian capital market as well as the corporate sector and what are the macro economic effects on inflows of capital to India and microeconomic effects on the capital market during 1989 to 2002. He took the macro variables as FDI, FPI, NRI deposits, external assistance and GDP/GDS/GNP. He tells that entry of international capital flows helps to provide greater depth of the domestic capital market and reduce the systematic risk of the economy. He argues that advanced for liberalizing capital market and opening them to foreign investor are to increase the availability of capital with domestic industries and commercial firms. On the other hand, the Indian stock market is today largely dominated by a small group of FIIs, are able to move the market by large intervened. He concludes that in case of India, the micro analysis of stock market also fails to provide any evidence that the entry of FIIs have reduced the cost of Indian corporate sector.

Wong, W., Agarwal, A. and Du, J. (2005) empirically investigated the long-run equilibrium relationship and short-run dynamic linkage between the Indian stock market and the stock markets in major developed countries (US, UK, Japan) after 1990 by examining the Granger causality relationship and the pair wise, multiple and fractional co-integrations between the Indian stock market and the stock markets from three developed markets and conclude that Indian stock market is integrated with mature markets and sensitive to the dynamics in these markets in a long run. In a short run, both US and Japan Granger causes the Indian stock market but not vice versa. They found that the Indian stock index and the mature stock indices form fractionally co-integrated relationship in the long run with a common fractional, non-stationary component and found that the Johansen method is the best reveal their co-integration relationship.

Sethi, N. (2008) explained the effect of private capital inflows on some macroeconomic variables in India using the time series data during April 1995 to December 2006. He also examined the impact of international capital flows on economic growth, trends and composition and suggests policy implication thereof. Co-integration test confirms the presence of long-run equilibrium relationships between a few pair of variables like private capital inflows and economic growth (IIP as proxy of GDP) and private capital inflows and exchange rate. The Granger causality test shows unidirectional causality from private capital inflows to exchange rate and bi-
directional causality from private capital inflows and growth (IIP). He found that FDI is positively affecting the economic growth while FII is negatively affecting the growth rate. His empirical analysis showed that FDI plays unambiguous role in contributing to economic growth. It concludes that capital inflows have not contributed much towards industrial production or economic growth. There are two reasons for this, one the amount of capital inflows to the country has not been enough. Two, the amount of capital that does flow in, it does not utilized to its full potential.

Singh, H. and Muzammil, M. (2009) studied the behavior of the macroeconomic indicators in relation to the foreign capital inflows and exchange rates in India since 1991. They showed the trends of foreign capital inflows into India and variations in exchange rate of the Indian rupee and their mutual interdependence over the period 1990-91 to 2007-08. They show the correlation between exchange rate and capital inflows in India, and also between the exchange rate and some macroeconomic indicators such as GDP and money supply. Their study also shows the relationship of nominal effective exchange rate (both trade-based and export-based) with FDI and FPI in India. The correlation analysis of selected indicators shows that GDP is strongly related to the exchange rates of Indian rupee per unit of US dollar, pound sterling and SDR. This suggests that the prevailing exchange rates helped in the growth of Indian GDP. Their study also focuses on the effects of foreign capital inflows on some macroeconomic variables in India. They also study how the RBI prevents the exchange rate appreciation associated with rising capital inflows by accumulating foreign exchange reserves and foreign investments.

Singh, S. (2009) in his research paper revealed that the huge surge in international capital flows since early 1990s has created unprecedented opportunities for the developing countries like India to achieve accelerated economic growth. Today, India has one of the highest net capital inflows among the EMEs of Asia. However, capital inflows are not an unmitigated blessing. The main danger posed by large and volatile capital inflows are that they may destabilize macroeconomic management. As, evident, the intensified pressures due to large and volatile capital inflows in India in the recent period in an atmosphere of global uncertainties has posed new challenges for monetary and exchange rate management. He elaborates on various aspects of the capital inflows to India and their policy implications.
Since the early 1990s, there is an upsurge in foreign capital flows to developing economies, particularly into emerging markets. One view argues that capital inflows do help to increase efficiency, a better allocation of capital and to fill up the investment-saving gap. Adherents to that view advise countries to launch capital account liberalization.

In their study, Rashid, A. and Fazal Husain (2010) investigated the effects of capital inflows on domestic price level, monetary expansion and exchange rate volatility. To proceed with this, linear and nonlinear cointegration and Granger causality tests are applied in a bi-variate as well as in multivariate framework. The key message of the analysis is that there is a significant inflationary impact of capital inflows, in particular during the last 7 years. The finding suggest that there is a need to manage the capital inflows in such a way that they should neither create an inflationary pressure in the economy nor fuel the exchange rate volatility.

Hye, Qazi M. A., Muhammad Shahbaz and Amra Hye (2010) analyzed the effect of foreign capital inflow (FCI) on the economic growth of a developing economy, like Pakistan. Empirical analysis has been performed by using a recent co integration technique, Autoregressive Distributed Lag (ARDL) method. The result shows that foreign direct investment affects economic growth positively in the long run as well as short run. On the other hand, the official development assistance and aid has positive impact on economic growth only in the long run. So, Pakistan should focus on the official development assistance and aid in the long run for the sake of economic growth.

Tong and Wie (2010) studied whether the volume and composition of capital flows affect the degree of credit crunch faced by a country’s manufacturing firms during the 2007-09 crisis. They use data on 3823 firms in 24 emerging countries and found that, on average, the decline in stock prices was more severe for firms that are intrinsically more dependent on external finance for working capital. The volume of capital flows per se has no significant effect on the severity of the credit crunch. However, the composition of capital flow matters a great deal; pre-crisis exposure to non-FDI capital inflows worsens the credit crunch, while exposure to FDI alleviates the liquidity constraint. Similar results also hold when they perform an event study surrounding the Lehman Brothers bankruptcy.
2.4. Capital Inflows and Volatility

Neumann, Rebecca M., Ron Penl and Altin Tanku (2006) examined the volatility of capital flows following the liberalization of financial markets. Utilizing a panel data set of overlapping data from 1973-2000, the paper focuses on the response of foreign direct investment, portfolio flows, and other debt flows to financial liberalization. The financial liberalization variable comes from the chronology and index developed by Kaminsky and Schmukler (2003). Different types of capital flows are found to respond differently to financial liberalization. Surprisingly, portfolio flows appear to show little response to capital liberalization while foreign direct investment flows show significant increases in volatility, particularly for the emerging markets considered.

Using micro-level panel data, Firat Demir (2009) analysed the impacts of short-term capital flow volatility on new fixed investment spending of publicly traded real sector firms in three major emerging markets that are Argentina, Mexico and Turkey. The empirical results including comprehensive sensitivity tests suggest that increasing volatility of capital inflows has an economically and statistically significant negative effect on new investment spending of private firms. Accordingly, a 10 per cent increase in capital flow volatility reduces fixed investment spending in the range of 1-1.7, 2.3-15.1, and 1 per cent in Argentina, Mexico and Turkey respectively.

Broto, C., Javier Diaz-Cassou and Aitor Erce-Dominguez (2010) analyzed the determinants of the volatility of the different types of capital inflows toward emerging countries. After calculating a proxy of the volatility of FDI, portfolio and bank inflows, they use a panel data model to study their causality relations with a broad set of explanatory variables. Their results highlight the difficulties of policy-makers to stabilize capital inflows given. Thus, they show that since 2000 the significance of global factors, beyond the control of emerging economies, has increased at the expense of that of country specific drivers. However, they identify some macroeconomic and financial domestic factors that appear to reduce the volatility of certain categories of capital inflows without increasing that of others.

Selen Sarisoy Guerin (2003) examined the relationship between net private capital inflows and the current account in a set of industrial and developing countries. The first question asks whether the cyclical volatility in current accounts can be explained by the volatility of capital flows. The second question addresses the causal
link between net capital inflows and current account imbalances. There is evidence in our data that inflows do cause current account imbalances in the developing countries. In contrast, the evidence implies that inflows do not cause current account imbalances in the industrial countries, nor does the inflow volatility affect current account volatility.

2.5. Capital Inflows and Exchange Rate

In recent past, the relationship between exchange rate and foreign capital inflow got some attention and a few researchers addressed this issue.

Calvo et al (1996) while analysing the impact of capital inflows on a number of Asian and Latin American countries concluded that several Asian countries have experienced capital inflows similar to those in Latin America without associated sizable appreciation of the real exchange rate.

Pal, Parthapratim (1998) showed that the entry of foreign portfolio investors boosts a country’s stock market and economy does not seem to be working in India. The influx of FIIs has failed to invigorate the stock markets. There has been increased uncertainty and doubts about stock markets. The influx of portfolio investment leads to economic development is not supported by his study. He (2006) examined the impact of Foreign Portfolio Investment on India’s economy and industry and found that the perceived benefits of foreign portfolio investment have not been realized in India. From the results of his study he said that the mainstream argument that the entry of foreign portfolio investors will boost a country’s stock market and consequently the economy, does not seem be working in India. The influx of FIIs has indeed influenced the secondary market segment of the Indian Stock Market. But the supposed linkage effects with the real economy have not worked in the way the mainstream model predicts. Instead there has been an increased uncertainty and skepticism about the stock market in India. On the other hand, the surge in foreign portfolio investment in the Indian economy has introduced some serious problems of macroeconomic management for the policymakers. Uncertainty and volatility associated with FPI have not only reduced the degrees of manoeuvrability available to the policymakers but have also forced them to take some measures which impose significant fiscal cost on the economy.
Ag´enor (1998) found that a permanent fall in world interest rate leads to a steady-state reduction in net capital inflows and a real depreciation. Ag´enor also found that the real exchange rate appreciates in the net debtor case, but may either appreciate or depreciate in the net creditor case.

Mafusire (2003) developed a computable general equilibrium (CGE) model for Zimbabwe and found that foreign capital inflows resulted in the appreciation of the exchange rate.

Athukorala and Rajapatirana (2003) found that the degree of appreciation in real exchange rate associated with capital inflow is uniformly much higher in Latin American countries as compared to Asian countries, despite the fact that the latter experienced far greater foreign capital inflows relative to the size of the economy. Thus, according to the most of literature the causality runs from FCI to exchange rate, that is, FCI causes exchange rate appreciation. Whereas, the Kosteletou and Liargovas (2000) found that, in small countries with fixed or quasi-fixed currencies, causality may run in both directions, i.e. exchange rate may also cause the FCI.

Devereux, Michael B. and Alan Sutherland develop (2009) a DSGE model of the interaction between an emerging market economy and an advanced economy which incorporates two-way capital flows between the economies. The novel aspect of the paper is to make use of new methods for analyzing portfolio choice in DSGE models. We compare a range of alternative financial market structures, in each case computing equilibrium portfolios. They found that an asymmetric configuration where the emerging economy holds nominal bonds and issues claims on capital (FDI) can achieve a considerable degree of international risk-sharing. This risk-sharing can be enhanced by a more stable monetary policy in the advanced economy.

Sebastian, E. and Roberto Rigobon (2003) used high frequency data and a new econometric methodology to evaluate the effectiveness of controls on capital inflows. They focus on Chile's experience during the 1990s and investigate whether controls on capital inflows reduced Chile's vulnerability to external shocks. They recognize that changes in the controls will affect the way in which different macro variables relate to each other. They take this problem seriously, and we develop a methodology to deal explicitly with it. The main findings may be summarized as follows: (a) A tightening of capital controls on inflows depreciates the exchange rate. (b) They found
that the "vulnerability" of the nominal exchange rate to external factors decreases with a tightening of the capital controls. And (c), we find that a tightening of capital controls increases the unconditional volatility of the exchange rate, but makes this volatility less sensitive to external shocks.

Siourounis, G. (2003) investigated the empirical relationship between capital flows and nominal exchange rates for five major countries. This is motivated by the recent international finance theory which suggests that currencies are as much influenced by capital flows as by current account balances and log-term interest rates. Using unrestricted VAR’s we document the following: a) Incorporating net cross-border equity flows into standard linear empirical exchange rate models can improve their in-sample performance, whereas net cross-border bond flows are immaterial for exchange rate movements; b) Positive innovations to home equity returns (relative to the foreign markets) are associated with short-run home currency appreciations and equity inflows, whereas positive shocks to home interest rates (relative to the foreign countries) cause currency movements that are consistent with the long-run interpretation of uncovered interest rate parity (UIP); c) An equity-augmented linear model provides support for exchange rate predictability and outperforms a random walk in several cases. However, the particular specification that can produce such superior forecast performance depends on the exchange rate and the forecast horizon. Our results are robust to a number of specifications.

Ling, D. and Andy Naranjo (2003) examined the effects of capital flows into the REIT sector on REIT returns and, simultaneously, the effects of REIT returns on subsequent REIT capital flows. The dynamic relation between REIT capital flows and returns is estimated using vector auto regression (VAR) techniques. Unlike static regression techniques, their dynamic model produce estimates of the short run relationships, long-run relationships, impulse response functions, and forecast variance decompositions. They found evidence that REIT equity flows are significantly positively related to the prior quarter’s flows and negatively related to flows from two quarter’s ago. The evidence on the responsiveness of flows to prior returns is time period specific. In the important post-1992 sub period, REIT returns do not significantly affect REIT flows in any of the VAR model specifications. Simultaneously, REIT capital flows do appear to have a significant influence on equity REIT returns.
Dua, P. and Partha Sen (2006) analysed the relationship between the real exchange rate, level of capital flows, and volatility of capital flows, fiscal and monetary policy indicators and current account surplus for the period 1993Q2 to 2004Q1 and concluded that variables are co integrated and each Granger causes the real exchange rate. The generalized variance decomposition shows that determinants of the real exchange rate in descending order of importance include net capital inflows and volatility (jointly), government expenditure, current account surplus and the money supply.

In his paper, the link between capital inflows and real exchange rate movements in LDCs Mouhamadou Sy and Hamidreza Tabarraei (2010) revisited theoretically and empirically. On the theoretical side they present a simple model to show that the real exchange rate depends mainly on “real fundamentals” such as terms of trade or productivity differentials. Empirically, they take into account the heterogeneity of the sample, the dynamics of the RER and the non stationary nature of the data. Capital inflows can be oil revenues, foreign aid, remittances or FDI. They show that real fundamentals are the main driving forces of real exchange rate movements in LDCs and not capital inflows. The Balassa-Samuelson effect by itself accounts for 57% of the RER variations while capital inflows account only for 19% of RER variations. The Dutch Disease theory is not rejected but its effect on RER movements in LDCs is weak.

Ocampo (2010) while dealing with the capital surge gave emphasis in all the elements- reserves, exchange rates and capital flows - of the global monetary system. Capital flows call for capital account regulations in both developing and developed countries. In the former, regulations can be justified as a way to help authorities avoid exchange rate appreciation while reducing the need for costly and/ or useless foreign exchange reserve accumulation. In the advanced economies, the effectiveness of monetary expansion may be enhanced if they reduce the leakages generated by short-term capital outflows. This would, in fact, imply a return to the basic principle under which the IMF was built: that it is in the best interests of all members to allow countries to pursue their own full employment macroeconomic policies, even if this required regulating capital flows.

Nwachukwu, J. (2010) presented a short-run dynamic panel model for the relationship between aggregate net foreign capital transfers and the real exchange rate
in twenty-four Sub-Saharan African countries. The results show that external inflows had a negative impact on the real exchange rate with a further implication that the domestic production of tradable need not be adversely affected by the anticipated inflow of the large additional capital required to reach the Millennium Development Goals in 2015.

Dimitrios Vagias and Mathijs A. van Dijk (2010) studied whether international capital flows affect local market liquidity, and vice versa. They estimate vector auto regressions with monthly U.S. equity portfolio flows and local stock market liquidity and returns for 46 countries in six regions over 1995-2008. They found that flows to developed Europe and Asia/Pacific positively respond to local market liquidity, while U.S. market liquidity positively predicts flows to developed and emerging Europe and emerging Asia. Capital flows to various regions are thus responsive to home and host market liquidity. For developed America, Europe, Asia/Pacific, and emerging Asia, capital inflows are associated with an improvement in local market liquidity, which suggests that foreign investors tend to provide rather than consume liquidity on local markets. This effect is stronger for countries with greater transparency and less developed financial markets. Our analysis lends little support to the view that foreign investors destabilize local markets through an adverse impact on liquidity.

Combes, Kinda and Plane (2011) analyzed the impact of capital inflows and exchange rate flexibility on the real exchange rate in developing countries based on panel co integration techniques. The results showed that public and private flows are associated with a real exchange rate appreciation. Among private flows, portfolio investment has the highest appreciation effect—almost seven times that of foreign direct investment or bank loans—and private transfers have the lowest effect. Using a de facto measure of exchange rate flexibility, they found that a more flexible exchange rate helps to dampen appreciation of the real exchange rate stemming from capital inflows.

Hiroyuki Taguchi (2011) aimed at providing empirical evidence on the relationship between capital inflows and asset prices, focusing on selected East Asian emerging market economies: China, Hong Kong, Indonesia, Korea and Thailand, during the 2000s, using an analytical framework of impulse responses to capital
inflows shocks under a vector auto-regression model. Main findings are: the positive responses of share prices to portfolio inflows shocks were verified in all the estimated economies, which imply the function of the direct channel into stock market; the indirect channel through domestic money supply appeared to work in the economies with peg regime like Hong Kong, whereas it did not in those with floating regime like Indonesia, Korea and Thailand, due to the sterilization of the intervention in foreign exchange markets.

2.6. Capital Inflows and Investment

The existing literature on the relationship between the capital inflows and Investment shows both positive as well as negative links. As most of the studies found positive relationship like North (1956) argued that Long-term foreign capital played an important role in meeting the capital requirements by directing real resources towards the needed social overhead investment and making possible an import surplus of consumer and capital goods during the periods of development. Similarly, Islam (1972) found that foreign assistance helped to attain a higher rate of savings and investment in Pakistan. Walt and Wets (1993), by employing both a single equation regression and macro-econometric model, found that foreign capital inflow complemented domestic resources to finance investment and generating growth. Khan (1993) concluded that foreign aid has played an extremely important role in influencing the pace of development in Pakistan, especially investments and imports largely depended upon the amount of foreign aid. Bosworth, Collins and Reinhart (1999) applied a regression analysis on sample of developing economies and found that that FDI is strongly linked to aggregate investment, and had a more positive impact, on domestic savings and investments, than any other form of capital inflows like loans, portfolio investment and borrowings. Similarly, Hansen and Tarp (2000) run a regression and found that aid continues to impact on growth via investment. Ulengin and Yentürk (2001) applying the vector autoregressive (VAR) models found that foreign savings has an increasing effect on consumption and an increase of investment arises from the accelerator effect of consumption, which results in an upward trend in investment in non-tradable sectors. Verma and Wilson (2004), using ARDL cointegration technique and Granger causality test on time-series data of India for the period of 1950-2000, found that there are significant and complicated
relationships between the components measures of savings, investment and foreign inflows. Similarly, Kiong and Jomo (2005) found that capital inflows augmented domestic investment funds to accelerate the growth rate.

The above studies show a positive relationship between capital inflows and investment but some other studies found negative relationship. Like, Griffith-Jones (2000) found that volatility of capital flows is very negative for both growth and investment. Similarly, Burhop (2005) claimed that there is no causal link between foreign aid and economic development, measured by income per capita and investment. Aslam (1987) also found that the public forms of capital inflows did not affect the domestic investment significantly, while the private forms of capital inflows covered the domestic saving-investment gap. Areskoug (1976) also found that capital inflows partially substitute role in capital formation in developing countries. Thus, after reviewing literature, we come to know that most of the studies found the positive relationship between capital inflows and Investment while, some studies also found negative relationship.

2.7. Capital Inflows and Domestic Savings

The relationship between the Capital inflows and domestic savings has been discussed a lot in the literature. There is also a controversy about this relationship, some studies found the positive relationship between capital inflows and domestic savings, while some other studies found a negative relationship.

Some studies found a positive (complementary) relationship between capital inflows and domestic savings, like, Islam (1972) found that foreign assistance helped to attain a higher rate of savings and investment in Pakistan. Similarly, Papanek (1972) found diverse results; in some circumstances, foreign inflows undoubtedly stimulated savings, while in other cases, foreign inflows discouraged savings. Aslam (1987), using single-equation regression model (OLS) for the data from 1963-84 to 1984-85 of Pakistan found that the private capital inflows covered the domestic saving-investment gap. Hatemi and Irandoust (2005) used a panel data co-integration over cross-country panel data of six developing countries and found that foreign capital flows supplemented the domestic savings.
The studies, discussed above, show the positive or complementary relationship between capital inflows and savings but there are various other studies who find the negative (substitution) relationship between these variables. For example, [Leff (1969), Griffin (1970) and Weisskopf (1972); cited by Mahmood (1997)], argued that the foreign capital could badly affect the economic growth by substituting the domestic savings. Shabbir and Mahmood (1992) applied simultaneous equation model (2SLS) on the data of Pakistan, ranging from 1959-60 to 1987-88, a negative relationship between the savings and foreign investment and loans & grants. Furthermore, foreign financial inflows may discourage domestic (household or private) and public savings. Khan, Hasan and Malik (1992) using single-equation (OLS) model, in Pakistan during the period of 1959-60 to 1987-88, found that foreign capital inflows have depressing effect on the national savings. Khan and Rahim (1993), using single-equation (OLS) model, in Pakistan during the period of 1960 to 1988 found negative relationship between foreign aid and domestic resource (savings). Mahmood (1997) concluded that foreign aid may distort domestic savings and may create booming sector. Ahmad and Ahmed (2002) used cointegration and error-correction model on Pakistan's data and found that the foreign capital may substitute for the domestic savings. Paul and Sakthivel (2002), using Johansen's Maximum Likelihood Tests for co-integration and error correction model on time-series data for 50 years (1950-2000) of India, suggested that foreign capital is negatively related to domestic savings. Kiong and Jomo (2005) applied OLS technique to the Malaysian data from 1966-1999 and found that capital inflows had negative influences on the savings rate as well as on the balance of payments. Whereas Areskoug (1976), Chen (1977), Reinhart and Talvi (1998) have found diverse (mixed) result from a panel of countries. In some countries, capital inflows complements (crowds in) savings and in others, it substitutes (crowds out) the domestic savings. Thus the review of the above studies shows a diverse relationship between capital inflows and savings, some studies found complementary relationship and some found that capital inflows substitutes the domestic savings.

2.8. Some Studies on FDI Inflows:

The studies discussed above explain the relationship of capital inflows with domestic savings, investment, economic growth and exchange rate.
FDI inflows, being the less volatile in nature, may be seen as important component of capital inflows. Thus, the present section presents the mixed literature on FDI inflows.

Hong (1997) quantified the contributions by various types of foreign capital inflows towards the growth of individual Korean industries during the last 20 years (1990-1990) and suggested that the foreign capitals played a vital role in the success of Korea's manufacturing sector, which served as the engine of economic growth. FDI had more statistically significant effects on the factor productivity than either commercial or public loans. Marjit, Broll and Mitra (1997) using a model with trade and unemployment found that the inflows of foreign capital deliver the expected results when it inflows to protected intermediate-goods sector. Khan (1998) concluded that, if the countries implement the necessary macroeconomic policies and realize the structural transformations that build up their financial system that will not only be helpful in managing the capital inflows but will also reduce the risks of the reversal of these capital flows. Sin and Leung (2001) used panel data models both with random-effect and fixed-effect models and found that the policy change has an encouraging effect on FDI and confirmed that the governments are successful in absorbing foreign capital inflows through more liberal policies.

Employing the neoclassical growth model, Chow and Zeng (2001) found that an increase in foreign capital inflows in a developing economy would lead to a higher level of domestic capital stock and consumption. Kohli (2004) concluded that despite the fact that the shift in external financing from aid transfers to private capital flows has increased the accessibility of external resources to the Indian economy, but it has also imposed greater restraint through the increased vulnerability to unfavourable capital account shocks, volatility and other risks. Kohli also pointed out the significance of self-protection policies that countries must adopt in order to tone down the risks. Paul and Truong (2004) showed that foreign capital inflow could create long-term economic benefits to the host country only when the foreign capital reinvestment rate is adequately greater than the host country's saving rate. Kaminsky (2005) concluded that, there is no optimal policy to manage the risks of volatility in international capital flow, because the policies that may help in the short-run may have undesirable effects in long run. Sikdar (2006) suggested a Reduction in non-FDI flows will reduce the need for large unproductive reserves and investment in
infrastructure in general (and not only in telecom) must increase to boost domestic investment and attract FDI in manufacturing. These studies reviewed above highlighted various positive and negative aspects of foreign capital inflows. Ultimately, after reviewing the all the available economic literature on capital inflows, it becomes obvious that most of the studies, mentioned above, have found a mixed (positive/negative) relationship between capital inflows and other macroeconomic variables.

Kohli, R. (2010) in her study discussed existing policy options for managing capital flows in India and concludes by emphasizing the need to evolve a medium-term response strategy, one of whose elements include countercyclical fiscal responses.

Nachane, D.M. (2010) discussed various options for capital management that would contribute to growth with stability. He proposes two complementary (and sometimes overlapping) sets of policies- (i) capital controls on inflows, and (ii) prudential financial regulation.

Antonio C. David (2007) attempted to analyze whether price-based control on capital inflows are successful in insulating economies against external shocks. He presented results from vector auto regressive (VAR) models that indicate that Chile and Colombia, countries that adopted controls on capital inflows, seem to have been relatively well insulated against external disturbances. Subsequently, he uses the auto regressive distributed lag (ARDL) approach to co-integration to isolate the effects of the capital controls on the pass through of external disturbances to domestic interest rates in those economies. He concludes that there is evidence that capital control allowed for greater policy autonomy.

Kaminski (2003) examined the characteristics of international capital flows since 1970 and summaries some of the findings of the research conducted in 1990s on the effects of globalization. Even if international capital flows do not trigger excess volatility in domestic financial market, it is still true that large capital flows can spark off inflation in the presence of fixed exchange rate. He said globalization allows capital to move to its more attractive destination, fuelling higher growth. He suggests that in the short run, globalization triggers bankruptcy of the financial system and protracted recession. The exploration of capital flows to emerging markets in the early
and mid 1990s and the recent reversal following the crisis around the globe have ignited once again a heated debated on how to manage international capital flows. He indicates capital outflows worry policy makers, but so do capital inflows as they may trigger bubbles in assets market and foster an appreciation of the domestic currency and a loss of competitiveness.

Banik and Bhaumik (2006) looked at the foreign capital inflows in an alternate approach based on the concepts of neighbourhood and extended neighbourhood, while a substantial fraction of foreign inflows may be explained by selected economic variables, the country specific factors and the idiosyncratic component account for more of investment inflows to China, India and the Caribbean. They also investigate the spill-over of foreign capital- particularly technology transfer in the vibrant economies of China, India and the Caribbean.

Ray, A. (1994) analyzed- (a) the trends, patterns and prospects of foreign resource flows in various forms(official development finance, commercial bank lending and FDI) into the countries of the Asia-Pacific region in the context of the questions- “would external capital flows into the Asia-Pacific region remain largely confined to a small number of high- growth east and south-east Asian economies or would it spread to other countries of the region, especially in south Asia , which encompasses some of the most populous countries of the world?” and (b) suggests some areas of action which are of particular relevance for international bankers, investors and government policy- makers.

Kumar, Nagesh (1998) examined the emerging trends and patterns in FDI inflows to India. His major objective is to evaluate the role that policy liberalization has played in shaping these patterns. This is attempted with an analysis of changes in India’s shares in FDI outflows from European and other triad sources of FDI as well as by analyzing the changes in the shares of major source countries with policy liberalization.

Nidugala, Ganesh Kumar (1997) attempted to compare and contrast the experience with capital liberalization policy followed by Mexico and India in the overall context of their economic reforms, its effects on macroeconomic variables, particularly the exchange rate. The main argument of his study is that India avoided a
peso type of crash by following a policy of gradual liberalization of capital flows, and prudent exchange rate policy, and getting the sequencing of reforms right.

Balasubramanyam and Sapsford (2007) in their study compared the inflows of FDI in India and China and find that in India is one-tenth of that in China and argued that India may not require increased FDI, given India’s factor endowments and structure and composition of her country.

Ray, A. (2007) analysed the nature, causes and consequences of the Chinese success story. It contrasts the Chinese reform (started in 1978) strategy with those followed in other transition economies, such as the former USSR and East European nations. He also addresses the question of sustainability of the miracle in the years to come, and possible lessons for other countries trying to reform their own economies.

Kumar, Nagesh (2005) reviews the Indian experience with FDI since 1991 in a comparative East Asian perspective. He summarized the evolution of Indian government’s policy towards FDI, examines the trends and patterns in FDI inflows in the 1990s. It also comments on the determinants of FDI inflows in India. It examines the impact of FDI in terms of various parameters of development. He discusses the emerging trends in the MNEs activities in knowledge-based industries in India.

FDI plays a multidimensional role in the overall development of host economies. It is widely discussed in the literature that, besides capital flows, FDI generates considerable benefits. These include employment generation, the acquisition of new technology and knowledge, human capital development, contribution to international trade integration, creation of a more competitive business environment and enhanced local/domestic enterprise development, flows of ideas and global best practice standards and increased tax revenues from corporate profits generated by FDI (Klein et al., 2001; Tambunan, 2005). While FDI is expected to create positive outcomes, it may also generate negative effects on the host economy. The costs to the host economy can arise from the market power of large firms and their associated ability to generate very high profits or by domestic political interference by multinational corporations. But the empirical evidence shows that the negative effects from FDI are inconclusive, while the evidence of positive effects is overwhelming, i.e., its net positive effect on economic welfare (Graham, 1995).
FDI in manufacturing is generally believed to have a positive and significant effect on a country’s economic growth (Alfaro, 2003). However, based on empirical analysis of data from cross-country FDI flows for 1981-1999, Alfaro (2003) points out that the impact of FDI on growth is ambiguous. FDI in the primary sector tends to have a negative impact on growth, while investment in manufacturing has a positive effect, and the impact of FDI in services is ambiguous. In general, multinational enterprises have increasingly contributed to capacity addition and total sales of manufacturing. Further, FDI plays an important role in raising productivity growth in sectors in which investment has taken place. In fact, sectors with a higher presence of foreign firms have lower dispersion of productivity among firms, thus indicating that the spill-over effects had helped local firms to attain higher levels of productivity growth (Haddad and Harrison, 1993). Besides being an important source for diffusion of technology and new ideas, FDI plays more of a complementary role than of substitution for domestic investment (Borenzstein et al., 1998). FDI tends to expand the local market, attracting large domestic private investment. This “crowding in” effect creates additional employment in the economy (Jenkins and Thomas, 2002). Further, FDI has a strong relation with increased exports from host countries. FDI also tends to improve the productive efficiency of resource allocation by facilitating the transfer of resources across different sectors of the economy (Chen, 1999).

Siddharthan and Nollen (2004) showed that in the information technology sector, exports by MNE affiliates are greater when they have larger foreign equity stakes.

Though it is expected that growth tends to benefit the poor, this has not happened in many countries. There is no clear picture whether growth reduces poverty (World Bank, 2000). It is believed that increased flow of capital raises capital intensity in production, resulting in lower employment generation. However, a higher level of investment accelerates economic growth, showing wider positive effects across the economy. Tambunan (2005) found that FDI has positive effects on poverty reduction mainly through three important ways, viz., labour-intensive growth with export growth as the most important engine; technological, innovation and knowledge spill-over effects from FDI-based firms on the local economy; and poverty alleviation programmes or projects financed by tax revenues collected from FDI-based firms.

However, the host country’s policies and institutions, the quality of investment, the nature of the regulatory framework and the flexibility of labour
markets are important to attain the expected benefits from FDI (De Melo, 1999; Klein et al., 2000). The impact of FDI has been found to be the strongest in countries with higher education levels (Borenztein et al., 1998; Jalilian and Weiss, 2001). However, FDI may indirectly benefit the poor by creating better employment and earning opportunities for the unskilled workforce in developing countries (ODI, 2002).

India-specific studies on FDI have dealt with determinants of FDI, technology spill-overs, export growth and good governance practices transferred from foreign to domestic firms (Banga, 2003; Kumar, 2002, 2003; Pant, 1995; Siddharthan and Nollen, 2004). These effects have been estimated through firm-level case studies and through cross-section industry data. However, the impact of FDI on the economy is still not clear and there is little evidence on the economy-wide impact of FDI in India. However, there is great interest among academics and policy makers to critically examine the impact of FDI on the different sectors of the economy and various regions of the country.

Aggarwal, A. (2007) has shown that there are wide variations in the FDI inflow across the states of India. Only seven states accounted for over 97 per cent of the total amount of export-oriented FDI and 83 per cent of total FDI approvals during 1991-2001. The presence of Export Processing Zones was found to be a relevant pull factor in attracting export-oriented FDI. Further, while explaining the sensitivity of FDI to labour market conditions, the study revealed that labour market rigidities and labour costs are more pronounced for export-oriented FDI than for domestic market-seeking FDI. Infrastructure and regional development are found to be key factors in attracting higher FDI, both in the export and domestic market-seeking sectors.

FDI plant location is a complicated phenomenon. By utilising plant-level data across 100 of the largest cities in 17 states of India, Goldar (2007) established that the inter-state and inter-city distribution of plants of foreign firms is almost identical to that of domestic firms. This indicates that the factors influencing the location of plants of foreign companies are, by and large, the same as those for domestic companies. But the number of plants of foreign companies in a city is positively related to the size of the city, civic amenities in the city, size of the largest city in the state and investment climate in the state. The presence of a metropolitan city in the state probably captures the advantage in headquartering the country operations of multinational companies.
Examining industry-specific spill-over effects, Bergman (2006) has shown that pharmaceutical MNCs in India made a positive contribution to the growth and development of the industry. Spill-over effects through imitation, industrial management skills and competition were explicitly observed in the industry. Such effects were generated not only in product development, but also in marketing and documentation techniques. The foreign firms’ presence has indirectly encouraged domestic firms to increase their managerial efforts and to adopt some of the marketing techniques used by MNCs. Further, the presence of foreign firms has intensified competitive pressure in the industry and stimulated domestic firms to use accessible resources more efficiently. India’s comparative advantage in pharmaceuticals has boosted the Indian pharmaceutical enterprises to move and operate abroad.

Thorsten Janus Daniel Riera-Crichton (2008) presented a new measure of international gross capital flows and applies it to a global panel from 1970 to 2004. They explain why paying attention to the gross flows underlying net capital flows may be important and how our gross flow measure differs from the standard measure in the literature. For example, while by the standard measure a capital inflow decline more than fully explains Mexico’s current account reversal during the 1994-95 Tequila Crisis, our measure assigns an important role to capital outflows and implies a 63 percent higher outflow in 1995 compared to the standard measure outflow.

Silvio Contessi, Pierangelo De Pace and Johanna L. Francis (2010) described the second-moment properties of the components of international capital flows and their relationship to business cycle variables for 22 industrial and emerging countries. Inward flows are procyclical. Outward and net flows are countercyclical for most industrial and emerging countries, except for the G7. Results for individual flows are ambiguous except for inward FDI flows that are procyclical in industrial countries, but countercyclical in emerging countries. Using formal statistical tests, they found mixed evidence of changes in the covariance and correlation of capital flows with a set of macroeconomic variables in the G7 countries. They detect significant increases in the variance of all flows.

During the 1990s most transition economies undertook a series of market reforms, including opening their capital accounts. Elitza Mileva (2008) used static and dynamic panel techniques to assess the effect of FDI, foreign loans and portfolio flows on domestic investment. In this partial adjustment setup, capital flows can have contemporaneous and long-term effects on investment. For countries with less
developed financial markets and weaker institutions, our estimates for the FDI coefficient are larger than one, suggesting FDI stimulates investment in other sectors of the economy (spillover effects). Over the longer term, each dollar of FDI generates at least one additional dollar of local investment. In transition countries with stronger governance indicators, long-term loans raise domestic investment and FDI produces small spillover effects in the long run. Limited portfolio flows into the transition economies have no effect on capital formation in either group.
Annexure-2A.1

Thoughts on Capital Flows

Economists have different thoughts on capital flows. A number of research papers/projects have been written on capital flows. We can classify the various research findings in three schools:

**Traditional School:** This group led to the initial ideas on capital flows. They formed the view that foreign savings could be used to bring growth in underdeveloped economies. They strongly believe capital flows are beneficial and led to higher growth. This group despises imposing any kinds of capital controls.

A variant of this school is the corollary school. They have an alternative explanation, according to which capital inflows lead to corollary benefits — better macroeconomic policies, institutional and financial sector development etc. It reckons that foreign financial players would try and push domestic policymakers to reform economies. Some have questioned this view as the factors responsible for attracting capital inflows end up becoming the result of capital flows.

**Crisis School:** This school is skeptical over the role of capital inflows. Adherents of this school say capital flow leads to crises in the absence of proper economic framework and policies. As economic policies take time to develop, developing economies need time before they can fully open up to capital flows. Hence, policymakers need to be cautious and should impose restrictions on such inflows. Deep crises followed liberalization in Latin American economies like Mexico, Brazil, Chile and Argentina (1980 to 2001), east and southeast Asian economies like South Korea, Indonesia, Thailand and Malaysia (1997-98 ) and other countries like Turkey. The developed economies like Finland, Norway and Sweden also had their share of crises (1990-91) following liberalization.

**Asian School:** It lies between the traditional and crisis schools. It does not discourage capital inflows like the traditional school but is uncomfortable with the large magnitude of the flows. Asian countries have an export-driven model and appreciation of currency hampers their growth. Hence, policymakers (mostly central banks) try and stabilize the movements in currency. They intervene and buy foreign currency to limit currency appreciation. They also sterilize currency flows to prevent inflation. Focus on this school has sharpened and its approach is criticized for managing the impossible trinity (explained later). Their critics say the central bank should manage inflation, and not the exchange rates. However, it has been found that even inflation targeting central banks of South Korea and Thailand — have not allowed their currencies to appreciate. In this crisis we even saw Switzerland’s central bank intervene in forex markets for the first time in more than a decade. The Asian central banks intervened to protect their exports and Switzerland one to prevent volatility in its currency.

**Other Research:** Apart from the three schools, there is active research on direction of capital flows. This issue was first raised by Nobel Laureate Robert Lucas. He gave a lecture in 1990 asking why doesn’t capital flow from rich to poor countries. Subsequent research noted that Lucas preposition was right. Economic historians added that there are two periods where we see increase in foreign capital flows in the world: first, from 1870-1914 and second era from 1970 onwards. In first period, capital inflows were from leading economies (at that time UK) to other developing economies. However, in the second period much of the capital flows are within developed economies. So, the picture that emerges from both kinds of research is that much of capital flows are towards developed economies.

Further work on Lucas Puzzle led to the “allocation puzzle”. Economic theory would posit that within developing economies capital would flow where growth and investment is higher. However, research showed that the case is opposite, with low growth economies getting more inflows.

Economists explored reasons for the crisis and flow of capital from developing to developed countries. The reasons were developing economies have poor macroeconomic policies, lack of proper financial markets, confidence in developed financial markets etc. So without a proper domestic economic framework, capital inflows could lead to crisis.