An empirical investigation of the effects of financial liberalisation on growth and financial market performance for Asia-Pacific countries

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Attestation of authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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Abstract

Economic liberalisation is still a highly debatable policy issue of today especially in the emerging market context. Past theoretical research and empirical evidence have suggested that liberalisation is likely to lead to a subsequent increase in investment and real economic growth. However, stock market volatility, exchange rate risk, market segmentation between domestic and foreign equity markets and institutional factors are some important factors impacting investment decisions and their effects may be more adverse in a liberalised environment. Although there have been a series of studies done on the South East Asian and Asia Pacific countries, there has been limited research done across the East Asian, Indian and Australian economies. This paper specifically aims at analyzing the performance of these markets in the past two decades and compares them against the various theories and models suggested by economists around financial liberalisation. Panel regression has been used to study the association between productivity, FDI inflow, exchange rates and other factors such as trade openness and cost of capital in the Asia - Pacific Countries of India, Singapore, Japan, Hong Kong, Thailand, Korea and Australia. More specifically we find that FDI has a significant positive impact on productivity growth post liberalisation and the reverse causality effect from foreign direct investment on real exchange rate suggests that for the sample countries on average an increase in FDI is associated with real exchange rate depreciation in the long-run.

Abbreviations

GDP – Gross Domestic Product

FDI – Foreign Direct Investment

RER – Real exchange Rate

Openness – Openness in Trade

Prod – Productivity

p-value – probability value

COC – Cost of Capital

Log – Logarithm

t – Time

PWT – World Penn Table

L – Legal

Market_cap – Market Capitalisation

1 Chapter 1 - Introduction

International trade is the engine of growth is an old saying, by the great economist Adam Smith. Economic liberalisation refers to the relaxation of government restrictions in the broader social and economic policy framework in exchange for higher participation of private sector entities in economic activity. In the developing countries context, economic liberalisation primarily involves the opening of the economy to foreign trade and investment. India, China and to some extent Brazil are the three major developing economies that have experienced rapid growth in the aftermath of their economic liberalisation. And liberalisation has traditionally been seen as the main step towards the path of development for both developing and less developed countries. But liberalisation and the adoption of flexible exchange rate regimes has also opened up the door for an increased volatility in the foreign exchange markets. The risk associated with foreign currency exposures and portfolio investments has made developing economies more prone to adverse external financial shocks.

Since the 1980's many developing countries went through changes in the development strategies which directed them towards market based approaches. This followed similar attempts by developed economies to open up their goods and capital markets to domestic and foreign competition largely as a response to the major oil shocks of the 1970s. The main objective of this thesis is to investigate the impact of financial liberalisation on growth and market performance for the Asia – Pacific countries.

1.1 Choice of sample Countries

The list of countries chosen in this paper provide an interesting opportunity to study the impacts each country had in the aftermath of taking some big financial decisions primarily related to their economic liberalisation. A small introduction of the financial position of these countries is presented in the following paragraphs.

Australia is a developed country with a multicultural society and is ranked highly in most international economic comparisons. It is a resource based economy with an estimated nominal GDP in 2008 of US $1.013 trillion and a per capita GDP of US$36,225.

Japan is a developed country and it is the world's second largest economy in terms of nominal GDP and third in purchasing power parity (PPP). It is the fifth largest importer and the fourth largest exporter in the world and joined the G8 in 1964. It has one of the highest living standards among the developed countries in the world, with a per capita GDP of US$ $33,596. The nominal GDP of Japan as at 2008 was USD 4.910 trillion which is the second largest after the United States of America.

India is ranked as the second fastest developing country in the world after the Republic of China. It is the twelfth largest economy as per the market exchange rate and the fourth largest in terms of purchasing power. It is advancing to become the largest technological centre of the world. The total nominal GDP per capita recorded for India in 2009 was USD1, 242 trillion.

Singapore is the smallest nation in the Southeast Asia but the richest state in the area due to its strategic location as a trading port and a financial centre. It is the twenty third wealthiest country in the world in terms of nominal GDP per capita with an estimated nominal GDP per capital in 2008 of USD 181.939 billion. It has the fifth largest per capita GDP in the world of nearly US$ $49,754.

Hong Kong is one of the leading financial centres of the world and is located in the Southeast Asia. While formally part of China, it is a capitalist service and manufacturing economy featuring low tax, minimal government and political intervention in economic and business affaires. The estimated nominal GDP of Hong Kong in 2008 was USD 223.76 billion and its currency is the ninth highest traded currency in the world.

South Korea is a capitalist, developed country located in the East of Asia. It is the fourth largest economy in Asia and the fifteenth largest in the world. Its economy is based on electronics and is export driven. The annual nominal GDP per capita estimated in 2008 is USD 929.124 billion.

Australia has been chosen since it is the largest economy in the Pacific Basin and falls among the top developed countries in the world which liberalized in the year 1975.

India, Singapore and Thailand was chosen to represent the South Asia Basin. All the four countries liberalized in the 1990's when they opened their economy to the foreign investors to attract wealth. However, some of these countries either liberalised in phases or had closed the economy after major downturn. India, liberalised its financial market in phases, exchange rate liberalisation was also done in phases with many regulatory changes still happening in the capital market with implementation of best practises.

Japan and South Korea represents the Asia Pacific region and Japan is said to be one of the most developed economies of the world. Korean economy has been outward oriented from the early 1960's and had a strong export base mainly to international markets. Korea's economy was robust and was looked upon as a model by the developing countries in spite of Korea being in extreme debt and trade problem issues in the 1980's. Korea had a military dictatorship with limited legitimacy however freedom of speech, press and assembly was always respected. Japan on the other side liberalized its international trade and foreign exchange once again in e 1960's to get some momentum in its then gloomy economy.

1.2 Background to Liberalisation

The analysis in this study focuses on the post liberalisation experience of the following countries: India, Australia, Singapore, Thailand, Japan, South Korea and Hongkong. This mix of countries constitutes a good sample of economic growth patterns and each country has its unique background with regards to the build up, approach and resulting output of the economic liberalisation process

that makes this study interesting. Thus the sample countries in this study are a mixture of developing and developed economies with a diverse socio political background and with similarities but also differences in their adopted pattern of economic liberalisation and its effect on domestic financial markets.

Next we outline briefly the background of the liberalisation process for each of these countries.

1.2.1 Japan

Japan's return to the international economy in the 1950s following World War II was associated with huge trade balance deficits. From 1953 to 1957, the deterioration of the country's foreign currency reserves position left the Japanese government with no choice but to enact a wide range of strict protectionist policies and obtain a loan from the IMF. In the 1960s, in an attempt to kick start a gloomy economy; Japan started a process of liberalising its international trade and foreign exchange markets. In 1965, Japan's nominal GDP was estimated at just over $91 billion. Fifteen years later, the nominal GDP had soared to a record $1.065 trillion by 1980. The Japanese Prime Minister Ikeda also set up numerous allied foreign aid distribution agencies to demonstrate Japan's willingness to participate in the international order and to promote exports. The creation of these agencies not only acted as a small concession to international organizations, but also dissipated some public fears about liberalization of trade.

1.2.2 India

In 1991, India's GDP growth was at its standstill and its foreign exchange reserves were down to 1 billion dollars. Its highly rigid and controlled inward looking economy was in a state of despair. While heavy industry was predominantly a state monopoly, other industries were either subject to strict industrial licensing or reserved for the small-scale sectors within the industry in the country. Government policies hindered or allowed no competition, promoted favouritism for special interest groups and corruption was on the rise. The number of jobless in the labour force was rapidly rising.

In 1991, the government with the support of the opposition party and against all wishes of the controlling state level political leaders enacted a liberalisation program, reducing the role of the state in economic activity and opening up domestic markets to foreign trade and foreign direct investments. Strong foreign capital inflows resulted in massive foreign exchange reserves. Liberalisation Deregulation created opportunity for new entrants in the market place and exposed existing companies, often the beneficiaries of special government assistance, to the forces of market competition. Alongside these changes, financial market deregulation including initiatives such as the issuance of American Depository Receipts (ADR's) facilitated trade of foreign securities in the American Stock exchanges as well as other international stock exchanges.

Post liberalisation, India experienced rapid economic growth as the market opened up to international trade, competition and foreign investment. The Indian currency has slowly moved towards full convertibility which also had a subsequent impact on the country's capital markets. The Reserve Bank of India allowed the inter-changeability of ADR's which improved the linkage between the stock market and the exchange rate market. India now is an emerging economic power with a huge natural resources, vast knowledge base and growing human base. The fruits of liberalisation reached its peak in 2007 when India recorded its highest GDP growth of 9%, thus becoming the second fastest growing economy in the world after China.

1.2.3 Singapore

Since the 1960s, the Singapore government chose to follow a market friendly lenient financial development strategy by implementing new financial sector reforms, building and improving infrastructure, upgrading and opening new financial institutions and enacting regulatory and fiscal incentives to attract foreign investments into the country. Aariff and Khalid (2000) report that after the regulatory reforms were implemented in Singapore, the number of overseas institutions (bank and non-bank) increased from less than 100 in the mid 1970's to 450 in 1990's. As a result, the country attracted highly skilled workers. The success of developing Asian markets coupled with increased foreign investments post liberalisation made Singapore the fourth leading financial

sectors in the world. The Singapore stock exchange became one of East Asia's largest and most developed stock exchanges. In 1980 the Government allowed secondary foreign listings which drove the market capitalisation of the Singapore equity market to a new height. Adding to this, in 1987 the government relaxed foreign ownership and listing requirements for foreign companies.

1.2.4 Australia

Following the recession in 1982-83 when unemployment levels were at a record high, the new Labour government introduced in 1983 reforms to increase the efficiency of the Australian firms by improving their access to foreign finance and exposure to greater competition. The economy's dependence on commodities was reduced and as their cost structures improved, exports of more profitable manufactured goods increased. During the 1980s and 1990s the reforms deepened and widened. In 1983, key reforms were introduced including the floating of the Australian dollar, the de-regulation of the financial system and the progressive removal of protection of most manufacturing and agriculture industries, the dismantling of the centralized system of wage-fixing and taxation reform. This was followed by the promotion of greater competition and better resource use through privatization and the restructuring of publicly-owned corporations, the elimination of government monopolies, and the deregulation of sectors like transport and telecommunications.

1.2.5 Thailand

During the end of 1970's and the 1980's, the Thai economy was adversely affected by large macroeconomic imbalances stimulated by the government's loose fiscal policy and rapid domestic credit expansions. The real effective exchange rate appreciated under a rigid exchange rate regime which largely affected the Thai's export performance and created huge current account deficits. The Thai economy was also affected massively by a decline in Thai commodity prices and by the oil -shock in 1979. To manage this downfall in the economic activity, the Thai government implemented macro stabilization and devalued the country's currency by 15 percent in nominal effective terms.

Following this the Thai Government enacted a liberalisation program in the 1990's, with a focus on financial sector deregulation. The banking sector enjoyed a subsequent growth in profits and productivity growth.

1.2.6 South Korea

In May 1961, South Korea adopted a new strategy to stimulate growth through export promotion (EP hereafter), under which policymakers gave various types of incentives – most importantly low-interest loans to exporting firms based on their export performance. This led to advances in productivity by placing firms under the discipline of export markets and widening the exposure of the economy to the developed world. In about a decade, per capita output doubled and South Korea advanced enough to become an industrialized country. However facing a threat from North Korea and following the withdrawal of US troops from Vietnam in the 1970s the government yielded to political pressures and had to resort to an inward facing economic policy fostering its heavy and chemical industries (HCI) which was run by the chaebols – conglomerates of businesses owned by a single family. In the 1980s and 1990s, the succeeding leadership however made systematic attempts to put an end to the legacy of the HCI and brought about a new phase of liberalisation focussing on opening the capital account which subsequently leads to an accumulation of short-term external debts. Together with a highly leveraged corporate sector and a destabilized banking sector (due to financial repression), the scene was set for South Korea to inflict a financial crisis that spread quickly to the economies of South East Asia in 1997. Rather than reverting to another bout of inward looking policies, this crisis provided the basis for the government to push ahead with a new program of corporate and financial sector reform.

In the 25 years following the policy shift in 1960, South Korea's per capita output grew at an unusually high 7% per year. More and more South Koreans shared the benefits of this growth as the rising inequality in income distribution started to taper off. The growth was attributable far more to increased use of productive inputs -- physical capital in particular -- than to productivity advances. The rapid capital accumulation was driven by an increasingly high savings ratio,

a falling social dependency ratio and improvements in vital statistics including mortality in comparison to the colonial period.

1.3 Financial liberalisation

Liberalizing the capital account means to remove legal and other restrictions on capital inflows and outflows so that domestic foreign investors will have access to the host countries markets and domestic investors can access foreign markets. Capital inflows, especially FDI is expected to contribute towards creating better employment opportunities, the transfer of technological advancements, better business practices, thereby increasing productivity and growth prospects. Access to foreign markets will enhance diversification opportunities for domestic investors.

Liberalisation provides the opportunity for investors to invest into capital scarce countries where the returns may be higher and opens up possibilities to diversify the portfolio of investments. The flow of resources to the liberalizing countries is likely to affect the cost of capital, increase investment activity and returns. Yet anti-globalization proponents argue that free mobility of capital post liberalisation is one of the main causes of a series of financial and economic crises such as those that occurred during the 1990's in the emerging countries.

To strengthen a country's economic environment and its capital markets, the country's openness to trade including the regulatory framework and corporate governance structures will need to be upgraded.

The neoclassical theory of growth states that, when the markets are imperfect, liberalisation leads to improved risk sharing decreased cost of capital and increased investment (Bekaert and Harvey, 2000). Liberalisation reduces financial constraints meaning more foreign capital becomes available in the market. The presence of foreign investors is likely to improve corporate governance and investor protection which reduces the cost of internal and external finance leading to growth and productivity. Due to improved risk sharing and an increase in available financing, the cost of capital decreases.

Better corporate governance and investor protection promotes financial development leading to economic efficiency in the emerging countries.

The gains may be higher for those liberalised emerging countries with very low capital to labour ratios. More liquid and better functioning capital markets allow emerging countries to specialize and to shift towards more sound in terms of risk and return projects taking advantage of factors like improved human capital and technology transfers (productivity enhancements).

However, it is unlikely that liberalisation effects in all emerging countries will give rise to similar growth, productivity and profitability patterns. The record of successful liberalisation depends on several factors including the government's perceived commitment to the program, the sequencing of reforms - i.e., opening of the trade account, capital account, financial market deregulation, labour market deregulation, macro stabilisation and micro restructuring and privatisation process. It also is tied to the openness in trade and the degree of financing development. Information asymmetry is one of the big sources which prevent foreign capital to be profitably invested.

Liberalisation can also make an emerging country more susceptible to economic and political turmoil from abroad. For example, it has been argued that the degree of pervasiveness of the 1997 East Asian Crisis was triggered by the effects of the rapid albeit unbalanced liberalisation process in the area.

1.3.1 Effect of liberalisation on the exchange rate

The adoption of a flexible exchange rate policy following financial and economic liberalisation in a developing country has increased the volatility of its foreign exchange markets and the risk associated with foreign currency exposures. Exchange rates affect many economic transactions including exports, investment, finance, tourism and many more. Liberalisation means that capital movements will affect the exchange rate. Mundell (1963) showed that the government faces challenges to choose between a fixed exchange rate and an effective monetary policy. He stated that if the government chooses a fixed exchange rate, capital movements will be impossible for a monetary stance

different from that of an anchored currency. However, if the government chooses to have an independent monetary policy the currency must move. Hence, a correct choice of currency denomination is an important factor in an economy.

Previous theory suggests that the real exchange rate depreciates post liberalisation by Li (2003). However, real exchange rate appreciates in countries with many liberalisation instalments i.e. for country's who liberalised in facets (e.g. India). This suggests that partial liberalisation is associated with real appreciation. Hence the behaviour of exchange rate is one of the major factors of a country's economic activity.

1.4 Asian Crisis 1997 – 1998

In July 1997, a financial crisis sent waves throughout the East Asia, Japan and many other Asian regions. This was followed by a free fall in Nikkei index after Yamaichi, the fourth largest financial corporation filed bankruptcy. The Korean Won depreciated leading to another free fall of the South Korean stock markets. In this entire incidence the stock market fell due to huge depreciation of the host countries currency i.e. the fall of the currency market.

Many previous studies have been conducted to analyse the Asian Crises which started in 1997. It has been said that Japan, Thailand, Singapore and Hong Kong showed significant relationship between the currency market and the stock market during the Asian Flu period

Although capital movement became easier post liberalisation in the Asian economy, the crises during the Asian Flu period had highlighted the fact that the financial markets in the Asian countries needed a revamp.

This paper examines the effects of financial liberalisation on growth and financial performances in the Asia-Pacific countries. It defers from the previous studies in the following aspects: This study focuses on the various aspects of liberalisation bringing together Singapore, Thailand, Australia, Japan, South Korea and India in its study. Each of these countries has adopted varied

approaches to liberalisation. The GDP growth of each country has been different from the other and so has the FDI inflow. Each of these countries has its own characteristic which flows through in their economic regimes. The paper tries to choose a particular theory and connects it to the empirical analysis – i.e. the interaction of performance and growth with FDI, cost of capital, productivity, exchange rate, and openness of trade.

The next section, Chapter 2, talks about the literature review on liberalisation and its effect on the growth and performance of the financial market. It will provide a broad detail about FDI inflow, cost of capital, economic growth, productivity and openness of trade in our case. In Chapter 3, we analyse the empirical data for the 7 countries under study and interpret the outcomes of the various tests performed on this data.

2 Chapter 2 - Literature Review

In this section we review the existing literature in depth on financial market liberalisation for emerging countries and its effect on growth and performance of the financial markets. Measuring foreign exchange exposure is now a fundamental issue of international financial management which has initiated significant amount of research. The purpose of this paper is to analyse the performance of the Asia Pacific developing countries like India, Japan, Singapore, Korea, Australia, Thailand and Hong Kong which carried out liberalisation of their policies from the 1990's. The Classical Economic theory and Endogenous Growth theory and its various facets are supportive in explaining the effects of liberalisation on the financial sector of the country and its effect on economic growth, inflow FDI, openness of trade and exchange rate.

2.1 Proposed Models and theories

There is an increasing amount of literature based on economic liberalisation and its effect on the developing countries' economy, stock market, growth and exchange rate. Economic liberalisation has been the major program of development in many Asian countries in the past couple of decades. However, the effects of economic liberalisation in these economies are still being researched and written by many.

The steady abolition of controls and reviewing of policies in emerging economies has opened up international investments and portfolio diversification. During late 1980's and early 1990's many economies have adopted more flexible exchange rate regimes. This has resulted in an increased volatility of foreign currency exchange markets and the risk these investments are associated with.

In 1997 – 1998 the Asian crisis also made a strong base for the dynamic relationship between the stock market and the exchange rates. At this time of the crisis, the emerging markets collapsed due to the depreciation of exchange rate (in terms of US$) as well as a drastic fall in the stock market. This issue became more important largely due to large cross border movements of funds

owing to portfolio investment and less due to actual inter country trade flow which impacted on the stock prices.

The movement of capital around the world draws significant attention by the developing countries. The flow of capital into the developing countries reduces cost of capital, increases investment opportunities and increases productivity and growth. A number of developing countries liberalized their economies, opening them to the international market by offering various investment incentives in form of tax concession, de-regularization, liberal investment rules and operational flexibility. This process brought forward distinct changes in the degree of openness, compliance and investments.

Empirical studies have broadly classified and linked the empirical analysis with various theories. Few of the famous and most discussed theories are 1) The Classical Economic Theory and 2) The Endogenous Growth Theory.

2.2 Classical Economic Theory of exchange rate

The classical economic theory is regarded as the foundation of the modern school of economics. It was introduced by Adam Smith in his seminal 1776 book "The Wealth of Nations" and extended further by the subsequent works of his followers, most notably David Ricardo and John Stewart Mill. The theory mainly focuses on economic freedom and encourages free competition and minimal state intervention as the forces that eventually promote growth. One implication of the theory is that the market forces of supply and demand will ration the economic resources to their optimal usage. Financial markets play a key role in promoting efficient resource allocation. And financial liberalisation promoting free flow of capital across borders is believed to lead to an efficient international allocation of resources leading sustainable long-term growth.

Portfolio Balance Model

The portfolio balance approach is relatively a newer development of classical economics focussing on the role of the Capital account (domestic assets and foreign assets) on the exchange rate. In this view exchange rates reflect prices

of assets determined by the market mechanism of demand and supply. For example, a boom in the domestic stock market would attract capital flows from all around the world, which in turn will cause an increase in the demand for local currency pushing the value of the local currency up. On the other hand, a cut in the interest rate or a fall in the stock prices will cause an outflow as investors would try and sell their investment and pull funds out of the country converting them back into foreign currency. This would cause a reduced demand in the domestic stock market and increase the demand for foreign currency in exchange of local currency leading to depreciation of the local currency. Likewise, foreign investment in domestic equities can increase (or decrease) over time depending on international diversification opportunities for foreign investors.

2.3 Endogenous Growth Theory

The Endogenous growth theory also referred to as the New Growth theory was developed in response to criticisms of the neo-classical growth theory mainly associated with the role of capital (and capital friendly policies) in the growth process. It is an extension of the neo- classical growth theory with different predictions on long run economic growth added to its framework. Unlike its predecessor that focussed on the savings rate or rate of technological progress as the sole drivers of long-term growth, endogenous growth theory holds that physical and in particular human capital investments and policy measures that enhance those investments can have a sustainable impact on the long-run growth rate of an economy. For example, subsidies given in research and education can lead to endogenous growth by bringing about the incentive to innovate. The ability to grow the economy by increasing knowledge or technological progress rather than capital creates abundance of growth through increased opportunities. This theory highlights the importance of production of new technology and human capital and investing in knowledge creation to sustain growth. Mostly markets fail to produce enough knowledge since innovators do not succeed in capturing all the gains associated with creating new knowledge. The main implication of recent growth theory is that policies which embrace openness, competition, change and innovation will promote

growth. Conversely, policies which have the effect of restricting or slowing change by protecting or favouring particular industries or firms are likely over time to slow growth to the disadvantage of the community. Arguably, new growth theory underpins the development model of a number of East Asian countries, perhaps most notably Singapore.

2.4 Previous findings

While theories suggest a positive effect of liberalisation on economic performance, existing evidences derived from previous studies has provided mixed results. In a recent study, Wijeweera and Villano (2006) using panel data for 45 countries found that there is a positive impact of FDI inflow on economic growth and performance. Similarly, Liu and Li (2004) identified a significant relationship between FDI and economic growth. These results suggest that FDI appears to promote growth via an interactive process, e.g. interaction of FDI with human capital puts forth a strong and positive effect on economic growth. And Zhang and Markusen (1999) found that growth appears to be driven by FDI facilitated by its effect on market size, infrastructure and human capital.

De Mello (1999) found that FDI contribution to economic growth depends primarily on the host country's characteristics especially the quantum of skilled labour. Borensztein et al. (1998) established that although FDI has a positive impact on GDP, the magnitude of this effect depends on the level of human capital. And Alfaro (2003) suggested that total FDI exerted an ambiguous effect on the host country economic growth where FDI inflows into the primary sector tend to have a negative effect on the growth.

He and Ng (1998), studied whether the value of a Japanese multinational corporation is affected by exchange-rate changes and whether lagged exchange-rate changes have any explanatory power for current stock returns. This study found that only 25 percent of the total sample of 171 Japanese Multinationals has significant exchange rate exposures between the period January 1979 and December 1993. Jorian (1990, 1991) for the U.S. and Bodnar and Gentry (1993) for Canada, US and Japan report no significant relationship between exchange rates and stock market returns. Griffin and Stulz (2001)

show that weekly exchange rate shocks have minimum effect on the value of stock market indexes across the world. Chamberlain, Howe and Popper (1997) found that Japanese banking sector is not sensitive towards the exchange rate movement in the US market.

Mahmood and Dinniah (2007) reported a strong relationship between exchange rate and stock prices and a significant relationship between output and stock prices in six Asia-Pacific countries. Chow et al (1997) found positive relationship between strong exchange rate and stock market returns using monthly data. Roll (1992) found positive relation during the same (1988-1991) using daily data. Similarly, Ajayi and Mougoue (1996) showed significant interactions between the exchange rate and stock market using daily data for eight countries.

Buckley and Wang (2006) studied if FDI affect all market segments within the industry, or only certain segments. The finding partially suggests that inward FDI has promoted overall productivity growth. However, the findings also suggest that FDI influence on productivity of the host country diminishes over time. The study was based on china's electronic industry. Baharom, Habibullah and Royfaizal (2008) examined the role of openness in trade and foreign direct investment influencing economic growth in Malaysia. Their empirical findings indicate trade openness is positively associated and statistically significant determinant of growth, both in short and long run. The findings also suggest that foreign direct investment in positively related o growth in short run and negatively related in long run with significant values for both results.

Phylaktis (2005) reports that stock and foreign exchange markets are positively related for Pacific Basin countries over the period 1980-1998 and that the US stock market acts as a conduit for these relationships. However, her study predicts that these relationships are not determined by the liberalisation effect. Wajeweera (2006) concludes his study stating that corruption has a negative impact on economic growth and FDI inflow positively impacts in the economic prosperity in the presence of highly skilled labour. Ghosh (2007) studied the relationship between trade openness and stock of its FDI liabilities. The findings

show that openness is positively related to FDI liabilities with or without country fixed effects.

In this paper, we explore the relationship between foreign direct investment, exchange rates and economic performance (GDP growth) in a post liberalised environment across different Asia-Pacific economies. Empirical analysis presented in Chapter 3 reports how market liberalisation has impacted the economic growth process. In carrying out this research we have considered the effects of liberalisation on the cost of capital, investment growth and productivity growth.

We make a firm effort towards understanding the intricate relationship between economic attributes namely Growth (GDP) and exchange rate and economic performance in a post liberalised environment across different Asia-Pacific economies in general (Singapore, Japan, Hong Kong, Thailand, Korea and Australia). Empirical analysis has been done in Chapter 3 to compare how market liberalisation has impacted the economic growth and efficiency. It considers the short run and long run dynamics of the financial market. In carrying out this research we have considered the effects of liberalisation on the productivity growth and the real exchange rate.

All the studies done previously have focused on the US Market and its dynamic relationship between the exchange rate and the stock market and the linkage between their returns and FDI and its impact on growth. Phylaktis (2005) in her studies has focused on group pacific basin countries over the period of 1980 – 1998. Her empirical analysis suggests that stock and foreign exchange markets are positively related and that the US stock market acts as a conduit for these relationships. However, her study predicts that these relationships are not determined by the liberalisation effect. Wajeweera, A., (2006) concludes his study that corruption has a negative impact on economic growth and FDI inflow positively impacts in the economic prosperity in the presence of highly skilled labour. In the view of these existing literatures and to take this study forward, we will look at the definitions of the various factors and concepts surrounding financial liberalisation.

2.5 Factors influencing country's financial performance

2.5.1 Foreign Direct Investment (FDI)

FDI is defined as a long term investment made by a company or enterprise located outside the investing firms or investors home country. It maybe in form of construction of a facility, direct acquisition of a foreign firm or investment in a strategic alliance or joint venture with a local firm being the invested country's counterpart. It is an investment of any form that earns interest for enterprises which functions outside the investor's country. For an investment to be regarded as FDI, the parent firm is required to have at least 10% holding of the ordinary share in its invested company. The investing company may qualify for an FDI if they are able to acquire voting rights in its invested company in the host country. An ongoing integration of the world economy which increased its momentum since 1990's has brought a significant change in the attitude of the host country towards FDI. FDI was no longer looked at suspiciously; instead it was encouraged by the governments of the emerging countries.

Foreign Direct Investment which is Inward or called as 'inward investment' is one in which the investment by the foreign investors occurs in local resources. The characteristics of Inward FDI or rather factors that propel Inward FDI are – relaxation of regulations, tax breaks, loans with low interest rates and grants. The idea is that in the long run, the income loss incurred by the foreign investors will be far outweighed by the profits that they make through their funding. However Inward FDI may face restrictions such as limited ownership and difference in the performance standard in the host country.

The flow of FDI has gone through many facets due to globalization and has grown many folds in recent years. Increasing FDI flow always produces enhanced economic environment in the presence of investment related policies and economic reforms. Facts and Tables suggest that global flow of FDI reached a record of $1,306 billions in 2006 which is an increase of 38% compared to the previous year. This was mainly due to cross border mergers and acquisitions (M&As).

Increasing FDI into a country and in its manufacturing sector generates the highest employment opportunities for the country as compared to any other sectors. Almost all developed and developing countries have adopted policies to attract more investment. Some countries have targeted financial concessions and some focused on improving the infrastructure and skill parameter and created a base meeting the demands and expectations of foreign investors. Many other countries have changed the administrative barriers to improve the general business climate of the country. Many emerging nations entered into international governing arrangements to increase theory attractiveness for FDI.

Some of the **benefits of FDI** include creation of employment which in turn also helps increase salaries enabling better lifestyle and creating more disposable money. It creates new avenues for technology transfer and opportunity for more research and development. FDI assists in increasing income that is generated through revenues realized through taxation. It also plays an important role in productivity of the host country. It opens up export window helping the host country to cash in their superior technological resources.

Disadvantages of FDI are mainly in matters related to the distribution of profits made on the investment and personnel. The most significant drawback is that the economical backward section of the host country is always disadvantaged when a stream of FDI is negatively affected. The expansion of FDI inflow is also a threat to the national secret of the host country, as more and more companies have to compromise on their information to be shared with foreign companies e.g. defence industry in the host country. If the governments in the host country do not ensure that the entities making foreign direct investments are not adhering to the environmental, governance and social regulations of the host country, then this might lead to problematic situations similar to what had happened in Ireland, Singapore, Chile and China. Inflow of FDI can also cause increased travel, communication expenses, cultural and language barriers. Another major disadvantage is that a company may lose out its ownership to a foreign company. The following sections explain the co-relation of FDI with other key economic indicators/factors.

2.5.2 FDI and Economic Growth

FDI plays an important role in the economic development of the host country. Since last twenty years FDI has helped the host countries to acquire a launching pad for economic development. FDI pumps in capital knowledge and technological resources which helps the host country economically going forward. This is has been possible since the host economies have liberalized their reforms allowing foreign investors to enter their country for economic improvement. Many past researches has suggested that due to FDI inflow, the infrastructural condition has improved, country has benefited with technological development, standard of general public has improved due to job creation and increase in salaries and the health sector has benefited. It has helped emerging economies to build its own research and development base to contribute towards technology development. Overall, FDI plays an important role in the social and economic development of the host country.

2.5.3 FDI and Productivity

FDI plays an important role in the labour and productivity market. Due to an increased foreign investment into the organisations and industry sectors such as technology, manufacturing, transportation, agriculture etc, employment has increased significantly. FDI can bring about a new generation of activities into the host country by changing the production possibility frontier, development, increase in technology and research and many more. It can be the conduit of cutting edge of research & development, technology and management expertise which is being used across the world. It is a favourable instrument with no negative implication to the host country. It creates spillover across the board as well as increases competition in the host country giving the domestic firm a real hard time for sustainability in the market and breaking all monopolies in the sector. It creates positive productivity shocks to motivate indigenous firms to raise their performance and improve quality. Inflow of FDI provides assistance to the domestic firms who are present in the league for competition. It helps in increasing the demand by introduction of new and better products, better services and advanced technology to the consumers. This helps the economy

to grow, increase productivity and increase employment which in return helps in economic growth.

2.5.4 FDI and Exchange rate

If FDI's were to be seen from the perspective of bonds, then one can say that the exchange rate movements do not impact the investment decision. A depreciation of the currency in the host country would not only mean that the investor needs lesser funds to purchase the asset but it also would reduce the nominal return that the investor receives in foreign currency. Hence the rate of return for the foreign investor does not change. Empirical studies have also supported the above hypothesis thus suggesting insignificant effects of exchange rates. However another group of opinions points out that depreciation in the host country currency is a factor to inward foreign investment booms, and worries about the selling of key national technological assets.

This confusion can be addressed by considering FDI's that invest in firm-specific assets – e.g. technology patents or managerial talent – which previous studies have categorized as crucial to the formation of MNCs and FDI. Such assets are usually intangible and can be transferred across the firms' operations. Thus, the purchase prices of such assets through FDI are in the host-country's currency, but returns can be generated anywhere the firm operates and are not necessarily tied to the home country's currency. This means that host-country currency depreciations theoretically can lead to increased acquisition of FDI, particularly of firms that have firm-specific assets. This hypothesis is strongly confirmed for a panel of acquisitions of U.S. firms by Japanese and German firms and provides evidence for the notion in the popular press that currency depreciations ease foreign firms' purchases of U.S. host-country technological assets.

2.5.5 FDI and Openness in Trade

International free trade has often been referred to as the "engine of growth" that propelled the development of today' s economically advanced nations during the nineteenth and early twentieth centuries. Rapidly expanding trade especially

or specifically the export sector provided an additional stimulus to growing local demands that led to establishment of large scale industries. In some individual countries, notably South-East Asia, the growth of exports has exceeded ten percent per annum. Exports have tended to grow fastest in countries with more liberal trade regime, and these countries have experienced the fastest growth of GDP

2.5.6 FDI and Market Capitalisation

As per Claessens, Klingebiel and Schmukler (2001) there is an existing argument about the relation between FDI and capital market development. On one extreme, it is argued that FDI can fuel the development of stock markets through different channels. First, FDI can be positively related to the participation of firms in capital markets, since foreign investors might want to finance part of their investment with external capital or might want to recover their investment by selling equity in capital markets. Second, since the foreign investors partly invest through purchasing existing equity, the liquidity of stock markets will likely rise. Thus, the value traded domestically, the value traded internationally, or both might increase, depending on where these purchases take place. In sum, FDI can be a complement, not a substitute, of stock market development. Under this view, FDI should be positively correlated with the development of (domestic or international) equity markets. On the other extreme, FDI is considered to be a substitute for capital market development. This happens in the cases where foreign investors employ channels other than capital markets to invest their funds in the host country.

3 Chapter 3 - Data and Methodology

3.1 Data

This chapter analyses the empirical data for the seven Asia Pacific countries under study and make an attempt to understand the association between the various economic variables associated with financial liberalisation.

This study uses yearly data from 1994 to 2007. The stock market data is the market index data for India, Singapore, Japan, Hong Kong, Australia, Korea and Thailand. Exchange rates have been expressed in terms of local currency per U.S. Dollar. The data series are obtained from the International Financial Statistics database, DataStream, Penn World Tables 6.3 (PWT) and national exchanges.

Productivity (PROD): This variable is measured as the ratio of Real GDP per worker (i.e. per number of people employed). The real GDP series used in this study are purchasing power parity adjusted (PPP) at constant 2005 prices so that they are comparable across the countries. The data is obtained from World Penn Table (PWT 6.3).

Foreign Direct Investment (FDI): The FDI inflow data in this study has been obtained from PWT 6.3 table for the period 1994 – 2007. FDI has been taken as the percentage of real GDP at the constant 2005 price.

Cost of capital (COC): The cost of capital is the expected return on a portfolio of a company's existing securities. It is the minimum return that an investor expects to receive for providing capital to a company. For an investment to be worthwhile, the expected or the risk adjusted return on capital must be greater than cost of capital. Cost of Capital, is in other words, a rate of return that capital should be expected to earn in an alternative investment of equal risk. A company's security typically includes both equity and debt and hence to determine the cost of capital, both the cost of equity as well the cost of debt must be considered.

Following Hail and Leuz (2008), the Cost of capital (COC) in this study has been calculated by subtracting the yearly average U.S. FED funds target rate from the yearly average return on stock market for each country. The yearly return on stock market, in turn, has been taken as the log of (Stock price index of current year / Stock price index for the previous year).

Openness in trade (OPENNESS): is referred to the degree or extent to which a country opens itself to do trade with other countries. The trading activities include import and export, borrowing and lending, and repatriation of funds abroad. Openness in trade creates an increased market opportunity but at the same time brings about greater competition for the domestic companies from the businesses based in foreign countries. In this study openness is measured as sum total of export and import as a share of the real GDP. The data has been obtained from World Penn Table (PWT) 6.3.

Real Exchange Rate – A nominal exchange rate is the current market price for which one currency can be exchanged with another country's currency. Real exchange rate is the purchasing power of one currency relative to one another. While two currencies may have a certain exchange rate on the foreign exchange market, this does not mean that goods and services purchased with one currency cost the equivalent amounts in another currency. This is due to different inflation rates across different currencies. Real exchange rates are thus calculated as a nominal exchange rate adjusted for the different rates of inflation between countries. For the purposes of study, RER for each country has been calculated against the US dollar. *For example, an exchange rate of 45 Indian rupees (INR) means that you can buy 1 US dollar with 45 Indian rupees. Therefore an increase in the exchange rate will mean depreciation of the domestic currency i.e. in this case the Indian rupee. In this study, it is measured by taking the USD as the base currency and reporting one unit of local currency that buys one USD (e.g. 45 INR = 1 USD)*

Institutional Characteristics – Legal: Institutions are defined as the humanly devised constraints that structure human interaction, made up of formal and informal constraints, and their enforcement characteristics. Together, they define the incentive structure of societies and specifically economies" (North,

(1994). It is said that well structured and good institutions encourage growth and are a necessity for long run growth whereas corrupt or lacking infrastructure limits economic growth. Countries with low institutional qualities are usually characterised by adverse political forces, weak regulatory systems and a strong state involvement in corporate governance that negatively impacts on the country's long-term growth prospects by Verriest, CherChye and Gaeremynck, (2008). The legal qualities figure has been gathered from Datastream, a database which contains the market data for all over the world. A country's legal quality is measured in terms of the level of corruption, the rule of law, the judiciary system and the impartibility of a country's court (see Verriest, CherChye, Gaeremynck (2008))

Market Capitalisation – measures the size of an enterprise or corporation by multiplying its share price with the number of shares outstanding in the capital market. In our empirical tests here, market capitalisation of an economy represents the total cumulative value of all stocks in its capital market. The market capitalisation data has been taken as a percentage of the real GDP (at constant prices 2005) of the economies.

3.2 Graphical Analysis

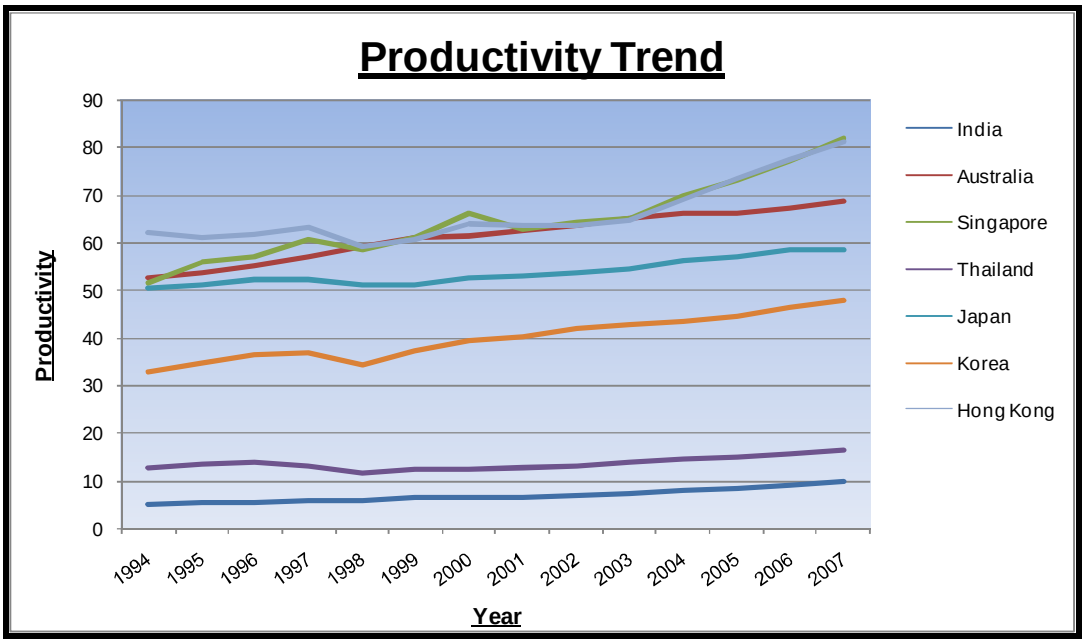
A graphical analysis is carried out by using separate line graph for FDI, Productivity, RER, Openness in trade and Market capitalisation, for the sample set of countries over the sample period 1994 - 2007. Graph 1 suggests that productivity has persistently grown throughout the sample period with couple of peaks. As shown in Graph 2, the FDI has been volatile throughout with few massive drops during the Asian Crises in 1997 / 1998. Graph 3 shows the movement in the real exchange rate. Openness in trade shown in Graph 4 exhibits a persistent upward trend. Graph 5 depicts the trend for market capitalisation for the sample countries from 1994 – 2007.

Since these graphs capture multi-dimensional data (i.e. time, country and the economic variable) it is difficult to interpret the individual trends and draw an association between the variables. Hence, panel regression estimation was deemed to be more suitable to study the association between the variables as

this method provides the opportunity to study cross sectional data over a period of time.

Graph 1

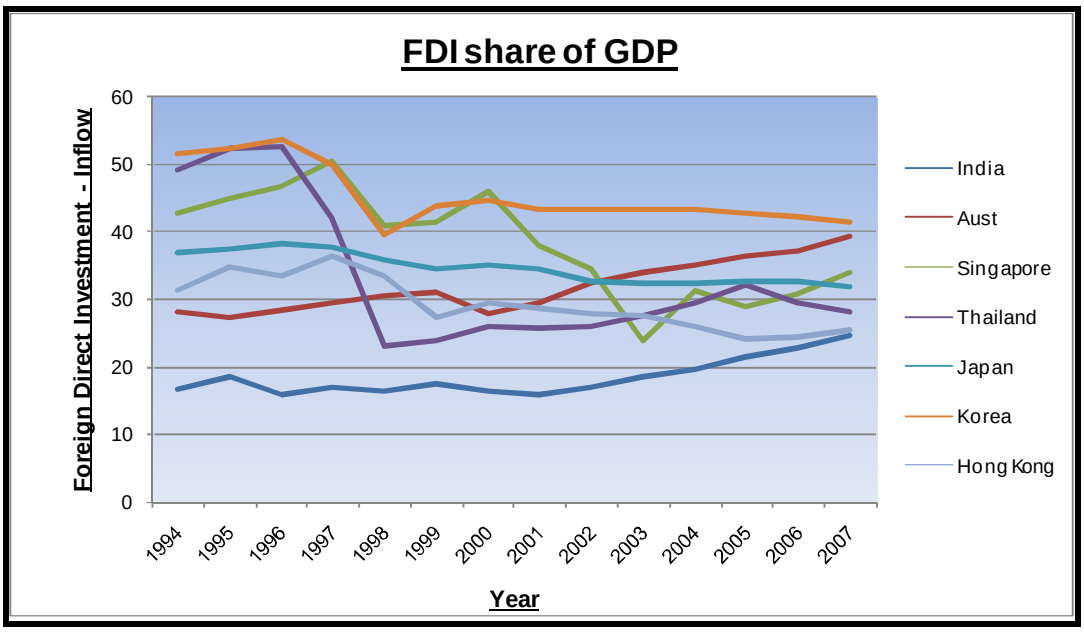
Graph 1 shows the trend in productivity over the 14 year period. As can be seen, there are couple of peaks in productivity in Singapore during 1997 and 2000, just at time of the technology boom in the US market. The trend for India shows a steady rise in the productivity from 1996. For all other sample countries, productivity has been consistent



Graph 1 – Productivity Trend

Graph 2

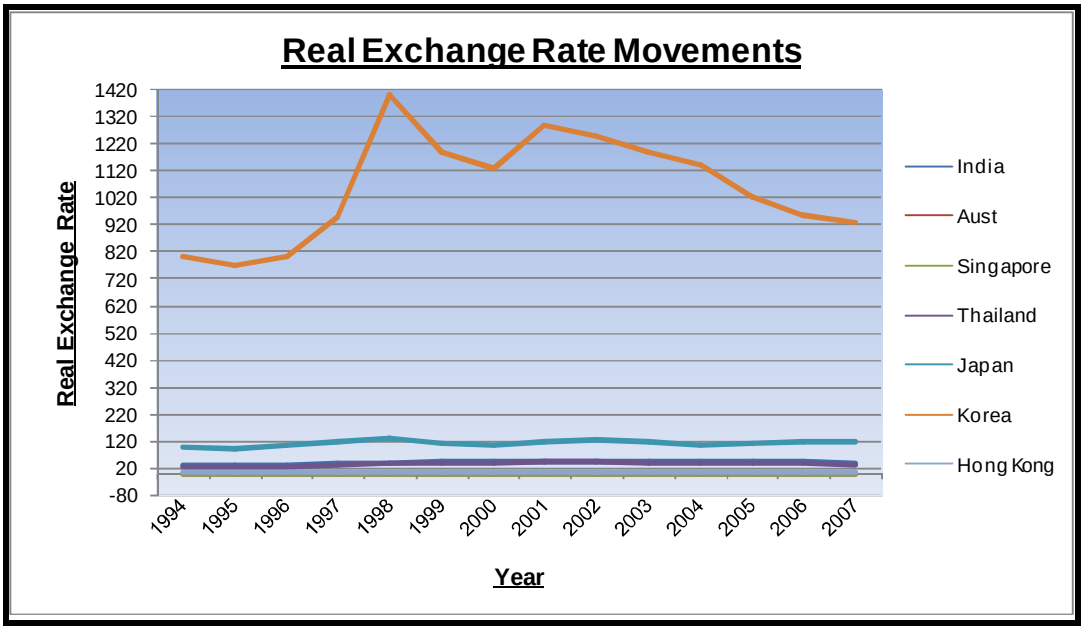
Graph 2 shows that, FDI movement have been volatile throughout the sample period. There has been a sharp drop in FDI inflow in Thailand where the Asian Crises stated in 1997 – 1998, Korea, Singapore and Hong Kong where the crises spread. However, there have been steady rise in inward FDI in India and Australia. FDI dropped further in 2003 in Singapore when recession hit the country after the fall of the financial and technology market in the US.



Graph 2 – FDI Trend

Graph 3

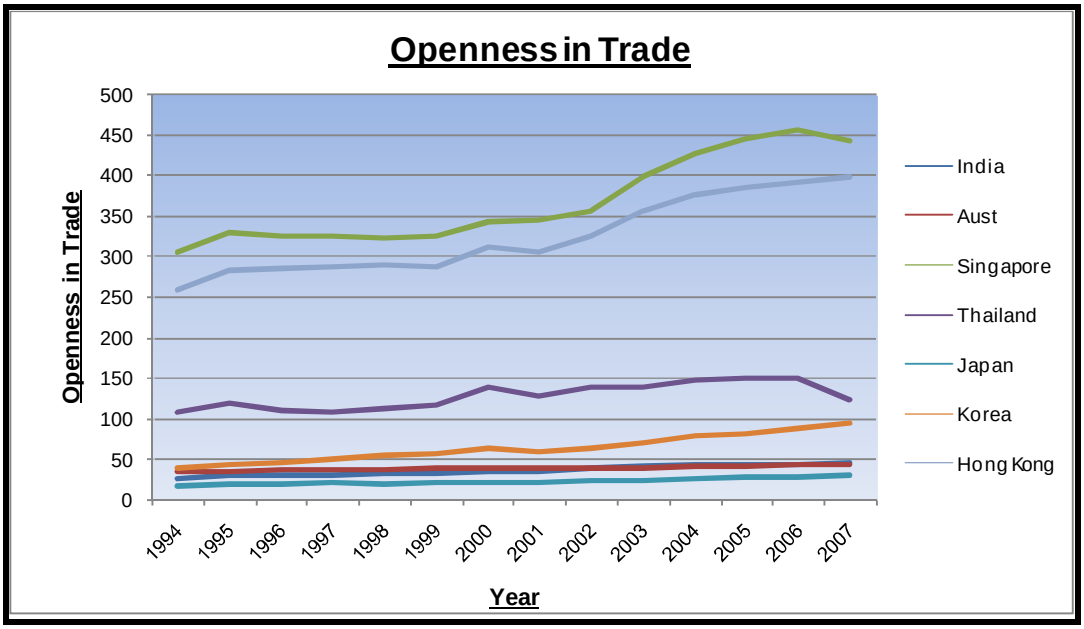
And finally, the real exchange rate (RER) has been plotted over the 14 year period for the set of sample countries under study. The RER (real exchange rate) for Korea show most volatility during the sample period of time. All other RER were at a persistent level.



Graph 3 – RER Trend

Graph 4

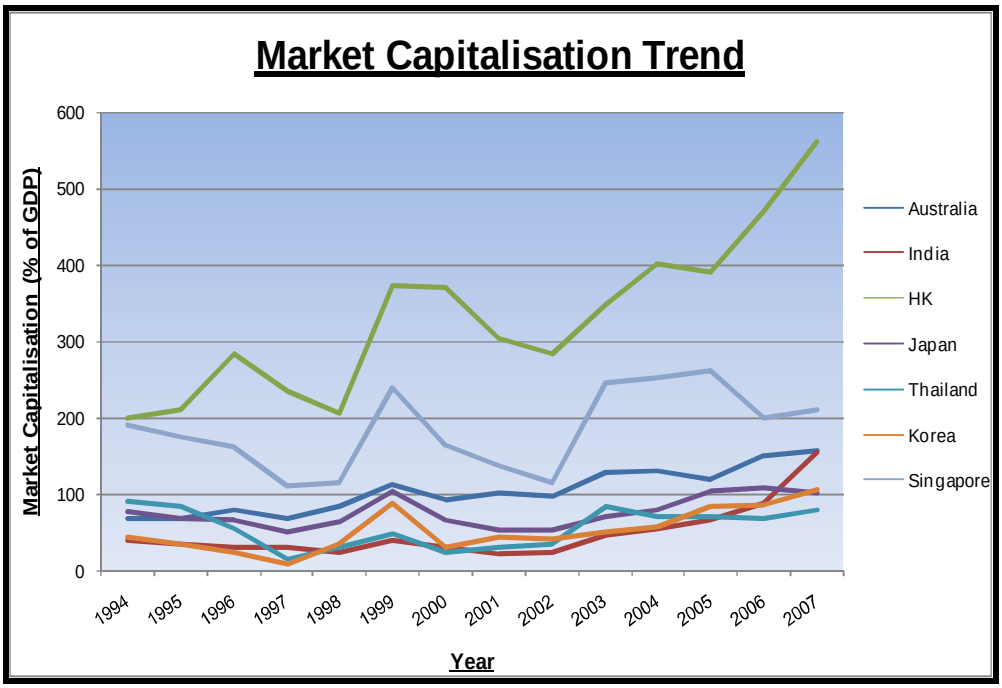
The openness in trade in the host country shows a steady rise throughout the sample period. This shows that the trade reforms and restrictions were liberalised across the sample period making the trade policies and practices more favourable over the years. The only drop is seen in Thailand where the trade practise was tightened in recent times.



Graph 4 – Openness in Trade Trend

Graph 5

The market capitalisation is the percentage of GDP in the host country show volatility throughout the sample period.



Graph 5 – Market Capitalisation Trend

3.3 Hypotheses

The objective of the study is to analyze the financial market performance and growth record post liberalisation for the seven Asia-Pacific countries over the period of 1994 to 2007.

This paper draws on the relationship between the growth of a country and factors such as FDI, real exchange rate, stock market return, cost of capital and openness (openness in trade) as already been discussed above.

The empirical analysis has been performed using two approaches; firstly, panel regressions have been carried out to study the relationship between variables of interest. Secondly, graphical analysis has been used to study the pattern of movements of key economic factors over time.

Most panel regressions have been carried out using the random effects model. The rationale behind a random effect model is that the variation across countries is assumed to be random (rather than systematic) and uncorrelated with the independent variables included in the model. This variation may change over time. A Hausman test is used to assess the validity of the exogeneity assumption.

3.3.1 Hypothesis 1

A simple model has been employed to investigate the impact of liberalisation on productivity (i.e. the country's economic performance) by means of FDI inflow. The sample covers 7 countries over a period of 14 years (1994 to 2007). The assessment is based on the yearly panel data using the following model:

$$\mathbf{PROD_{it} = \alpha + \beta FDI_{it} + \gamma OPENNESS_{it} + \delta t + \epsilon_{it}} \qquad \mathbf{(1)}$$

Productivity (PROD) is the real GDP per worker (in constant PPP adjusted 2005 prices) obtained from PWT 6.3. As suggested by Bonfiglioli (2005) an increase in the country's productivity could be a result of several factors like the capital accumulation through investment (foreign investment), new technology, invention, higher education and many more. A time trend variable t has been introduced as a proxy for omitted variables that may not be fully captured by FDI such as investment, education and technology. Foreign direct investment (FDI) inflow is a result of economic liberalisation in the developing countries. The FDI inflow has been measured as a ratio of the real GDP of the corresponding country. Both FDI and GDP have been taken in real terms and constant prices.

Openness in trade indicates the degree to which countries or economies permit or have trade with other countries. The trading activities include import and export, borrowing and lending and repatriation of funds abroad. The openness to trade has been calculated as sum total of total import and total export as a ratio of the real GDP (openness has been taken from the PWT 6.3 table.).

It is anticipated that FDI inflow will have a positive impact on productivity growth by controlling for openness which is also expected to influence the productivity

growth positively. The “Openness in trade” variable is used to control for the effect on productivity of factors (e.g. competition from foreign producers) that may not be directly related to foreign investment inflow. ϵ is the error term in this equation which is assumed to be uncorrelated with the regressors. All the variables have been transformed into logarithms.

A panel data has been constructed with 98 observations by taking the yearly data from 1994 – 2007 for the seven countries in our sample. The results of the panel regression (shown in Table 1) indicate that FDI has a positive impact on productivity which is supported by the statistically significant coefficient (Table 1). The findings suggest that economies with high foreign direct investment inflow are likely to have significant productivity growth. The inward FDI are associated with improved education levels, training and technological advances which promote productivity. The openness in trade also carries a positive coefficient but non-significant p-value thus, making it’s correlation with productivity inconclusive.

The coefficient of the time trend variable (expressed in log) is positive and significant which indicates that the omitted variables (i.e. education, investment and technology transfer) have a positive effect on productivity. This indicates that these variables although do not have a direct observable effect on productivity, but they do effect productivity over the period of time.

The Hausman test p-value is statistically insignificant suggesting endogeneity may not be present in the estimated model. These results are in line with our expectations that FDI and openness in trade along with time (t) influence the productive performance of the host countries.

Therefore, linking these findings with the endogenous growth theory predictions as outlined above, it can be said that policy measures i.e. openness in the current (trade) and capital accounts in an economy enhances productive investment activity of that country and may as a result have a sustainable impact on its long run growth rate.

Table 1

Productivity Model Estimates (1994-2007)

Model 1: Random-effects (GLS), using 98 observations
Included 7 cross-sectional units
Time-series length = 14
Dependent variable: l_rgdp_wk__PR

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	6.22384	0.881693	7.0590	<0.00001	***
l_Openness	0.0965455	0.0677524	1.4250	0.15748	
l_FDI	0.883767	0.269148	3.2836	0.00144	***
l_t	0.406312	0.11783	3.4483	0.00085	***

Mean dependent var	10.43316	S.D. dependent var	0.838662
Sum squared resid	38.12196	S.E. of regression	0.633470
Log-likelihood	-92.79130	Akaike criterion	193.5826
Schwarz criterion	203.9225	Hannan-Quinn	197.7649

'Within' variance = 0.428504
'Between' variance = 0.000227907

Hausman test -
Null hypothesis: GLS estimates are consistent
Asymptotic test statistic: Chi-square(3) = 1.0415
with p-value = 0.791211

Note: * Significant at the 10% level; ** Significant at the 5% level; ***Significant at the 1% Level.

3.3.2 Hypothesis 2

The second hypothesis tests the response of domestic currency to the inflow of foreign direct investment. The real exchange rate expressed as domestic currency per U.S. dollar is used to assess the effect of the FDI on the value of domestic currency for the sample of countries being studied. It is generally argued that a surge in FDI inflows following liberalisation is expected to lead to domestic currency appreciation thereby adversely affecting the competitiveness of the host economy. This short-run effect may be reversed over the long term as part of the inflow is used for the purchases of machinery and equipment from

overseas. Hence the long-term effect of FDI on RER is likely to be positive – i.e. an increase in FDI will be associated with RER depreciation.

$$\mathbf{RER_{it} = \alpha + \beta FDI_{it} + \gamma OPENESS_{it} + \delta COC_{it} + \varepsilon_{it}} \qquad \mathbf{(2)}$$

The RER is taken as opposed to the nominal exchange rate as it reflects the competitive position of an economy better with the rest of the world by Phylaktis (2004).

The analysis uses a set of control variables that may influence the real exchange rate: trade openness and the cost of capital. The initial expectation is that openness in trade leads to confidence within the market that may result in an appreciation of the currency. As suggested by Calderon (2004) developing countries are more open than industrial countries to international markets, their trade liberalisation regimes are younger and are more dynamic. But an increase in openness (i.e. lifting trade restrictions) would also cause an increase in the relative price of exports to the price of imports (i.e. imported goods become cheaper as tariffs are reduced or lifted) and this, in turn, would induce a shift from the non-tradable to the tradable sectors and an appreciation in the RER.

The cost of capital (COC) is used to allow for a risk factor effect on the real exchange rate. We expect a positive effect of the foreign direct investment inflow on the movements of the exchange rate of the host country. All data are transformed into natural logarithms.

Table 2

The Real Exchange Rate Model (1994-2007)

Model 2: Random-effects (GLS), using 98 observations
Included 7 cross-sectional units
Time-series length = 14
Dependent variable: l_RER

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	1.80116	2.31676	0.7775	0.43885	
COC_	2.9146	7.13501	0.4085	0.68384	
l_Openness	-0.970223	0.195535	-4.9619	<0.00001	***
l_FDI	1.59728	0.65285	2.4466	0.01628	**

Mean dependent var	3.126546	S.D. dependent var	2.200862
Sum squared resid	360.0793	S.E. of regression	1.946872
Log-likelihood	-202.8225	Akaike criterion	413.6449
Schwarz criterion	423.9848	Hannan-Quinn	417.8272

'Within' variance = 4.0775
'Between' variance = 0.000433628

Hausman test -
Null hypothesis: GLS estimates are consistent
Asymptotic test statistic: Chi-square(3) = 0.339034
with p-value = 0.952528

Note: * Significant at the 10% level, ** Significant at the 5% level, ***Significant at the 1% Level.

Regression results

The random effects panel regression results shown in Table 2 indicate a positive and significant coefficient for the FDI variable on the RER. A 1% of increase in FDI is expected to be associated with an average of a 1.59% increase (i.e. depreciation) in the RER.

The control variable COC is the total cost of investment that is borne by a foreign investor. Although the result for COC show a strong and positive coefficient, the result is inconclusive (p-value is insignificant),

Openness is seen to have a strong but negative and significant correlation with RER for all the sample countries at 5% level. This implies that higher degree of openness (relaxation of restrictions and trade reforms) in trade results in an increased market confidence which in turn leads to a decrease in RER (local currency appreciates). An increase in openness (i.e. by lifting trade restrictions) would result in an increase in the relative price of exports to the price of imports (i.e. imported goods become cheaper as tariffs are reduced or lifted); in turn this induces a shift from the non-tradable to the tradable sectors and the RER decreases (local currency appreciates).

The Hausman test result do not show an endogeneity problem in the findings with p-value of 0.9525 i.e. FDI is exogenous. Following the endogenous growth theory trade liberalisation can enhance the financial market progress and bring in stability in the countries exchange rate market. An adequate trade policy and positive liberalisation can promote the financial markets via FDI, innovation and many other factors which are positively correlated to openness (liberalisation). FDI inflow into the host country leads to an appreciation to the RER (depreciation of local currency) which affects the competitiveness of the host country.

3.3.3 Hypothesis 3

The third hypothesis primarily tests the effect of inflow of FDI on the market capitalisation of the sample countries. As stated in Chapter 2, FDI can affect the market capitalisation in either way - i.e. it could complement market cap by being positively correlated or be a substitute for market cap by being negatively correlated to it. Trade Openness, Productivity and Legal have been included as independent variables in the equation.

$$\textbf{Market Cap}_{it} = \alpha + \beta \textbf{FDI}_{it} + \gamma \textbf{OPENESS}_{it} + \delta \textbf{Productivity}_{it} + \theta \textbf{Legal} + \varepsilon_{it} \quad (3)$$

Market cap has been taken as the stock market capitalization divided by the real GDP (in constant 2005 prices). FDI is also expressed as a ratio to GDP. We test the effect of FDI on market cap controlling for the effect of the following variables – a) Real GDP per worker i.e. Productivity b) the Legal/institution

(LEGAL) environment variable which provides an indication of a country's legal reforms and policies and how easy it is to trade and invest in that country. The date for this variable has been taken from Datastream and c) Openness in trade indicating the degree to which a country permits to have trade with other countries.

Regression results

The model was estimated first by using a random effect method. As shown in Table 3 below (random effect model), although all the independent variables had significant coefficients, the Hausman test had a significant value at 10% level, thus showing an endogeneity problem. Therefore, a fixed effect method was used which is robust to endogeneity problems. Using this method, the FDI variable showed a negative yet significant coefficient thus indicating that it is a substitute for market capitalisation rather than a complement (as shown in Table 4 below). In other words once we control for the capital needs of a growing economy via the productivity variable that has a positive and significant (at the 1% level) effect, the FDI inflow appears to act at the margin as a substitute for capital raised through the domestic capital market. Trade Openness and Legal also have positive and significant coefficients which is indicative of their role in enhancing capital market development.

Table 3

The Market Capitalisation Model – using Random Effect Model (1994-2007)

Model 1: Random-effects (GLS), using 98 observations
Included 7 cross-sectional units
Time-series length = 14
Dependent variable: l_Market_Capi

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	-0.821301	0.555608	-1.4782	0.14273	
l_FDI	-0.560174	0.186381	-3.0055	0.00341	***
l_Prod	0.392886	0.0898785	4.3713	0.00003	***
l_Openness	0.314482	0.0436357	7.2070	<0.00001	***
l_Legal	1.01902	0.22364	4.5565	0.00002	***

Mean dependent var	4.477215	S.D. dependent var	0.821826
Sum squared resid	15.56653	S.E. of regression	0.406941
Log-likelihood	-48.90359	Akaike criterion	107.8072
Schwarz criterion	120.7320	Hannan-Quinn	113.0350

'Within' variance = 0.15709
'Between' variance = 0.0137533

Hausman test -
Null hypothesis: GLS estimates are consistent
Asymptotic test statistic: Chi-square(4) = 8.72275
with p-value = 0.0684156

Note: * Significant at the 10% level, ** Significant at the 5% level, ***Significant at the 1% Level.

Table 4

The Market Capitalisation Model – using Fixed Effect Model (1994-2007).

Model 2: Fixed-effects, using 98 observations
Included 7 cross-sectional units
Time-series length = 14
Dependent variable: l_Market_Capi

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	-0.818476	0.544372	-1.5035	0.13633	
l_FDI	-0.466116	0.18683	-2.4949	0.01449	**
l_Prod	0.350236	0.0902711	3.8798	0.00020	***
l_Openness	0.305856	0.0429898	7.1146	<0.00001	***
l_Legal	1.1102	0.225091	4.9322	<0.00001	***

Mean dependent var	4.477215	S.D. dependent var	0.821826
Sum squared resid	13.66686	S.E. of regression	0.396346
R-squared	0.791389	Adjusted R-squared	0.767411
F(10, 87)	33.00442	P-value(F)	1.84e-25
Log-likelihood	-42.52630	Akaike criterion	107.0526
Schwarz criterion	135.4872	Hannan-Quinn	118.5538
rho	-0.423260	Durbin-Watson	2.723394

Test for differing group intercepts -
Null hypothesis: The groups have a common intercept
Test statistic: F(6, 87) = 2.01309
with p-value = P(F(6, 87) > 2.01309) = 0.0723897

3.4 Discussion of results

In this study, three different hypotheses have been stated using empirical analysis for 7 sample countries. Panel regression estimation and graphical analysis have been studied and their results have been compared with the expectations. The findings may be summarised as follows:

Hypothesis 1 – This hypothesis was to investigate the impact of liberalisation on productivity by means of FDI inflow.
The results indicated a positive impact of FDI on productivity growth of the host country.
FDI can permanently increase the productivity growth rate of the host country through spillovers and transfer and diffusion of technology, ideas, management, innovation and production processes. FDI also brings in market competition generated from foreign producers in the domestic market. This leads to better allocation of resources to generate higher productivity to keep up with the market competition and change.
The Hausman test proves that there is no endogeneity problem in the model and that FDI is exogenous. Therefore, it can be concluded that FDI impacts the host country's productivity growth positively which results in making the host country more competitive and lucrative for investors resulting in overall growth of the economy.

Hypothesis 2 examined the response of the domestic currency to the inward foreign direct investment. The association was analysed controlling the effect of the COC and Openness in Trade.
Previous studies have focused on the effect of RER on FDI inflow. RER movements affect the relative labour cost and the relative production cost hence depreciation in the local currency will lead to increased FDI inflow.
In this study, I have examined a reverse causality between the FDI and RER i.e. effect of FDI on RER. The result indicated a positive impact of FDI inflow on RER movements. The argument here is that a surge FDI inflow following liberalisation is likely to lead to an appreciation of RER (depreciation of the local

currency) which adversely affects the host economy in terms of expensive export and cheaper imports (loss of competitiveness). And persistent RER appreciation could set the stage for speculative attacks on the currency thereby blanketing the positive effects of investment inflows. The test confirmed that FDI has a positive impact on RER appreciation i.e. local currency depreciates (Hausman test supports this result i.e. FDI is exogenous). This is a long run effect wherein a part of the inward FDI is used as a capital expenditure i.e. investments on tangible and intangible assets. These expenditures are to create future benefits to the investor's investments in terms of acquisition.

Hypothesis 3 examined if FDI is a complement or a substitute to market capitalisation. The association was analysed controlling the effect of productivity (real GDP per worker), openness and the legal variable.

The findings indicated that there is a negative and significant impact of FDI on market capitalisation. This happens when FDI inflow into the host country takes place through channels other than the capital market thus substituting capital market development. This means that FDI acts as a substitute to the market capitalisation rather than a complement.

3.5 Conclusion

In the beginning of this paper, we had set an objective of studying the correlation between Financial Liberalisation and the economic growth and performance of the Asia – Pacific countries. After studying the various concepts around economic liberalisation and its surrounding factors, we studied how the seven Asian-Pacific countries went through their own phases of liberalisation.

Chapter 2 has made an attempt to study the various researches that have been done by economist around the world on this topic. We also studied the models and economic theories that have been defined in the area of financial liberalisation.

In Chapter 3, we have captured the empirical data for the seven sample countries for the sample period of 1994 to 2007 and performed a series of panel regression and trend analysis tests. The results were analysed and linked with the models and theories discussed in the literature review

Three distinct hypotheses were developed to study the economic effects of liberalisation on financial performance and growth using empirical analysis. The panel data for seven sample countries over a 14 year period where used to estimate the correlation between the various economic indicators.

The overall results of the three hypotheses show that an increased FDI inflow follows economic liberalisation promotes productivity through technology transfer and by creating high quality labour.

The response of the real exchange rate (RER) was found to be positive with the increase in FDI inflow thus resulting in the depreciation of the local currency.

The findings from the last empirical analysis showed FDI inflow to have a negative impact on market capitalisation. The result supported the hypothesis that FDI is a substitute to the capital market development in a growing economy.

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Appendix

Table 5

The figures for yearly Real GDP from 1994 to 2007 are below for each sample countries in this study which has been collected using World Penn Table 6.3.

REAL GDP

Date	India	Australia	Singapore	Thailand	Japan	Korea	Hong Kong
1994	2017.04	25982.47	26411.16	7122.97	26771.37	15012.03	30705.19
1995	2172.52	26806.64	27892.37	7519.63	27167.72	16121.06	30351.53
1996	2212.79	27593.83	29260.01	7780.26	27776.68	17146.17	30824.26
1997	2249.8	28509.31	30755.94	7547.97	28134.41	17565.91	31716.45
1998	2316.87	29619.18	29467.28	6685.32	27530.04	15845.48	29766.33
1999	2545.7	30577.25	31087.47	6944.88	27431.8	17348.59	30599.41
2000	2556.45	30845.1	33807.21	7047.31	28130.72	18543.59	32484.9
2001	2635.72	31546.21	32326.95	7272.8	28123.35	19134.38	32483.19
2002	2734.34	32226.94	33246.56	7533.29	28146.54	20240.37	32818.2
2003	2846.79	33223.02	33779.39	8001.9	28495.84	20580.22	33422.62
2004	3125.27	33791.9	36367.84	8386.56	29235.14	21278.23	35886.98
2005	3365.34	34323.39	38441.26	8666.41	29780.3	22048.39	38156.11
2006	3597.51	34964.22	40850.42	9071.73	30497.69	23023.35	40456.46
2007	3880.16	36013.3	43591.48	9402.17	30608.12	23973.47	42802.64

Table 6

The figures for yearly FDI as a ratio of Real GDP (at constant 2005 prices) from 1994 to 2007 are below for each sample countries in this study which has been collected using World Penn Table 6.3

FDI a ratio of Real GDP (at constant 2005 prices)

Date	India	Australia	Singapore	Thailand	Japan	Korea	Hong Kong
1994	16.5	28.31	42.76	49.03	37.01	51.52	31.34
1995	18.53	27.41	44.74	52.41	37.49	52.23	34.8
1996	15.75	28.39	46.6	52.63	38.33	53.58	33.49
1997	16.81	29.6	50.33	41.94	37.78	49.8	36.36
1998	16.43	30.46	40.73	23.02	35.8	39.45	33.46
1999	17.52	31.19	41.44	23.83	34.39	43.66	27.35
2000	16.26	28.04	45.86	25.94	35.02	44.62	29.52
2001	15.88	29.42	37.86	25.63	34.51	43.18	28.59
2002	16.88	32.39	34.49	26.04	32.6	43.06	27.71
2003	18.38	34.13	23.89	27.63	32.32	43.09	27.54
2004	19.69	35.03	31.27	29.5	32.34	43.29	25.86
2005	21.35	36.46	28.97	31.98	32.56	42.62	24.09
2006	22.74	37.2	30.72	29.38	32.43	42.01	24.32
2007	24.74	39.31	33.94	28.22	31.73	41.36	25.46

Table 7

The below data shows the yearly Real Exchange Rate (US =1) from 1994 – 2007 for the sample countries.

Real Exchange Rate (US=1)							
Date	India	Australia	Singapore	Thailand	Japan	Korea	Hong Kong
1994	31.37	1.37	1.53	25.15	102.21	803.45	7.73
1995	32.43	1.35	1.42	24.92	94.06	771.27	7.74
1996	35.43	1.28	1.41	25.34	108.78	804.45	7.73
1997	36.31	1.35	1.48	31.36	120.99	951.29	7.74
1998	41.26	1.59	1.67	41.36	130.91	1401.44	7.75
1999	43.06	1.55	1.69	37.81	113.91	1188.82	7.76
2000	44.94	1.72	1.72	40.11	107.77	1130.96	7.79
2001	47.19	1.93	1.79	44.43	121.53	1290.99	7.80
2002	48.61	1.84	1.79	42.96	125.39	1251.09	7.80
2003	46.58	1.54	1.74	41.48	115.93	1191.61	7.79
2004	45.32	1.36	1.69	40.22	108.19	1145.32	7.79
2005	44.10	1.31	1.66	40.22	110.22	1024.12	7.78
2006	45.31	1.33	1.59	37.88	116.30	954.79	7.77
2007	41.35	1.20	1.51	34.52	117.75	929.26	7.80

Table 8

The table list the Cost of capital (risk premium) for the period of 1994 to 2007 for the sample countries. COC is calculated by taking the average of the return on stock prices for the four quarter and subtracting the average of four quarter FED Target Rate.

Cost of Capital							
Date	India	Australia	Singapore	Thailand	Japan	Korea	Hong Kong
1994	0.04	-0.033	-0.036	-0.072	0.026	0.062	-0.119
1995	0.06	0.058	0.058	0.058	0.058	0.058	0.058
1996	0.05	0.053	0.053	0.053	0.053	0.053	0.053
1997	0.05	0.054	0.054	0.054	0.054	0.054	0.054
1998	0.05	0.054	0.054	0.054	0.054	0.054	0.054
1999	0.05	0.049	0.049	0.049	0.049	0.049	0.049
2000	0.06	0.061	0.061	0.061	0.061	0.061	0.061
2001	0.05	0.046	0.046	0.046	0.046	0.046	0.046
2002	0.02	0.018	0.018	0.018	0.018	0.018	0.018
2003	0.01	0.011	0.011	0.011	0.011	0.011	0.011
2004	0.01	0.013	0.013	0.013	0.013	0.013	0.013
2005	0.03	0.030	0.030	0.030	0.030	0.030	0.030
2006	0.05	0.049	0.049	0.049	0.049	0.049	0.049
2007	0.05	0.051	0.051	0.051	0.051	0.051	0.051

Table 9

The table below lists the yearly Productivity figures (real GDP per worker) taken from the PWT 9.3 for the period 1994 - 2007 for the sample countries.

Productivity (Real GDP per worker)							
Date	**India**	**Australia**	**Singapore**	**Thailand**	**Japan**	**Korea**	**Hong Kong**
1994	5267.46	52501.45	51458.96	12939.25	50373.68	32927.19	62191.54
1995	5677.66	53487.42	55814.09	13501.05	51176.88	34873.92	61121.99
1996	5775.43	55060.61	57084.4	13825.76	52094.83	36667.58	61993.1
1997	5862.46	56985.85	60715.02	13329.96	52300.07	37059.22	63581.97
1998	6035.77	58991.47	58356.09	11860.83	51261.26	34228.09	59382.7
1999	6617.89	61121.84	61047.8	12449.27	51264.57	37327.58	60671.14
2000	6630.77	61275.05	65985.84	12510.57	52771.5	39382.72	64160.36
2001	6808.61	62479.3	62862.68	12805.64	53019.1	40325.48	63744.34
2002	7033.8	63608.65	64361.08	13229.81	53623.17	42052.73	63608.54
2003	7303.68	65180.19	65035.82	14020.23	54554.62	42905.29	64845.99
2004	7981.9	66077.11	69554.24	14626.98	56202.15	43651.79	69247.89
2005	8539.97	66213.4	73052.21	15033.75	57217.59	44702.7	73573.27
2006	9068.92	67236.16	77043.1	15811.56	58535.22	46374.29	77555.45
2007	9748.76	68805.86	81767.29	16384.31	58641.93	47971.08	81303.46

Table 10

The table below lists the Openness to Trade figures yearly from 1994 to 2007 for the sample countries taken from the PWT 6.3.

Openness to Trade							
Date	**India**	**Australia**	**Singapore**	**Thailand**	**Japan**	**Korea**	**Hong Kong**
1994	25.16	34.15	305.4	107.44	17.5	39.15	259.57
1995	30	35.24	328.81	118.59	18.71	44.52	283.44
1996	28.88	37.2	325.77	110.15	19.99	46.9	285.85
1997	29.53	37.77	326.3	108.37	20.77	50.84	287.86
1998	32.82	37.06	323.18	111.59	20.32	53.88	291.03
1999	32.66	39.02	326.39	116.79	21.06	58.13	288.97
2000	34.88	40.04	342.18	139.3	22.68	64.19	312.07
2001	34.81	38.51	345.85	127.51	22.01	59.99	305.89
2002	38.56	38.89	356.9	137.88	23.01	64.54	326.04
2003	41.18	39.76	399.22	138.82	24.2	71.08	356.56
2004	44.55	41.46	426.72	146.51	26.15	79.57	377.53
2005	44.31	42.08	446.06	149.5	27.28	82.81	384.86
2006	45.13	43.39	456.56	149.75	28.47	88.7	392.27
2007	46.37	44.29	443.4	122.66	30.03	95.43	398.59