CAPITAL MOBILITY AND GROWTH IN THE DEVELOPING WORLD: AN EMPIRICAL INVESTIGATION

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Abstract

This paper investigates the link between financial liberalisation and growth for a cross-section of seventeen developing countries, including India, empirically. Theoretically, capital account openness leads to growth through two main channels: increase in aggregate investment and an improvement in productivity and efficiency. Existing empirical evidence however, suggests that the link between capital account openness and economic growth is weak.

The paper uses a de jure measure of capital account convertibility, calculated as the proportion of capital flows to total flow of funds. The results find a positive association between financial openness and growth for some countries in the sample. However the investment effect is found to be weak or of no significance for the majority of the sample.

Keywords: Capital Flows, Financial Liberalisation, and Growth.

1. Introduction

Globalisation, liberalisation and integration are the buzzwords in policy and strategy in the last three decades as, financial linkages of developing economies with the global economy have significantly increased. Large parts of the developing world adopted policies of financial liberalisation leading to a change in the nature and magnitude of financial flows across the globe, and a concurrent increase in the incidence of banking, currency and financial crises as well.

The theoretical basis of financial liberalisation was the theory of financial repression first advocated by McKinnon (1973) and Shaw (1973). They asserted that financial repression allocates capital to inefficient use and therefore it traps developing countries in a low saving and low growth cycle. Outward oriented trade; realistic exchange rates and financial liberalisation were likely to ensure more successful adjustments to external imbalances and higher rates of economic growth in the developing world. This theory became the basis of the IMF- World Bank sponsored Structural Adjustment Programmes (SAP), which were adopted by large parts of the developing world. The focus of any SAP was to remove inherent structural distortions in an economy through financial liberalisation so as to have higher rates of growth and development.

The basic aim of this paper is to explore different facets of financial globalisation beginning with some semantics. It then explores the trends of financial flows to the developing world. The paper also examines the relationship between financial liberalisation and economic growth for a cross section of developing countries, including India.

2. Review of Literature

2.1 Measuring Financial Openness

The literature usually considers financial openness as synonymous with capital account openness and typically focuses on three aspects of financial openness: measures based on statute, based on actual capital flows and on asset prices. Measures of capital account openness based on statute are also known as de jure or rules based measures and are based on, and represent policies on capital account restrictions. The most commonly used de jure measure of openness is derived from information in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions, (AREAER). It is available for all IMF member countries from 1966 and is a dummy variable that takes a value of 1 if a country has capital account restrictions in a given year and 0 otherwise. However, it does not distinguish between different types of controls nor does it capture the difference in intensity of controls. Another de jure measure called SHARE measures openness as a variable reflecting the proportion of years in which countries had liberalised capital accounts. Quinn (1997) has constructed the most comprehensive cross-country indicator of capital account openness. He uses a 0 through 4 scales to classify openness, with a higher number implying a more open capital account.

These and other such rules based measures assume that restrictions on capital account are fully effective, and therefore represent the countries' true degree of financial openness. However studies have found that capital controls, especially in developing countries, have been of limited effectiveness as investors find ways of circumventing them. To this extent, these measures underestimate the degree of a country's financial openness.

De facto measures of openness are based on actual capital flows and measure a country's effective openness. This is analogous to using trade volumes as a measure of trade openness and helps to distinguish between different types of capital flows. This level of disaggregation allows us to more closely identify the different channels through which capital flows might affect economic growth, Kraay (1998) and Swank (1998). Since actual outflows and inflows are affected by a number of factors such as monetary, fiscal and exchange rate policies and the global economic and financial climate, and not merely by restrictions on capital flows, this measure is unlikely to be an informative indicator of the capital account regime. Besides this, capital flow data for some developing countries is incomplete and of poor quality as well.

A third alternative is to use portfolio and direct investment assets and liabilities as a per cent of GDP as a long run indicator of financial openness {Lane and Milesi-Ferretti (2001)}. Such a measure is a good indicator of openness at a point in time, but its value may fluctuate from year to year, since capital flows are endogenous and there can be large valuation adjustments due to, say a large swing in equity values.

2.2 Capital Account Openness and Growth

There is a large and growing literature that tests the potential benefits of capital account liberalisation through its influence on long run growth and development, by directly investigating the empirical relationship between capital account liberalisation and economic growth. Almost all of these studies augment a basic growth model that includes variables such as the level of schooling, investment, population growth and the level of GDP in the initial year with a measure of capital account liberalisation. The data are typically averaged over five, ten, or twenty years so that the data set is converted into either a cross-sectional data set or a panel data set. Distortions in the domestic economy such as information asymmetry and moral hazard are proxied through the use of measures of institutional development and policy environment such as the inflation rate and fiscal deficit.

Supporting Evidence of Capital Account Liberalisation on Growth

Wang (1990), develops a model in which international capital movements from the developed North to the developing South transfers technology and shows that liberalisation of the capital account leads to greater foreign direct investment leading to greater competition in which domestic firms try to be efficient. In the process domestic savings are more efficiently used. The rate of technological change is an increasing function of the amount of foreign capital operating in the South and of the extent to which technology in the advanced country exceeds it in the less developed country. It is shown that when the South shifts from autarky to free capital mobility, its steady state growth rate of per capita income also increases.

Obstfeld (1994), presents a simple model of global portfolio diversification that links growth and financial openness. The set up is a stylised development of the idea developed by Romer (1990) and Grossman and Helpman (1991). The model asserts that ongoing growth depends upon investments that supply specialized and hence inherently risky production inputs. Because risky technologies in the model have higher expected returns than safe ones, international asset trade, which allows each country to hold a globally diversified portfolio of risky investments, encourages all countries to shift from low return safe investments towards high return risky investments. Provided risky returns are imperfectly correlated across countries, and provided some risk free assets are initially held, a small rise in diversification opportunities always raises expected growth as well as national welfare. The key here is that financial liberalisation can enhance growth even in the absence of net capital inflow.

Quinn (1997), is one of the most comprehensive studies to identify a positive result between capital account liberalisation and growth. He uses a multivariate regression framework to determine the political and economic variables with which a change in international financial regulation is robustly associated. Quinn's study covers 58 countries over the period 1960 to 1989 and although his results suggest a significant effect of the change in capital account liberalisation on growth, it is difficult to distinguish the impact of current account and capital account liberalisation separately.

Klein and Olivei (1999), investigate the association between capital account liberalisation and growth in a cross sectional regression specification of 82 countries over the period 1986 to 1995. Their study first focuses on the role of capital account liberalisation on financial development and then considers the effect of financial development on growth. They conclude that the beneficial effects of capital account liberalisation can only be achieved in an environment in which there is institutional support for the changes brought about by the free flow of capital.

Edwards (2001), examines whether the relationship between capital mobility and growth is different for emerging and advanced economies and tests the impact of capital mobility on economic growth, where growth is estimated in terms of GDP growth and total factor productivity (TFP) growth.

Bekaert, Harvey and Lundblad (2001), examine the impact of stock market liberalisation on economic growth. Augmenting the standard set of growth model variables with their variable indicating stock market liberalisation, they maximise the time series content in their regression using a moving average panel data method. These results along with those of Quinn are the strongest evidence supporting the hypothesis that capital account liberalisation leads to growth.

O' Donnell (2001), examines the impact of capital account liberalisation using both IMF rules-bases measure and a quantitative based measure of financial openness. He found rules based measures, too coarse an indicator of capital account liberalisation, as it does not take into account the nature of different types of controls. Using quantitative measure, he finds that capital account liberalisation does seem to speed up economic growth. He also finds that benefits to all countries are not equal.

Chanda (2001), in his study also finds that the benefits of capital account liberalisation are different for different groups. He suggests that the impact may vary with the level of ethic and linguistic heterogeneity in the society, a proxy for the number of interest groups. In particular, he finds that capital controls lead to greater inefficiencies and lower growth among countries with a high degree of ethnic and linguistic heterogeneity.

Chinn and Ito (2002), examine the empirical relationship between capital controls and the financial development of credit and equity markets. The authors investigate a broader set of proxy measures of financial development, create and utilise a new index based on the IMF measures of exchange restrictions that incorporates a measure of the intensity of capital controls and examines the implications of institutional and legal factors. The study analyses the experiences of 105 countries over the period 1977-1997 and concludes that the rate of financial development, as measured by private credit creation and stock market activity, is linked to the existence of capital controls.

Klein (2003), offers robust empirical evidence that capital account openness contributes in an important way to economic growth for middle-income countries. He concludes that there is a need to carefully manage and sequence liberalisation, with appropriate controls, regulatory apparatus and macroeconomic framework.

2.3 Studies not supporting the Hypothesis that Liberalisation Promotes Growth

In a widely cited study Rodrik (1998) has cast doubts on the effects of capital account liberalisation on growth. In a sample that includes almost 100 countries, developing as well as developed, he finds no significant effect of capital account liberalisation, on the percentage change in real per capital income over the period 1975 to 1989 in growth regressions that also include initial per capita incomes, initial secondary-school enrolment rate, an index of the quality of government institutions and regional dummy variables. He also finds no relationship between capital account liberalisation and investment-to-income, nor between capital account liberalisation and inflation.

These results are broadly consistent with those of Kraay (1998), who undertakes a more comprehensive examination of the effect of capital account liberalisation on investment, growth and inflation. The study includes data from 117 countries over the period 1985-1997, and uses three different measures of financial market development and policy environment. His regressions take the form of cross sections, with one observation per country, where the dependant variable is the growth in output between 1985 and 1997. He uses both OLS and the instrumental variable approach, in which the capital account liberalisation variables are instrumented by their own past values.

3. Financial Liberalisation: Some Basic Stylised Facts

The literature often uses terms such as financial globalisation, financial deepening, financial liberalisation and financial integration interchangeably, although on close inspection differences are clearly discernable.

Financial liberalisation refers to a reduction in the role of the government and an increase in the role of the market, in allocating credit. The process of financial liberalisation is linked to the basic structure of the economy and requires reform in stages. It is a process that should be introduced in a phased manner, beginning with trade reform, moving on to a gradual opening of the financial sector including the adoption of current account convertibility and finally the removal of capital controls.

Financial globalisation, on the other hand is an aggregate concept that refers to rising global linkages through cross border financial flows. Financial integration refers to an individual country's linkages to international capital markets. Being closely related, increasing financial globalisation is often associated with rising financial integration on average. It may be concluded therefore that globalisation has been the direct result of financial liberalisation of economies, but financial integration may or may not be associated with liberalisation. A case in point is Latin America in the 1980's, which was de jure closed to financial flows but was in actual fact integrated with the rest of the world through the large amount of capital flight that actually took place.

Another important distinction is between the terms financial deepening and financial development. Financial deepening refers to an increase in the volume of credit being intermediated in financial markets, and is typically measured by indicators such as M2, credit to the private sector, or stock market capitalisation relative to GDP. Financial development should be thought of as a much broader concept reflecting improvements in the functioning of the financial sector. These include increased access to financial intermediation, greater diversification opportunities, improved information quality, and better incentives for prudent lending and monitoring.

Financial liberalisation and financial deepening are related terms but they are not equivalent. Financial deepening affects access to finance, while liberalisation affects the incentives with which credit is deployed. For example, during the 1970s and up to the early 1980s, Japan and France had financially deep markets that were highly repressed. Conversely, Great Britain in the late 1970s and several Latin American countries, including Peru, Argentina and Brazil in the 1990s had liberalised financial markets that were relatively shallow.

4. Theoretical Framework

The theoretical basis of capital account convertibility lies in the argument that free capital mobility allows the global economy to reap the efficiency gains created by specialisation in the production of financial services. It is an extension of the logic of the benefits of free trade which says that financial development can raise an economy's growth rate in two ways: by increasing the rate of capital accumulation and by spurring technological innovation {McKinnon (1973) and Shaw (1973)}.

Thus greater openness of the capital account has an impact on economic performance through two alternative channels:

- The first and most obvious one is through its effect on foreign savings and through them, on aggregate investment. Countries with a more open capital account will have, in principle, the ability to finance a larger current account deficit and thus increase the volume of foreign savings. If increases in foreign services are not reflected in a one to one decline in domestic savings, aggregate savings will be higher. This will allow higher investment and faster growth. This is known as the Investment Effect. Whether increased capital inflows and higher current deficits actually result in higher aggregate investment depends on the extent to which foreign savings crowd out domestic savings.

- The second channel through which capital mobility may affect economic performance refers to efficiency and productivity growth. The principle of free trade in goods and services is extended to trade in securities. Countries with fewer restrictions on capital mobility will, with other things given, tend to outperform countries that isolate themselves from global financial markets. The elimination of capital controls reduces an important distortion resulting in a higher return to investment and higher productivity growth. This is known as the Performance Effect.

There are both direct and indirect channels that help to enhance growth in developing countries. Some of these are as follows:

4.1 Direct Channels

- **Increased Domestic Savings** According to the "two gap" structural development literature {Chenery and Bruno (1962), McKinnon (1964)}, growth of an economy is limited not only by a country's ability to save, but also by foreign savings with which to buy necessary imported inputs. However, such capital flow must be supplementing in nature rather than crowding out domestic investment. Barro, Mankiw and Sala-I-Martin (1995) have also emphasised that domestic residents can finance in part or in full the physical capital by foreign savings which increases the rate of capital accumulation. An increase in the flow of capital from regions of abundance to regions of scarcity reduces the risk-free rate in developing countries and increases the return on capital in areas of abundance.

- **Reduction in cost of capital through diversification of risk** An increase in the opportunities to share risk help in its diversification. This in turn encourages firms to increase total investment, thereby increasing growth. As capital flows increase, the domestic stock market becomes more liquid, further reducing the equity risk premium and lowering the cost of raising capital for investment.

- **Transfer of technology and managerial know-how** Financially integrated economies attract a disproportionately large share of FDI inflows, generating technology spillovers and helping to pass on better management practices. These spillovers raise aggregate productivity and in turn boost economic growth.

- **Stimulation of domestic financial sector development** Joseph Schumpeter (1911) argued that the services provided by financial intermediaries (eg. mobilising savings, evaluating projects, managing risk and facilitating transactions) are essential for technological innovation and economic development. Authors such as Gurley and Shaw (1955), Goldsmith (1969), Patrick (1966), McKinnon (1973) have emphasized the role of financial intermediation in the process of economic growth and argued that the increased financialisation of assets is instrumental in promoting economic development. International portfolio flows increase the liquidity of domestic stock markets. Increased foreign ownership of domestic banks also generates a variety of other benefits such as access to international financial markets and improvement in the regulatory and supervisory framework of the domestic banking industry. Foreign banks also introduce a variety of new financial instruments and techniques and also foster technological improvements in domestic markets. The entry of foreign banks increases competition that improves the quality of domestic financial services and allocative efficiency.

4.2 Indirect Channels

- **Promotion of Specialisation.** In principle, financial globalisation plays a useful role by helping countries to engage in international risk sharing and reduce consumption volatility, indirectly encouraging specialisation and raising the growth rate.

- **Commitment to better economic policies** International financial integration increases productivity in an economy through its impact on the government's ability to credibly commit to a future course of policies. The disciplining role of financial integration changes the dynamics of domestic investment in an economy leading to a reallocation of capital towards more productive activities in response to changes in macroeconomic policies.

- **Signalling effect** A country's willingness to undertake financial integration would be interpreted as a signal towards more friendly policies towards foreign investment in the future. Bartolini and Drazen (1996) suggest that the removal of restrictions on capital outflows can, through its signalling role, lead to an increase in capital inflows.

However, the benefits of capital account openness rest on the premise of an efficient capital market, ignoring the presence of distortions such as information asymmetry, moral hazard and herding on the part of foreign investors. The destabilising effect of capital flows was first articulated by Diaz-Alejandro (1985). This has led to a growing body of work that highlights the role of moral hazard and explicit or implicit government guarantees in increasing the vulnerability of countries to financial crisis. McKinnon and Pill (1998).

5.1 Methodology

Since the first wave of financial liberalisation in the developing world began in the early 1970s, the empirical analysis in this paper is a time series analysis for seventeen developing economies for the period 1971 - 2005.

The paper estimates the association between capital account openness and growth in a linear regression framework. Since the data is in the form of a time series, the first step is to check stationarity of variables, to see if the mean and variance of the series is time independent over the sample. In all data, which is in the form of a time series, the first step is to determine if the variables are stationary in levels, or if a first or second order differencing is required to achieve stationarity. For this purpose a unit root test is done. This is known as testing the order of integration of variables. Various tests are available to test the order of integration of variables, including the Dickey Fuller (1979), Augmented Dickey Fuller (ADF), Phillips Perron (1988) and Durbin Watson (Sargan and Bhargava 1983) test. This paper uses the Dickey Fuller and Phillips Perron tests to test for the presence of unit roots and replaces non-stationary variables with the first difference of their values.

In principle, a greater openness of the capital account has an impact on economic performance through two alternative channels. The first one is the increase in foreign savings, and through them, on aggregate investment. Following Edwards (2001), this is called the

"Investment Effect". The second channel through which capital mobility may affect economic performance refers to efficiency and productivity growth. This is termed the "Performance Effect".

The standard model of economic growth explains the long-term trend in the potential output of an economy by breaking it down into two parts:

The first part can be explained by the growth in the inputs used in production. This is called Real GDP Growth (RGDPG).

Those parts of growth, which can be explained by improvements in the efficiency with these inputs, are used. The latter is called Total Factor Productivity (TFP) growth.

In this paper we examine the association between Capital Flows and Real GDP Growth

In order to test the hypothesis of the influence of openness on growth, the following model was estimated:

$$g_j = \beta_0 + \beta_1 K_j + \beta_2 X_j + \varepsilon_j \qquad\qquad (1)$$

Where g_j is average real GDP growth in country j during the period 1971 - 2005;

k_j is a measure of capital account openness in country j, or an indicator of the extent of capital account liberalisation between 1971 and 2005.

Capital account openness is measured by the variable $OPEN^+$, which is measured as the sum of total capital flows to total flow of funds. ε_j is the error term.

X_j are other variables that affect economic performance such as

INV^+ - The investment ratio during 1971-2005, proxied by the rate of gross fixed capital formation to GDP;

HUM^+ - A measure of human capital, taken to be the total mean years of education;

LRG^- - The log of real GDP per capita in 1971, which is taken to be a measure of initial economic activity. To the extent that the country's real income tends to converge, the coefficient of this variable is expected to be negative.

DEV^+ - A measure of the country's level of development taken to be the product of LRG and OPEN. If the coefficient of DEV is positive it indicates that the effect of capital account openness on growth increases with the level of development.

The superscript over the variable represents the expected obtainable sign.

5.2 Data Sources

Data for the study has been taken from various issues of The International Financial Statistics Yearbook, the Nehru and Dhareshwar dataset (1994) and The Penn World Tables (version 6).

6. Estimation and Results

The paper uses the OLS technique for estimating the linear relationship between capital account openness and growth. Therefore to obtain meaningful results the order of integration of variables had to be examined. Regression results are meaningful only if the order of integration of the dependant variable is greater than or equal to the order of integration of the independent variables. Results of the test and their critical values are reported in Tables 1 and 2. The tables show that two variables OPEN and HUM were found to be non-stationary for some countries in the sample. These were replaced with the first difference of their values.

Table 3 presents the main statistically significant findings of the estimation. The results show that there is a positive significant relationship between openness and growth for Argentina, Chile, Paraguay, Venezuela, Indonesia, Korea, Malaysia, Philippines and Thailand. Bolivia, Colombia, Ecuador and India have a positive relationship between openness and growth but the coefficient is insignificant. The results for Brazil, Mexico, Peru and Uruguay indicate a negative association of openness and growth.

The values of R^2 indicate that over 50% variation in the dependant variable can be explained by the independent variables in the case of Mexico, Paraguay, Uruguay, Indonesia, Phillipines and Thailand.

The coefficient of INV however has a significant positive sign only for Paraguay, Indonesia, Malaysia and Philippines. The relationship   is positive but insignificant for Argentina, Brazil, Colombia, Ecuador, Peru, Korea and Thailand. The results indicate a negative relationship for Bolivia, Chile, Mexico, Uruguay, Venezuela and India.

The "Investment Effect" therefore, does not seem to be a strong explanatory variable of growth for many countries in the sample. This is due to the fact that there is a smaller proportion of FDI compared to portfolio flows in the total inflow of capital for the time period of the study. Since it is FDI inflows that manifest themselves into investment, this is possibly the reason for the "Investment Effect" being less robust.

The coefficient of HUM has the expected sign and is significant for Colombia, Korea, Phillipines and Thailand. It is positive but insignificant for Argentina, Ecuador and Thailand and has a negative relationship for all other countries. The coefficient of LRG has the expected sign for Bolivia, Brazil, Mexico, and Korea. The convergence effect of real income is therefore visible only for the above countries in the sample.

The variable DEV is positive and significant for Mexico, Paraguay, Peru, Uruguay, and positive but insignificant for Colombia and Indonesia. The variable DEV has a negative but significant

relationship for Argentina, Venezuela, Korea, Malaysia, Philippines and Thailand. It is insignificant for the other countries in the sample. The results indicate an overall association between capital flows and growth for South East Asia.

Capital account openness has been less beneficial for countries of Latin America except a few such as Argentina, Chile Paraguay and Venezuela. A possible explanation for this is the fact that liberalisation attempts in Latin America were introduced amidst conditions of high inflation and fiscal deficits, eroding any possible benefits that foreign capital could have brought with it. As explained earlier, the low levels of FDI compared to portfolio flows are responsible for a less robust investment effect.

Table1: Testing For Unit Roots: Dickey Fuller Statistics

	Rgdpg	Open	Inv	Hum	Lrg	Dev
Argentina	-4.344*					
(1st diff)	-3.170**	-6.802*	-6.468*	-4.344*	-3.167**	
Bolivia	-4.376*	-3.555**	-5.693*	-3.877** (0LT)	-21.621* (0LT)	-3.528**
Brazil	-3.584**	-.3731*	-5.148*	-2.687**	-5.931*	-3.701**
Chile	-6.410*	-3.955*	-5.077*	-8.729*	-3.652**	-3.691**
Colombia	-3.539**	-3.019**	-4.253*	-0.788	-3.312**	-2.92***
Ecuador	-5.530*	-3.587**	-6.099*	-2.67***	-4.014*	-3.556**
Mexico	-20.052*	-3.193**	-6.020*	-2.102	-4.059*	-3.099**
Paraguay	-4.179*	-4.930*	-3.793*	-4.301*	-2.88***	-4.851*
Peru	-4.559*	-3.032**	-3.195**	-0.093	-3.672**	-3.077**
Uruguay	-3.493**	-3.978*	-0.835	-0.661	-3.201**	-4.010*
Venezuela	-8.890*	-4.040*	-5.389*	0.617	-6.888*	-4.054*
India	-4.158*	-7.137* (1stdif)	-5.367*	0.542	-3.525**	-7.209 (1st dif)
Indonesia	-5.826*	-6.227	-21.489*	-0.383	-4.25*	-6.236 (1st dif)
Korea	-4.040*	-11.976* (1st dif)	-3.869** (1LT)	0.060	-4.934*	-5.190*
Malaysia	-5.042*	-7.5* (1st dif)	-7.164*	-1.830	-2.79***	-6.951 (1st dif)
Philippines	-4.154*	-7.166 (1st dif)	-4.083*	-3.971 (3LT)	-3.796*	-5.773 (1st dif)
Thailand	-3.169**	-6.076 (1st dif)	-10.351*	-6.813*	-3.360**	-2.66*** (1L)

Critical values for zero lag: at 1% level of significance: 3.723 'dif' stands for difference

5% level of significance: 2.989   'L' indicates lag

10% level of significance: 2.625   'LT' indicates lag trend

*   indicates stationarity at 1% level of significance

**   indicates stationarity at 5% level of significance

*** indicates stationarity at 10% level of significance

Table 2: Testing For Unit Roots: Phillips Perron Statistics

	Rgdpg	**Open**	**Inv**	**Hum**	**Lrg**	**Dev**
Argentina	-8.512	-15.60**	-29.7***	-34.986*	-23.862*	-15.58**
Bolivia	-24.105*	-17.03**	-31.652*	-21.621 (0LT)	-21.630* (1LT)	-16.90**
Brazil	-18.733*	-18.995*	-28.110*	-6.453	-22.863*	-19.097*
Chile	-18.776*	-21.375*	-28.331*	-40.772*	-19.072*	-19.646*
Colombia	-18.491*	-14.73**	-23.225*	-1.010	-14.870*	-14.02**
Ecuador	-29.871*	-18.542*	-34.099*	-2.279	-21.622*	-18.419*
Mexico	-30.234*	-6.881	-22.882*	-4.950	-21.536*	-35.873 (1st dif)
Paraguay	-20.082*	-15.90**	-20.209*	-22.221*	-15.063*	-16.24**
Peru	-25.232*	-14.79**	-17.523*	-0.124	-19.352*	-15.10**
Uruguay	-14.05**	-21.260*	-5.115	-1.818	-15.7*	-21.551*
Venezuela	-33.135*	-21.738*	-30.058*	0.774	-23.528*	-33.135*
India	-22.614*	-11.4***	-29.506*	0.834	-16.908*	37.9* (1st dif)
Indonesia	-29.166*	-27.565* (1st dif)	-15.47**	-17.324*	-23.235*	-34.225 (1st dif)
Korea	-21.780*	-13.70**	-10.085	0.087	-28.329*	-14.53**
Malaysia	-28.123*	29.234 (1st dif)	-28.715*	-7.630	-13.996*	-10.3***
Philippines	-23.393*	-30.397 (1st dif)	-22.384*	-3.569	-19.166*	-32.027* (1st dif)
Thailand	-15.93**	-11.5***	-46.335*	-36.984*	-17.186*	-9.910

Critical values for zero lag: at 1% level of significance: -17.472 'dif' stands for difference

at   5% level of significance: -12.628   'L' indicates lag

at 10% level of significance: -10.280   'LT' indicates lag trend

*   indicates stationarity at 1% level of significance

**   indicates stationarity at 5% level of significance

***   indicates stationarity at 10% level of significance

Table 3: Capital Account Openness and Growth: Individual country results
Dependant Variable: Real GDP Growth (RGPG)

	OPEN	INV	HUM	LRG	DEV	CONST	R^2	Adj R^2	N
Argentina	.03209 (1.97)	.03070 (0.38)	7.792006 (0.80)	.000979 (0.17)	-.09193 (-2.70)	2.256617 (2.02)	0.3172	0.1750	35
Bolivia	.02599 (0.03)	-.54647 (-0.65)	-3.5722 (-1.11)	-.0053935 (-1.69)	-.06251 (-0.06)	1.93486 (1.20)	0.0483	-0.1606	35
Brazil	-.2206 (-1.42)	.12859 (0.01)	-70.8484 (-1.05)	-.005007 (-1.21)		13.69193 (1.04)	0.2544	0.1326	35
Chile	.08749 (1.44)	-.01203 (-0.25)	-.64828 (-0.88)	.0001915 (1.20)	-.09541 (-1.43)	0.044239 (0.24)	0.1386	-0.0408	35
Colombia	.00029 (0.15)	.09462 (1.00)	.5451637 (2.06)	.0003178 (2.74)	.02958 (0.32)	-.074388 (-1.26)	0.3462	0.2134	35
Ecuador	.02653 (0.10)	.48061 (0.31)	457.2412 (1.38)	.0378986 (1.10)	-.56859 (0.02)	-55.7413 (-1.36)	0.1065	-0.0055	35
Mexico	-.9284 (-2.12)	-0.0422 (-1.03)	-12.9628 (-1.79)	-.000271 (-0.96)	1.0432 (2.11)	1.834465 (1.77)	0.6436	0.5694	35
Paraguay	.00151 (8.34)	.07484 (2.64)	-.551887 (-2.22)	.0000933 (1.95)	.01258 (1.52)	.0169434 (1.90)	0.7344	0.5428	35
Peru	-.0962 (-1.76)	.00501 (0.05)	-.219299 (-0.43)	.0001706 (5.78)	.10948 (1.80)	.0108689 (0.11)	0.6146	0.2198	35
Uruguay	-.0728 (-1.63)	-.25297 (-2.80)	-.40539 (-0.88)	.0002007 (8.50)	.08455 (1.71)	.0132741 (0.15)	0.68	0.5839	35
Venezuela	.41196 (1.48)	-.00023 (-2.12)	-1.11529 (-1.28)	.0002545 (2.47)	-.46282 (-1.46)	.3130479 (1.48)	0.4129	0.2908	35
India	.00221 (1.12)	-.04282 (-0.48)	-.657634 (-1.95)	.0006966 (3.35)		.0802242 (1.56)	0.4454	0.3390	35
Indonesia	.0540 (2.00)	.00081 (3.92)	-.722955 (-1.30)	.0005043 (15.27)	.06814 (0.96)	.1122053 (1.60)	0.7861	0.6587	35
Korea	.02235 (1.34)	.06159 (0.65)	1.124795 (2.25)	-.000037 (-0.78)	-.02738 (-1.34)	-.102652 (-0.74)	0.3520	0.0423	35

	OPEN	INV	HUM	LRG	DEV	CONST	R²	Adj R²	N
Malaysia	.12118	.00034	.7586013	.0002689	-.13867	-.090274	0.4541	0.3031	35
	(1.76)	(0.22)	(0.58)	(3.57)	(-1.75)	(-0.49)			
Philippines	.12909	.07762	.8550774	.0002674	-.16283	-1.07864	0.5565	0.4292	35
	(1.43)	(2.36)	(2.61)	(2.64)	(-1.43)	(-1.98)			
Thailand	.02412	.00247	.2134033	.002087	-.02913	.008762	0.6858	0.5941	35
	(1.39)	(1.44)	(0.58)	(8.71)	(-1.54)	(0.19)			

7. Conclusion

This paper explores the link between capital account convertibility and growth for seventeen developing countries during the period 1971 - 2005. Using a de jure measure of capital account convertibility, calculated as the proportion of capital flows to total flow of funds the paper explores the association between capital account openness and Real GDP growth.

The results clearly indicate a positive association between capital account openness and growth for South East Asia. Countries of Latin America have benefited less form capital account openness. There are several reasons for this.

Conventional wisdom has regularly pointed towards the need for macroeconomic preparedness of the receiving economy for capital flows to deliver their intended benefits. Since liberalisation in Latin American countries was introduced during conditions of high inflation and fiscal deficit, capital flows have been unable to translate into growth.

The study also finds that the expected growth benefit arising out of increased investment flows fail to materialise due to the dominance of portfolio and other short-term capital flows as compared to FDI. The dominance of "hot money" flows has however, been of short-term utility for the South East Asian economies, which experienced massive turnarounds and crisis later on.

This points to the need for adequate prudential supervision to ensure that capital flows are channelised into productive avenues. It also brings out the importance of temporary capital controls such as those used by Chile to prevent financial crisis due to sudden outflows of portfolio capital.

It is also understood that FDI as a form of capital inflow is preferred for its stability and the technology and skills embodied in it. However economies that receive these inflows need to be adequately equipped in terms of infrastructure to be able to use these skills and technology. This is indicative of the need of domestic financial sector development to enhance the absorptive capacity of capital inflows.

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Appendix A: Data

Country List

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, India, Indonesia, Korea, Malaysia, Mexico, Paraguay, Peru, Philippines, Uruguay, Venezuela, Thailand.

1. **Variable List and Data Sources***

   GROWTH: RGDPG - Average real GDP growth

2. **OPEN***

   Total Capital flows to Total Flow of Funds

3. **INV = Investment***

   Gross fixed capital formation to GDP

4. **DEV = Development***

   LRGDPC**OPEN

   *(Source: IMF's International Financial Statistics)

5. **HUM = Human**

Total mean years of education

Source: Nehru and Dhareshwar dataset

6. **LRG = LRGDPC**

Log of real GDP per capita

Source: Penn World Tables, version 6

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