CHAPTER I

Introduction

Capital account\(^1\) has been the focus of attention for researchers and policy makers since the mid 1980s, with most developing countries liberalizing their capital accounts as a part of the move towards open financial markets. Capital account liberalization is a decision by a country's government to move from a closed capital account system, where capital may not move freely in and out of the country, to an open capital account system in which capital can enter and leave at will (Henry, 2006). Several historical developments like the breakdown of the Bretton Woods Agreement\(^2\) and the consequent shift to floating exchange rate regimes necessitated the removal of some controls on capital movements to facilitate free trade. The international debt crises of the early 1980s\(^3\) and the shrinking of aid flows were the other major events that prompted the replacement of official financial assistance by private resource flows. As a part of debt crisis management, Brady Plan (initiated by Nicholas Brady, U.S

\(^1\) Balance of Payments, one of the most important economic indicators for policy makers in an open economy is a statistical record of all the economic transactions between residents of the reporting country and residents of the rest of the world during a given time period. It is divided into the current account and the capital account. Current account items refer to income flows whereas capital account records transactions concerning the movement of financial capital into and out of the country (IMF, 1993).

\(^2\) The rapid development of foreign investments during the century preceding Second World War, served for most part the purposes of industrial and commercial expansion. However, crisis occurred in the 1930s resulting from the failure of developing countries to meet the obligations arising from international capital flows. Consequently, capital transfers were largely left to official sources for several years. A major move to reconstruct the world economy took shape with the emergence of a system of fixed but adjustable exchange rates that emerged at an international monetary conference held at Bretton Woods in 1947. As a result, each currency was assigned a central parity against the US dollar and was allowed to fluctuate by plus or minus 1 percentage either side of this parity. In this period, private capital movements were confined to only a few industrial countries like USA, Canada, Germany and Switzerland (Obstfeld and Taylor, 2002; Pilbeam, 2006). Though the system operated with success for about 20 years, by the late 1960s, the confidence in the system deteriorated gradually. This was due to the US liquid liabilities outstripping US reserves and due to the lack of an adequate adjustment mechanism (Bordo and Eichengreen, eds. 1993; Eichengreen, 1996). Consequently, the system broke down in 1971 and the fixed exchange rate regime was given up by countries .In the post Bretton wood floating exchange rate era, industrial-country governments no longer needed capital controls as a tool to help preserve a fixed exchange-rate peg, since the peg was gone. This was encouraging to the flow of capital in all countries. In developing countries, economic reforms reduced the transactions costs and risks of foreign investment, and capital flows grew there too.

\(^3\) The factors like second oil shock in 1979 and substantial rise in interest rates due to a rapid rise in the U.S budget deficit led to record levels of indebtedness in developing countries. This also led to rising debt service repayments to international banks by these countries throughout the 1980s, while their ability to raise revenues to finance the payments has greatly diminished. This in turn resulted in international debt crisis in the 1980s (Sachs, and Huzinga, 1987, Nunnenkamp, 1986) and the consequent shrinking of debt flows.
Secretary of the Treasury) of 1989 provided an elaborate scheme that allowed debtor
countries to exchange old debt for new long-term debt with a lower face value. In
order to be eligible for Brady Plan negotiations, countries had to show willingness
added with some prior action to engage in serious market oriented reform
(devaluation, deflation and deregulation) with the expectation that it would lift the
debt overhang burdens associated with extremely high payments (Sachs, 1986; Cline,
1990). Hence after the mid 1980s, the central feature of globalization for the less
industrialized world was the replacement of traditional state controlled regimes and
import substituting industrialization (i.e. reducing imports and substitution by
domestic production as a part of self-reliance policy) by packages aimed at
liberalizing balance of payments on both current and capital accounts. Consequently,
concerns about the implications of international private capital flows for developing
countries have grown with the sharply increased volume of these flows since the late
1980s. Further with the current account transactions being made more convertible
across the globe, leakages in capital restrictions through under invoicing of exports,
over invoicing of imports etc have made capital controls less effective and even
redundant (Cuddington, 1986). The greater sophistication acquired by the transactions
and innovations in financial assets as a result of the progress in the sphere of
information technology and communication also made it difficult to insulate domestic
capital markets (Eichengreen, 2001).

Given the above reasons, a convertible capital account has become a major step in
the process of financial liberalization.

Theoretically, the two major reasons to move towards greater capital account
openness have been identified as (1) increased opportunities for risk diversification
and the consequent reductions in macroeconomic volatility leading to higher
efficiency of global allocation of resources and (2) external discipline on domestic
macroeconomic policies. Review of empirical studies and country experiences show

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4 The volume of net private capital flows increased from 15.28 US dollar billion in the 1970s to 16.41
in the 1980s and 120.3 in the 1990s. It has further increased to 162.61 billion in the period 2000-01 to
2006-07 on an average (IMF, 2008)

5 Capital account convertibility is the freedom to convert local financial assets to foreign financial assets
and vice versa at market-determined rates of exchange. It is associated with changes of ownership in
foreign/domestic financial assets and liabilities and embodies the creation and liquidation of claims on
or by the rest of the world (RBI, 1997; 2006).
that the implications of capital account openness cannot be generalized and the results remain mixed. The experiences in each country vary depending on the degree of capital account openness in a country and other country specific conditions. To cite a few examples capital account openness succeeded in conferring their benefits, in some countries like Hungary, Austria, South Africa and United Kingdom. At the same time, serious financial crises occurred in some other countries, which far outweighed the benefits. For example the Mexican crisis of 1994, East Asian crisis of 1997, Russian and Brazilian crisis, of 1998 etc. This underlines the significance of country specific studies. This led to a serious debate among the researchers and policy makers regarding the costs and benefits of capital account convertibility in developing countries.

In India also this issue is a major concern today. Ever since Prime Minister Dr. Manmohan Singh put forward the need to revisit the idea of full capital account convertibility there has been considerable debate going on this issue in India. Hence the motivation for this study.

1.1 The Indian context

In India, as part of the comprehensive structural adjustment and stabilization programs undertaken by the government in 1991 the capital account was also liberalized. This was in response to the 1991 Balance of Payments (BOP) crisis brought about by the inefficiencies created by the earlier inward looking regime. This marked a shift from reliance on official and debt creating flows, to non-debt creating private capital flows like Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI). At present, the state of capital controls in India can be considered as the most liberalized one since independence (RBI, 2006). The main reasons for the policy reappraisal from a restrictive one to a more liberalized one was to achieve the traditional benefits of capital account openness identified in the literature, which will lead to higher economic growth and will have welfare implications. In the ongoing debates on the required degree of capital account openness in India, a critical assessment of its success so far needs to be empirically verified within the country specificities. Such a study is missing in the Indian context. This study tries to fill this gap. More specifically the implications of capital account openness are examined in the framework of the institutional and policy changes in India. Before going to the
details of the study we provide an overview of the theoretical and empirical literature in this area in general and country experiences in particular.

1.2 Literature Review

1.2.1 Theoretical Literature Review

Three major views on the implications of opening up of the capital account can be identified from the literature (1) Its implications for the availability of funds (2) Its impact on macroeconomic volatility and (3) Its policy disciplining effect.

Open economy versions of neoclassical growth model (Barro and Sala-i-Martin, 1995a, 1995b) suggest that an open capital account relaxes the constraint of domestic savings financing domestic investment through the availability of a large amount of capital. This in turn leads to increased rate of growth of output in a country. In this framework, the extent to which countries benefit from capital account openness depends on the degree of capital scarcity in a country. Focusing on the direction of the flows, Krugman (1993) argued that better capital market integration induces external capital to flow from rich to poor countries assuming a neo-classical production function with diminishing returns due to the higher returns of capital in developing countries.

A variety of theories show that with increased degree of capital account openness, international borrowing and lending could help lower the volatility of macroeconomic fluctuations in capital poor developing countries by providing access to capital that could help them diversify their production base. A positive influence on national welfare and economic growth is expected from the benefits of risk diversification and the consequent reductions in macroeconomic volatility. This is because, without any facility for borrowing from or lending to the rest of the world, a country’s consumption and income can display wide intertemporal variations when production is prone to large shocks and hence will be more volatile. With the reduction in the restrictions on capital account transactions, domestic residents, firms and countries reduce the volatility in income and consumption over time by diversifying away country specific risks as they can utilize international financial markets for risk sharing purposes. In these studies, a consumer/investor is able to increase his/her welfare since (s)he is able to reduce the volatility of his/her marginal utility of consumption/wealth over his/her lifetime by pooling country specific risks associated
with the fluctuations in his/her consumption/wealth (Obstfeld, 1994; Van Winkoop, 1999; Pallage and Robe, 2003 etc). Accordingly, even a small rise in diversification opportunities raises national welfare even in the absence of net capital inflow. Developing countries, in particular, can obtain large welfare gains through international risk sharing due to their highly volatile nature of their income and consumption dynamics (Prasad et al, 2003; Kose et al, 2005).

Sutherland (1996), Senay (1998) using a variant of the dynamic sticky price general equilibrium model developed by Obstfeld and Rogoff (1996) and Mendoza (1994) using a dynamic business cycle model, found that the impact of capital account openness on output as well as consumption volatility depends on the nature of shocks. The findings of these studies suggest that in the presence of monetary policy shocks, the volatility of output increases while the volatility of consumption decreases with the increase in the degree of capital account openness. At the same time, in the presence of fiscal policy shocks, the volatility of output decreases while the volatility of consumption increases with the increase in the degree of capital account openness in each country.

In addition to the implications of capital account openness on output and consumption volatility, some authors emphasize the implications of capital account openness on real exchange rate volatility also (Reinhart and Smith, 2001; Stiglitz, 2001; Corden, 2002). They argue that given massive short-term capital inflows triggered by capital account opening, Real Exchange Rate (RER) appreciation is unavoidable, regardless of the nature of the exchange rate regime choice. The massive short-term capital inflows under a floating regime induce RER appreciation through nominal exchange rate appreciation, particularly when the domestic economy is characterized by significant wage-price rigidity. Under a fixed exchange rate regime, appreciation takes place through an increase in domestic non-tradable prices. In order to absorb capital inflows to avoid excessive real exchange rate appreciation central bank might intervene and there will be a stabilizing effect on real exchange rate consequently.

As against the above, another strand of theoretical literature (Caballero and Krishnamurthy, 2001) has shown that increased degree of capital account openness will enhance macroeconomic volatility in developing countries due to the sudden changes in the direction of capital flows. Such changes can induce boom bust cycles.
in developing countries, most of which do not have deep financial sectors to cope with the highly volatile capital flows. Moreover, sudden changes in interest rates might cause substantially large business cycle fluctuations in highly indebted countries.

Recent theoretical studies in the endogenous growth framework have a different orientation. Using data on investment and human capital, Gourinchas and Jeanne (2003) have shown that the benefits of capital account openness occurring through the channel of global allocation of resources are very low in the real world. The results suggest that the gains occur through indirect channels like disciplining effect on macroeconomic policies that are not captured by the neoclassical model rather than through the channel of capital accumulation. This is because, developing countries have lower per capita incomes mainly because they suffer from domestic distortions and not because they have capital scarcity.

Hence in an endogenous growth framework, it has been argued that, by increasing the rewards of good policies and the penalties for bad policies, opening up capital account may induce the policy makers in countries to follow more disciplined macroeconomic policies like reducing inflation and tightening fiscal deficit and thus reduce the frequency of policy mistakes (Bartolini and Drazen, 1997; Obstfeld, 1998; Gourinchas and Jeanne, 2003). Thus, it acts as a policy-disciplining device by forcing the government to adopt sound monetary and fiscal policies for the fear of being penalized from the international capital market. To the extent that greater policy discipline translates into greater macroeconomic stability, it may also lead to more efficient allocation of resources and higher rates of economic growth.

Fischer (1993) supports the view that a stable macroeconomic environment, meaning a low rate of inflation and a small fiscal deficit, is conducive to sustained economic growth. He found that countries with low inflation have grown faster (South East Asian economies) and countries with high inflation have stagnated or grown much more slowly (Latin American and African economies). His empirical results indicate that inflation reduces growth by reducing investment and thereby reducing the rate of productivity growth. The study also showed that larger fiscal surpluses (or low fiscal

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6 From the Penn World Tables (Alan et al., 2006) and the Barro and Lee (2000) datasets respectively
deficits) were strongly associated with rapid growth, through greater capital accumulation and greater productivity growth. Further, many empirical studies have pointed out that the policies that facilitate disinflation up to a threshold and low fiscal deficit are conducive to sustained economic growth (De Gregorio, 1993; Barro, 1997).

Bartolini and Drazen (1997) and Gruben and McLeod (2000) by focusing on central bank behavior in an open economy with managed exchange rate regime argues that capital account openness directly raises the penalty for loose monetary policy. Their argument is that easier access to foreign exchange raises the elasticity of demand for money and makes the central bank vulnerable to rapid reserve losses—sometimes termed currency substitution. Reserves are less of an issue for flexible rate regimes, but rapid currency depreciations can also be inflationary. By raising the penalties for excess money creation, central banks can alter private sector expectations regarding future monetary policy. The temptation to print money is reduced and the time consistent inflation rate falls as in the well-known models of Barro and Gordon (1983). Thus, capital account openness is associated with lower inflation.

At the same time McKinnon and Mathieson (1981) pointed out that a decrease in capital controls will increase the elasticity of demand for money by increasing opportunities of currency substitution which, in turn would raise the inflation rate required to generate a specific amount of seignorage revenue. Both sets of papers agree that a decrease in capital controls will increase the elasticity of demand for money by increasing opportunities of currency substitution. However, while the former papers argue that this would raise the penalty for loose monetary policy and hence enforce a more disciplined monetary policy where the incentive to inflate is significantly lowered, the later argue that it would raise the inflation rate required to generate a specific amount of seignorage revenue.

The above theoretical review shows that the implications of capital account openness occur through the channel of capital accumulation and consequent reduction in macroeconomic volatility according to the neoclassical framework. At the same time, according to the endogenous growth framework, it occurs through the policy

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7 It is the net revenue derived from the issuing of currency and is a major source of revenue for some central banks. It is considered as a form of inflation tax in the sense of paying for government services by issuing new currency instead of collecting taxes out of the existing money stock (Mankiw, 2006).
disciplining effect. Further it suggests that implications of capital account openness on a country depends on country specific characteristics like nature of shocks originating in a country, monetary, fiscal and other macroeconomic conditions. Thus, the implications of capital account openness on an economy remain an empirical question. The next section discusses the empirical literature

1.2.2. Empirical Literature Review

Though theoretical studies regarding the implications of capital account openness consider only two extremes of a country, one a completely restricted regime and the other one its fully convertible counterpart. Empirical studies in this regard using different methodologies have found that most developing countries maintain some sort of restrictions on capital account transactions. They have neither completely restricted capital accounts nor completely convertible (Balliu, 2000; Edwards, 2001; Prasad et al, 2003; Edison et al, 2002 etc). Hence, capital account openness is a matter of degree.

The findings of the empirical studies on the implications of capital account openness on macroeconomic volatility are mixed. Some studies have failed to find robust results for the implications of capital account openness on macroeconomic volatility measured in developing countries (Razin and Rose, 1994; Buch et al, 2002 etc). Some others (Bekaert et al, 2002; IMF, 2002) found a negative relationship between capital account openness and macroeconomic volatility. Recent studies by Prasad et al (2003) and Kose et al (2005) have shown that while the volatility of output and consumption growth has declined in the 1990s compared to the earlier decades, increasing financial openness is associated with rising volatility of consumption relative to that of output volatility but only up to a certain threshold. All these studies are based on either cross country regressions or panel data. These studies have shown that the links between the capital account openness and macroeconomic volatility are sensitive to the degree of capital account openness in a country, structural characteristics like monetary policy,

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8 This is only a broad overview of the empirical literature which is discussed in detail in the appropriate chapters
9 In this context it is useful to mention that various empirical studies have shown a robust negative relationship between volatility and economic growth (Bernanke, 1983; Pindyck, 1991; Ramey and Ramey, 1995; Mendoza, 1997; Martin and Rogers, 2000; Hnatkovska and Loayza, 2006 etc).
fiscal policy and financial sector framework in developing countries and also the nature of shocks present in developing countries (Senhadji, 1998; Kose, 2002).

The empirical evidence on the policy disciplining effect of capital account openness is few. Most studies that have attempted this using cross country data, obtained a strong disciplining effect of capital account liberalization on inflation (Gruben and McLeod, 2001; Gupta, 2004, 2007; Spiegel, 2008). Only Kim (2003) obtains the strong disciplining effect of capital account openness on fiscal deficit. The first set of studies have examined the implications of capital account openness on inflation alone and the last study focused on the implications of capital account openness on fiscal deficit alone. Only the study by Tytell and Wei (2004) has analyzed the policy disciplining effect of capital account openness, based on endogenous growth model that allows for mood swings in international capital flows. This study examines the impact of capital account openness on both inflation and fiscal deficit in a single framework using panel data and three stage least square estimation. Strong disciplining effect on inflation is obtained in this study whereas only weak effect on fiscal deficit. However, all these studies have used either cross-country regressions or panel data. These studies also underline the need for country specific time series studies as the results seems sensitive to country specific characteristics and the degree of capital account openness in a country.

In the Indian context, there is no well-specified time series study on the implications of capital account openness on macroeconomic volatility and on the policy disciplining effect. Using an impulse response function constructed from the vector error correction mechanism, Kohli (2005) has obtained significant adjustment response of the RER to unanticipated capital flows in India for the period 1993-94 to 2002-03. However, the author demands the need to examine the impact of capital account openness on real exchange rate fluctuations within a well-specified context after controlling for other factors. Gupta (2007), in his paper based on cross country study with special focus on India has given an indication of some sort of disciplining effect of capital account openness on inflation in India by examining the scatter plot between capital flows and inflation in the post reform period. He however pointed out the need to control for other variables that may affect inflation for substantiating the observation.
Thus, the above review shows that implications of capital account openness on macroeconomic volatility and the policy disciplining effect needs to be examined in a well-specified multivariate framework. Since the implications depend on the degree of capital account openness in a country, the degree needs to be captured empirically by constructing indices that capture the intensity of restrictions on capital account. Most importantly country specific studies are needed to understand the implications of capital account openness. We conclude with some country experiences on capital account openness.

1.2.3. Country Experiences

The above review emphasizes the role of country specific characteristics in influencing the implications of capital account openness. This section gives a brief account of some country experiences with capital account openness to get some insights on the issue. The Latin American and East Asian experiences and the experiences of some selected countries that have enjoyed the benefits of capital account liberalization without any financial crises are summarized here.

Though both Latin American (Argentina, Brazil, Bolivia, Chile, Columbia, Ecuador, Mexico, and Uruguay) and East Asian economies (Brunei, Burma, Indonesia, Malaysia, Thailand, Singapore, Cambodia, East Timor, Philippines and Vietnam) achieved high growth rates in the immediate aftermath of capital account opening, ultimately it resulted in financial crises in these countries. The crises can be considered as the result of interrelationship between financial, particularly the banking sector and macroeconomic vulnerabilities in the context of capital account liberalization in these countries (Krugman, 1994; McKinnon and Pill, 1996; Goldstein, 1997, 1998). Further, short-term capital flows like portfolio flows that can be withdrawn quickly, were mounting in some Asian economies like Thailand, and Indonesia and in the Latin American countries, which ultimately resulted in financial crises in these countries. In addition, in the Latin American countries, in spite of legal restrictions on capital account, capital flight occurred resulting in financial crises showing the ineffectiveness of capital controls (Eichengreen, 2003; Aizenman and Pinto, 2006).

Though the economies described above suffered from financial crises in the aftermath of capital account openness, countries like Hungary, Austria, South Africa and United
Kingdom benefited from capital account openness avoiding financial crises. These countries first established a framework for macroeconomic stability, then liberalized capital account transactions step by step, with transactions perceived to be riskier being liberalized later, and only in the final stage embarked on a gradual liberalization of financial sector. Although countries like South Africa's financial system was exposed to large swings in capital flows and financial market prices following the emerging market crises, sound macroeconomic and prudential policies helped the financial sector withstand adverse shocks. The sequencing of changes in macroeconomic policies, liberalization of international financial transactions and domestic financial sector reforms was carefully designed to preserve internal and external stability as these economies became more closely linked with its neighbours (Ishii and Habermeier, 2002; Baker and Chapple, 2002).

The country experiences above show that capital account liberalization is a complex process and its success requires proper sequencing and coordination with macroeconomic and other policies. Reflecting various approaches and initial conditions some countries have been able to liberalize their capital accounts successfully, while other countries have experienced financial crises.

To sum up, the review of literature suggests that there are both methodological and substantive issues to be resolved. The most important gap in the literature is that while broad relationships between capital account policies and outcomes are tested, there is no study testing for the impact of policies on specific components of capital flows. Given its policy implications, it is important to look into this aspect. This study tries to fill this gap as well. In this process, several methodological improvements are also brought in. Against this background, we formulate the specific objectives of this study as follows:

(1) Measure the degree of capital account openness in India and analyze the impact of policies on major components of flows,
(2) Analyze the impact of capital account openness on the output, consumption and real exchange rate volatility,
(3) Examine the disciplining effect of capital account openness on inflation and fiscal deficit.
1.3 Scope, Methodology\textsuperscript{10} and Data Sources

The period of our analysis is 1973-74 to 2006-2007. 1973-74 is taken as the initial year since Foreign Exchange Regulation Act (FERA), 1973 and the Industrial Licensing Policy, 1973 formed the legal basis for the control regime of capital account policy in India.

The degree of capital account openness in India is examined using two indicators available in the literature (1) rule based indices and (2) capital flows as a percentage of GDP. To estimate the degree of capital account openness based on rule based measures, a continuous time series index is constructed which captures the intensity of the controls on capital account transactions following the methodology of Quinn (1997) and distinguishes between capital inflows and outflows. In addition to the annual indices, monthly and quarterly indices from 1993-94 to 2006-07 are also constructed.

The second indicator used to proxy the degree of capital account openness is the capital flows estimated as a percentage of GDP. Both net and gross capital inflows and outflows as a percentage of GDP are used and their growth rates are estimated. Further, the composition of net capital inflows in the period of analysis is also examined. The impact of specific policies on specific components of capital flows is examined using canonical correlation analysis.

The implications of capital account openness on output volatility, consumption volatility, and volatility of consumption relative to that of output and real exchange rate volatility are examined by controlling for the effects of monetary, fiscal and terms of trade shocks. The model developed by Butch et al (2002) is used for this purpose. This model is selected because it allows controlling for the nature of domestic shocks existing in the economy. In otherwords, it allows to find the implications of the interaction between capital account openness and other shocks on macroeconomic volatility. This is particularly relevant for India since capital account liberalization has been initiated as a response to the BOP crisis in 1991 which has been attributed to the interaction between capital account policies and other macro-economic shocks. The disciplining effect of capital account openness on inflation and fiscal deficit is

\textsuperscript{10}A critical review of the different methodologies and the reasons for the choice of certain methodologies in the study are discussed in detail in the respective chapters.
examined using multivariate modeling, which also includes other potential variables that can affect inflation and fiscal deficit.

In the exercises testing for macroeconomic volatility and the policy disciplining effect, stationarity of all the variables used are examined using Augmented Dickey Fuller unit root tests. Johanson Juselius multivariate tests are used to examine the co integration between non-stationary variables. Estimation is done using Ordinary least squares method. Granger causality tests are used to examine the reverse causality problem.

Although use of monthly data relating to all the variables would be the ideal choice, due to lack of such data for the pre-reform period (1973-74 to 1992-93) we are forced to use annual data. However, this may not matter, since India had a restricted capital account during this period. Fortunately, for the period, (1993-94 to 2006-07) monthly data on most variables is available and this is used for the analysis. When monthly data is not available, we have used quarterly data.

The data sources used are the publications of the Reserve Bank of India such as the various issues of the Annual Report, the Reserve Bank of India Bulletin and the Report on Currency and Finance and the Economic Survey published by the Government of India, Ministry of Finance, In addition to these the National Accounts Statistics (NAS) published by the Central Statistical Organization (CSO), and the International Financial Statistics published by the IMF are also used for the analysis.

1.4 Chapterization Scheme
The rest of the study is organised as follows. Chapter 2 examines the major features of the policies relating to the capital account in the pre and post liberalisation period in India to provide an overview of the institutional framework. Chapter 3 tries to capture quantitatively the degree of capital account openness and the links between policy and performance. Chapter 4 examines the implications of capital account openness on macroeconomic volatility such as income volatility, consumption volatility, ratio of consumption volatility to output volatility and real exchange rate volatility in a multivariate framework. Chapter 5 analyses the policy disciplining effect of capital account openness on inflation and fiscal deficit. Chapter 6 provides the conclusions and policy implications of the study.