

THE UNIVERSITY OF HULL

Financial Development, Foreign Direct Investment and Economic Growth:  
Challenges for Developing Countries

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## ABSTRACT

Although the pattern of growth in developing countries is characterised by instability, uncertainties and volatility, the experience of the five fast-growing developing economies of Brazil, Russia, India, Mexico and China (BRIMCs) presents an unprecedented challenge for other developing countries. Therefore, this thesis argues that the emergence of the BRIMCs as the future growth engine of the world presents an excellent backdrop to re-examine the importance of financial development and foreign direct investment (FDI) in the Sub-Saharan African (SSA) context. It is important to mention that for empirical studies, the methodologies used for estimations will differ for different groups of countries. Hence, the study applies panel data techniques to take into account the heterogeneity of these developing countries. It further uses dynamic panel data framework and a panel co-integration analysis to capture the long-run relationships. The measures employed assessed various aspects of financial development including; private credit as a ratio of GDP, bank credit, liquid liabilities, stock market capitalisation and value of stock traded, and a single measure of FDI being the annual inflow of FDI as a ratio of GDP for 60 developing countries during 1980-2007. The study also explores the interaction between economic openness and human capital insofar as the attraction of FDI is concerned in the developing countries under consideration.

The findings reveal that financial liberalisation and good institutions are important for financial development. For the SSA countries, the results indicate that while financial liberalisation promotes stock market development, the lack of good institutions, in particular control of corruption, bureaucratic quality and rule of law are less favourable to financial development. Furthermore, the study finds that economic openness and human capital also play an important role in the attraction of FDI and the growth effect of FDI in developing countries. The primary policy implication is that SSA countries should make efforts towards initiating and implementing financial sector development reforms and FDI incentives.

## **DEDICATION**

To God Almighty, who gave me the grace and mercy to embark upon and complete this PhD.

To my dad, for financing and supporting me throughout my studies, my mum and siblings, for their prayers and continuous support, and to A-Jay, without whom the last few years of the research work would not have been easy.

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## DECLARATION

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Babatunde, A. and R. Swaray (2010), FDI and Economic Growth Redux: A comparison of the effect of trade openness and human capital between BRIMCs and SSA countries. In: Proceedings of the 21<sup>st</sup> Chinese Economic Association Conference, July 12-13, 2010, University of Oxford, UK.

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## ACRONYMS AND ABBREVIATIONS

AC	African countries
AREAER	Annual report on exchange arrangements and exchange restrictions
ASEAN	Association of southeast Asian nations
BHL	Bakaert, Harvey and Lundjall
BSB	Botswana savings bank
CEEC	Central and Eastern Eurobarometer countries
CIS	Commonwealth of Independent States
EAP	East Asia and the Pacific
ECF	External capital flow
ECOWAS	Economic community of West African states
EPZs	Export processing zones
EU	European union
EU/RSA	EU South Africa
FD	Financial development
FDI	Foreign direct investment
FE	Fixed effects
FINDEX	Financial index
FINDEX	Financial index
FINLIB	Financial liberalisation
FINLIB	Financial liberalisation
FL	Financial liberalisation
FTSE	Financial times stock exchange
GATT	General agreement on tariffs and trade
GCC	Gulf co-operation council
GMM	Generalised Methods of Moments
HDI	Human development indicator
ICRG_QOG	International country risk guide quality of government
IFC	International financial corporation
IMF	International monetary fund
INF	Inflation
INS	Institutions
IPSHIN	Im, Pesaran and Shin
ISI	Import substitution industrialisation
JSE	Johannesburg Stock Exchange
KAOPEN	Capital account openness
KKM	Kauffman, Kraay and Mastruzzi
LAC	Latin America and the Caribbean
LIBDATE	Liberalisation date
M3	Liquid liabilities
MCAP	Stock market capitalisation
MDG	Millennium development goals
MENA	Middle East and North Africa



MSCI	Morgan Stanley Capital International
NBFI	nonbank financial institutions
ODA	Official development assistance
OECD	Organisation for economic co-operation and development
OFDA	Overall financial development activity
OFDS	Overall financial development size
OLS	Ordinary Least Squares
OPENK	Openness in constant
PC	Private credit
PPPs	Purchasing power parity
R&D	Research and Development
RE	Random effects
RZ	Ragan and Zingales
SACU	Southern African customs union
SADC	Southern African development community
SAP	Structural adjustment programme
SIBA	Seychelles international business authority
SITZ	Seychelles international trade zone
SOB	State owned banks
SSA	Sub-Saharan Africa
TINDEX	Trade index
TINDEX	Trade index
TLIB	Trade liberalisation
TNC	Trans-national companies
TVALUE	Value of traded stocks
UAE	United Arab Emirate
UK	United Kingdom
UNDP	United nations development programme
US	United States
USDA/ERS	United States Department of Agriculture, Economic Research Service
WTO	World trade organisation
ZPA	Zambian privatisation agency

# **1 Introduction and General Information**

This section introduces the background information about the study. It begins by giving an overview of the debate on economic growth and development. Predominantly, it discusses global trends in economic growth, and the challenges and opportunities facing developing countries, particularly Sub-Saharan African (SSA) countries, in promoting long-term growth and development. Then, it briefly presents the recent growth experience of the BRIMC countries (Brazil, Russia, India, Mexico and China).<sup>1</sup> This helps to clarify the questions that this study tries to answer and also helps to highlight the importance of the study. This is followed by a detailed outline of the contribution and significance of this thesis. Finally, an outline of the thesis ends the chapter.

## **1.1 An ongoing debate about economic growth and development in developing countries**

Economic growth is the single most important factor in obtaining sustainable development reducing poverty and improving living standards in developing countries. Likewise, economic development requires a sustained increase in economic growth. Economic development implies structural changes, including all the complex effects of economic growth. The basic objectives of economic development are to overcome hunger, provide adequate health care, provide safe water and environments, and enable citizens to obtain modest housing and, in general, enjoy a reasonable standard of living. According to Todaro and Smith (2003: 17):

‘Economic development must be conceived as a multidimensional process involving major changes in social structures, popular attitudes and national institutions, as well as the acceleration in economic growth, reduction in inequality and eradication of poverty.’

By contrast, economic growth refers to ‘the sustained increase of income per capita or total income’. While the process of development allows an economy to adapt to the uncertainties created by changing environmental circumstances, in such a way as to improve the standard of living of its members, growth is increasingly driven by innovation, as economies approach the technological frontier. The growth of an

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<sup>1</sup> Chapter two presents a more detailed overview of the BRIMC countries and five of the fast growing SSA countries in 2007.

economy can be followed by a period of long stagnation or even downturns. Hence, sustainable development is not only a result of high or positive growth rates, but also of the stability of that growth.

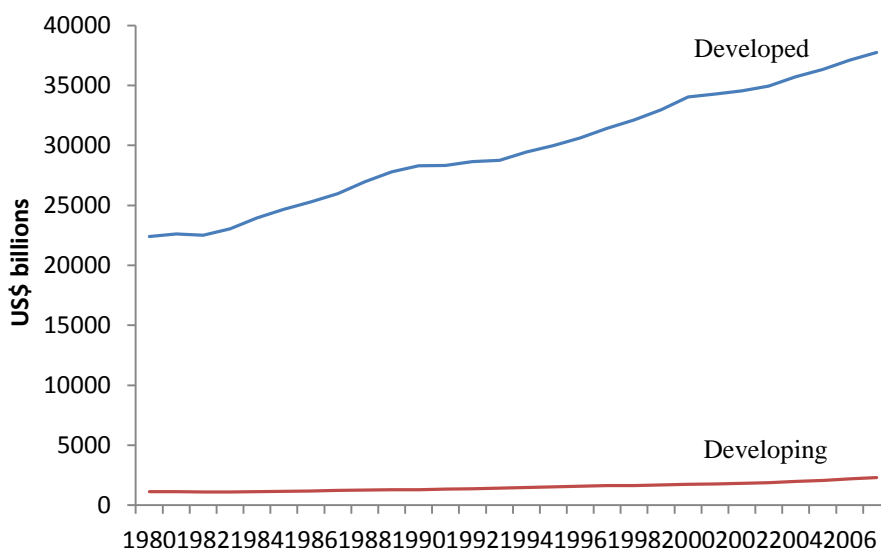
One of the main concerns in Economics is to answer questions about the sources of differences in wealth across nations, starting from the classical growth period pioneered by Adam Smith in his *Wealth of Nations* (1776). Smith (1776) proposed that the wealth of a nation consisted of both farm output and manufactured goods along with the labour it took to produce them. He argued that for an economy to increase its wealth there is a need to expand its economic production. That is, to encourage the division of labour. He further argued that *laissez-faire* (free market) was important to attain sustainable growth in an economy. In such environment, it is assumed that all decisions about resource allocation are made free of government intervention. However, Smith (1776) believed that the state should enforce contracts and grant patents and copyrights to encourage inventions and new ideas. He also recommended that the state provide public works such as roads, bridges and defence—all things that, he assumed, would not be worthwhile for individuals to provide. However, he wanted the users of such public works to pay in proportion to their use (see *The Wealth of Nations*, Book V).

Although the free market theory has been challenged by many Marxists economists and others, Smith's theory provided useful insights into the process of economic growth and provided a framework for the study of economic growth. Despite the fact that theoretical and empirical literature on economic growth has grown rapidly, there are still a lot of concerns about the sources of differences in income levels across countries, or over time within the same country.

After the beginning of the industrial revolution in England in the late 18<sup>th</sup> and early 19<sup>th</sup> centuries, there were a series of changes in agriculture, manufacturing and technology that led to a shift from hand-made to machine-made products. This had a profound effect on both the socio-economic and cultural conditions in the United Kingdom (UK). This effect later spread to the Western European and New World economies, and eventually the developing world, resulting in the widening of the global income distribution for over two hundred years and as a result, at the end of the 20<sup>th</sup> century, huge gaps still exist between the income of the world's rich and poor countries (Figure 1-1).

After the Second World War, some developing countries experienced unprecedented rates of economic growth and succeeded in catching up with the already industrialised countries. However, following a series of economic crises which led to the 1970s recession (the 1973 oil crisis and the 1973-1974 stock market crash), many industrialised countries, with the exception of Japan, witnessed poor economic growth rates. Figure 1-2 and 1-3 shows how different groups of countries and regions have contributed to the world's economic growth since 1970. It shows that the United States (US), European Union (EU), United Kingdom (UK), East Asia and Japan account for over half of the worlds GDP, but this proportion has been declining as a result of accelerated growth in the BRIMC countries, in particular, China.

**Figure 1.1: Developed versus developing countries real 2005 GDP per capita since 1980**



Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

Figure 1.2: Global real GDP since 1970

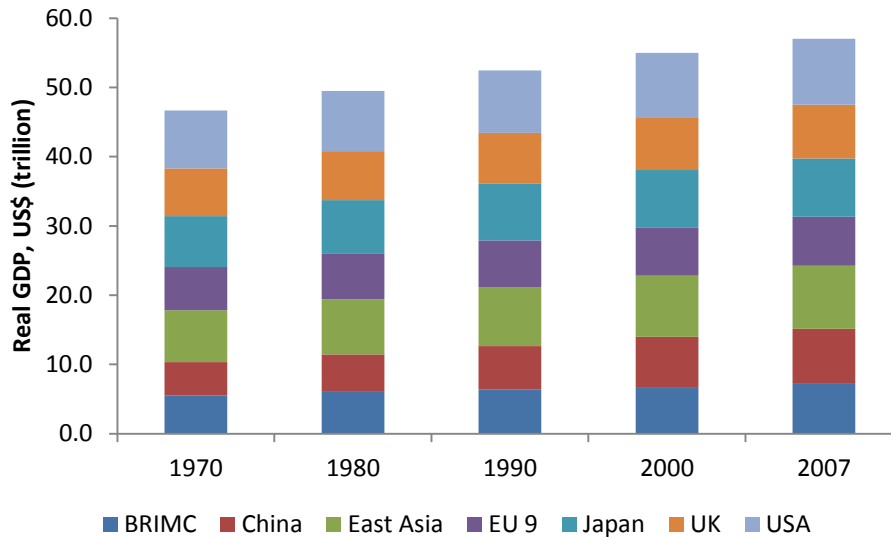
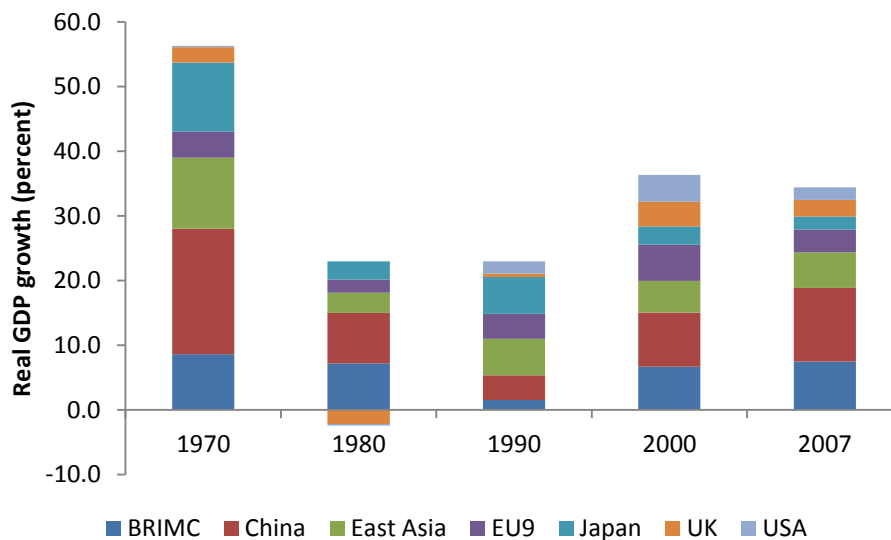


Figure 1.3: Global real GDP growth since 1970



Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

Note: BRIMC refers to 5 largest developing economies and comprises Brazil, Russia, India, Mexico and China. The EU 9 captures the member states of the European Union consisting of Germany, France, Italy, Netherlands, Belgium, Luxembourg, Denmark, Ireland and the United Kingdom.

In terms of GDP growth (Figure 1-3), the period 1980-2007 was a time of uneven development among countries of the world. A closer look at the top five world's richest and poorest countries in 1980 (see Table 1-1 below) indicates that the average persons income level in Burundi (the poorest country in the world in 1980) was approximately 200 times lower than the average persons income level in the United Arab Emirates (UAE), the richest country in the world. Although the level of income in Burundi and UAE had declined drastically by 2007 (Table 1-1), the average income in Burundi was still approximately 120 times less than UAE.

Barro and Sala-i-Martin, (2004) suggests that this huge difference is a reflection that some economies are growing rapidly and have managed to sustain high growth rates for a long period of time, while others are not growing at all. If I look at how these countries, on average, fared during these twenty-seven years, I observe that GDP per capita for four out of the ten countries decreased, with negative growth rates (Table 1-1). In fact, according to the table, many of these decreasing countries belonged to Panel A, the rich countries. However, Kuwait and Switzerland maintained a moderate economic growth.<sup>2</sup> In Panel B, I find that China grew on an average of 8.9 percent per year. This modest growth has brought China, and other East Asian countries, up more than ten times in per capita income in a short time span, with significant improvements in the health of the population and industrial sector (Sala-i-Martin, 2006). In order to catch up with industrialised countries, some developing countries, such as China and India, started to grow at higher rates. Indeed, small differences in a countries economic growth (positive or negative) matter a great deal in the long-term, as it can yield a huge difference in people's standard of living.

To illustrate the importance of sustaining high economic growth and its role in explaining the huge differences in income across countries, Barro and Sala-i-Martin (2004) cite the increase in per capita GDP in the United States from \$3340 in 1870 to \$33,330 in 2000, as an example. They note that the economy grew at an annual average of 1.8 percent, representing a ten-fold increase in income. According to the authors, the ability to sustain such a growth rate, over a long period of time, made the US the second richest country in the world in 2000, after Luxemburg.

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<sup>2</sup> According to World Bank (2011), Kuwait and Burundi were the only countries, in our list, that still ranked among the top five rich and poor countries in 2007.

**Table 1-1: Rich and poor country GDP per capita (PPP), 1980**

Panel A	GDP per capita (PPP)		
Top five rich countries	1980 <sup>a</sup>	2007 <sup>b</sup>	% per annum (growth)
United Arab Emirates	95,337.64	42,742.05	-2.97
Brunei Darussalam	80,588.02	48,054.18	-1.90
Kuwait <sup>c</sup>	39,982.68	49,541.51	0.80
Saudi Arabia	33,902.94	20,242.88	-1.89
Switzerland	28,536.11	37,854.35	1.05
Panel B: Top five poor countries			
Burundi <sup>c</sup>	430.48	354.65	-0.72
Mozambique	439.52	743.37	1.97
China	523.95	5,238.68	8.90
Nepal	566.52	980.30	2.05
Burkina Faso	622.48	1037.61	1.91

Note: *a* and *b* indicates that data available for 132 and 182 countries, respectively, out of the 216 listed. *c* indicates countries ranked amongst top five rich and poor in 2007.

Source: World Bank (2011): *World Development Indicators*, (edn: September 2011). ESDS International, University of Manchester.

In Table 1-2 below, I provide a summary statistics for the average annual rate of growth of real per capita GDP in the 60 countries which constitute our basic sample, over the period 1980-07. For comparison, summary statistics for 1970-80 are also shown. A comparison of the two periods shows that world economic growth appears to have slowed down. The mean rate of growth in per capita GDP was approximately 1.35 percent per annum during 1980-07, quite a bit lower than the mean rate of 2.15 percent for 1970-80.

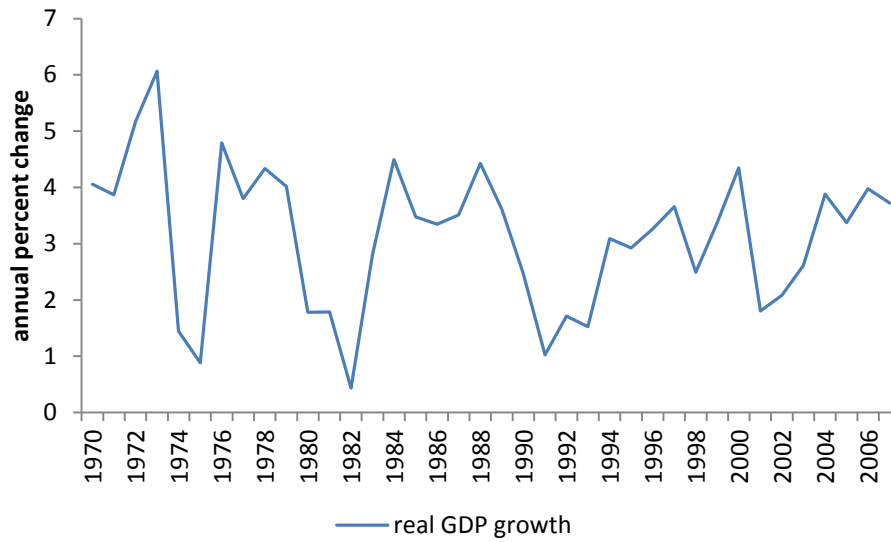
**Table 1-2 : Average per capita income growth in sample countries, 1970-2007**

	1970-80	1980-07
Mean	2.15	1.35
St Dev	2.44	1.82
Min	-3.40	-2.31
Max	10.73	8.72
N	60	60

Source: Author's calculations from USDA (2010), Economic Research Service, International Macroeconomic Data Set.

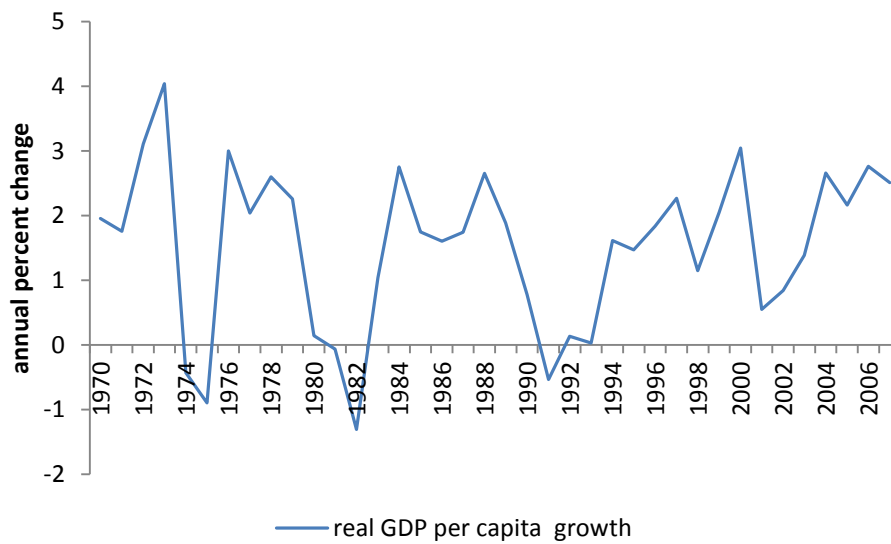
Nonetheless, in the beginning of the 21<sup>st</sup> century, the global economy showed strong growth. Over 2001-07, real world gross domestic product (GDP) grew by more than 3 percent a year, exceeding the annual growth of 2.7 and 2.9 percent during the 1990s and 1980s (Figure 1-4 and 1-5). The BRIMC countries contributed to this growth as they expanded at an especially high 6 percent a year, resulting from economic reforms enacted over the past two decades (Figure 1-6).

**Figure 1.4: World GDP growth since 1970**



Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

**Figure 1.5: World GDP per capita growth since 1970**



Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.



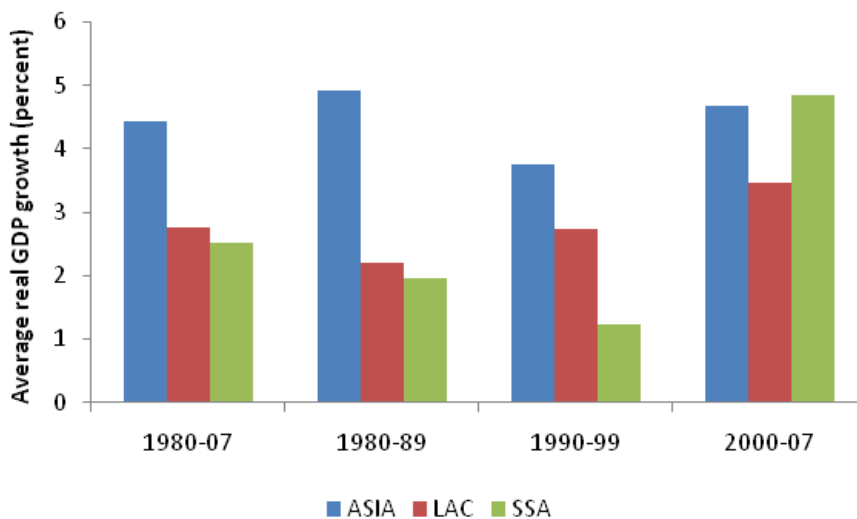
**Figure 1.6: Real 2005 GDP growth rates since 1980**



Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

It is observed that the slowdown in growth of the world’s economies from 3.8 percent achieved in the 1970s to 2.9 percent in the 1980s was the net result of two divergent patterns among the various developing regions. Figure 1-7 indicates that income inequality among the regions of the developing countries is far greater, with the lowest income found in the SSA region.

**Figure 1.7: Real 2005 GDP growth rate by region since 1980**



Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

Not only is SSA the world's poorest region, it was also the only developing region in the world which had a negative growth in income per capita during 1980-2007 (Table 1-3). Moreover, several factors, including economic policy errors and institutional and structural constraints, have played important roles in the poor economic performance of SSA. Comparing growth patterns in the 1970s with the 1980s, South Asia joined East Asia as a high growth region and the other regions; Latin America and the Caribbean (LAC), Middle East and North Africa (MENA) and SSA suffered a sharp decline in their growth (Table 1-3). In the 1990s, there had been modest changes in most regions. In particular, there was a moderate slowdown in East Asia (as a result of the slowdown in the Japanese economy and the East Asian crisis which began in the mid-1990s), and South Asia, a brisk growth in LAC and a moderate decline in SSA. The exception was the MENA region which experienced growth accelerations as a result of development policy choices. The net effect of this led to an increase in the developing world's economic growth to 4.5 percent (Table 1-3).

During the period between 2000 and 2007, economic growth in the regions became more noticeable. While East Asia, South Asia, LAC and MENA all experienced a marked acceleration in economic growth, SSA enjoyed a sharp increase in growth. On a per capita basis, the SSA region's 2.3 percent average growth over the last seven years was the region's strongest growth performance since the 1970s (Table 1-3).

**Table 1-3: Average annual growth in GDP and GDP per capita by region and sub-period, 1980-2007**

Region	Real GDP					Real GDP per capita				
	1970-79	1980-89	1990-99	1980-07	2000-07	1970-79	1980-89	1990-99	1980-07	2000-07
EAST ASIA	5.72	4.82	3.45	4.2	4.37	3.75	3.34	2.44	3.17	3.86
SOUTH ASIA	2.99	5.69	5.36	5.85	6.65	0.72	3.47	3.33	3.82	4.88
LAC	5.68	2.2	2.75	2.76	3.46	3.3	0.16	1.03	1.02	2.08
MENA	5.99	2.65	3.66	3.56	4.57	3.18	-0.32	1.6	1.22	2.68
SSA	3.18	1.95	1.23	2.52	4.84	0.45	-0.89	-1.38	-0.16	2.27
Developing	5.81	3.74	4.55	4.57	5.62	3.46	1.62	2.76	2.74	4.13
World	3.84	2.97	2.55	2.89	3.23	1.94	1.22	1.08	1.39	1.99

Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

The slowed growth in SSA during the 1980s and 1990s might be as a result of their inability to recognise the importance of development of intangibles, such as technology, ideas, creativity and innovation (a necessary condition for sustainable growth), alongside the need for human capital to transform these intangibles into a final product, so as to produce economic values. Since economies attain various stages of economic growth at different times in their process of development (given the dynamic nature of economic growth), government policies are important. This is because for growth to be sustainable and to successfully integrate into the worlds' international economy, Africa needs to implement growth-promoting policies, institutions and trade enabling physical infrastructure (World Bank, 2007). In addition, Wilson and Stupnytska, (2007) in a recent report on '*The N-11, More than an acronym*'<sup>3</sup> published by Goldman Sachs, acknowledge that many developing countries are keen on changing their policies, in order to engage in globalisation. This argument supports the impressive growth recorded in the 2000s as it reflects the implementation of better economic policies and structural reforms (Basu et al., 2000).

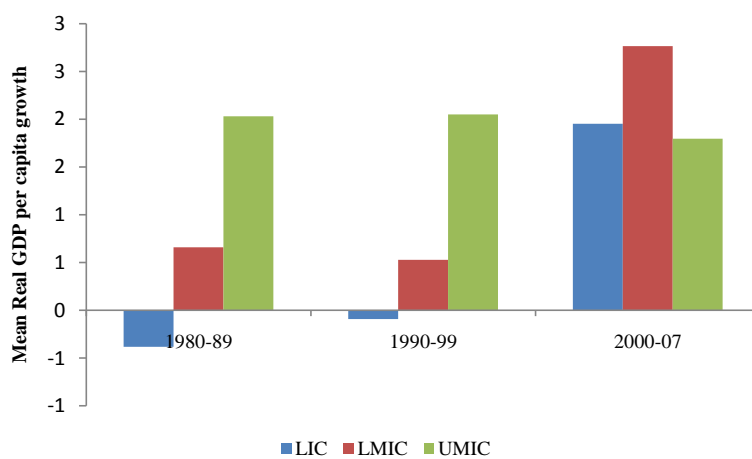
Recent empirical literature on developing countries provides strong evidence that rapid and sustained growth is the most single important way to reduce poverty. By employing various growth-promoting polices which encourage economic openness and domestic and foreign direct investment (FDI), financial markets, a key indicator of development, become more modern and developed, and in turn, promote economic growth (Collier and Gunning, 1999; Agarwal, 2001; Ndikumana, 2001 and Kumo, 2008). Hence, a

<sup>3</sup> An acronym coined by Goldman Sachs (2007), to refer to a group of the next 11 'emerging' countries which could have a BRIC-like impact in the world economy. They include: **Bangladesh**, **Indonesia**, Iran, Korea, **Mexico**, **Nigeria**, **Pakistan**, Philippines, Turkey and Vietnam. Five of these countries (in bold) are included in this study.

successful strategy of reducing poverty in the region is to mirror similar policies employed in other developing regions and in particular, the BRIMCs.

Within SSA itself, there has been significant divergence. At the income group level, the pattern of income distribution was similarly complex (Figure 1-8). Notwithstanding SSA's weak economic performance, the per capita income in the poorest countries, as a group, grew faster than in the rich ones during the period 2000-2007.

**Figure 1.8: SSA income group GDP per capita growth in 1980**



*Source:* USDA (2010), Economic Research Service, International Macroeconomic Data Set.

Many economists hold concerns on the measurements of economic growth that are mainly used in economics literature. In a World Bank publication on ‘Beyond Economic Growth: Meeting the challenges of economic development’, Soubotina and Sheram (2000) argued that gross national income (GNI), or gross domestic product (GDP) per capita, do not provide information on the allocation of resources, thus explaining why countries with a similar average income differ substantially when it comes to the people's quality of life. According to the authors, higher per capita income in a country does not mean that its people are better off than those people living in a country with lower income per capita.

Once we appreciate the importance of sustained growth, the question then is: What factors determine economic growth and what can we do to make growth faster? It is important to understand the causes of income disparity so that particular economic policies could be employed, in order to bridge this gap. It is noteworthy that although huge gaps still remain between developed and developing countries, the main focus of

this thesis is to examine the factors that have contributed to the sustained growth realised in the BRIMCs in the context of SSA countries.

## **1.2 Motivation of research: the experience of BRICs/BRIMCs countries**

The experience of the fast-growing East Asian economies comprising the well known ‘gang of four’ or ASIAN TIGERS, (the term used in reference to the highly developed economies of Hong Kong, Singapore, South Korea and Taiwan) and the BRICs (Brazil, Russia, India and China) can both be considered when examining the factors responsible for positive outcomes and sustainable economic growth in developing countries. The dramatic economic growth in East Asia, during the past thirty years, can be explained by their substantial potential for catching up (since they entered the 1960s with relatively low incomes and relatively well-educated workers). Their geographical and structural characteristics were by-and-large favourable, their demographical changes, following the Second World War, worked in favour of more rapid growth, and thus the economy transformed from one which was technologically backwards and ‘developing’ to one that is relatively modern and ‘developed’.

Their economic policies and strategies were also conducive for growth (Radelet et al., 1997). Indeed, Barro (1991) highlights the unprecedented growth rate of the East Asian economies as one of the most interesting facts of the post-war international growth experience. In addition, Nelson and Pack (1999) point out that their remarkable growth exceeded those countries with comparable productivity and income levels in 1960, as their level of income per capita increased by approximately four-fold.

According to the literature, the most important factor that contributed to the high performance of the East Asian countries was their ability to recognise the need to integrate into the world economy, by opening to international competition through export promotion strategies based on export incentives. East Asian countries promoted exports through a combination of policies and innovative institutions, such as incentive packages for FDI and export processing zones. The implementation of these policies and institutions has indeed contributed to the rapid growth of the fast-growing countries of East Asia.

By the beginning of the 21<sup>st</sup> century, many more developing countries had grown rapidly than had been anticipated by economists. Attention shifted to the fast growing emerging economies of Brazil, Russia, India and China, collectively referred to as ‘the

BRICs. This acronym was coined by Jim O’Neill in 2001, in a Goldman Sachs report on ‘Building better global economic BRICs’. The BRICs represent a shift in the global economic power, away from the developed G7 economies, towards the developing world. They are a set of large developing economies that are at a similar stage of economic development. With a combined GDP in purchasing power parity (PPP) of approximately US\$18.8 trillion, the countries cover over 25 percent of the world’s land area and 40 percent of the world’s total population. They are spread over two continents, making them the largest entity on the global stage.

In a follow-up report,<sup>4</sup> Wilson and Purushothaman (2003) note that the BRICs have acquired a most important role in the world economy, as producers of goods and services, receivers of capital and potential consumer markets, given their common characteristics of having a significant part of their large populations still not integrated in the market economy. To this end, the authors highlight trade liberalisation, financial development, large population, improvement in the level of human development, labour supply, information technology (IT: an essential strategy for attracting foreign investment) and stimulating economic growth and development as key features that have led to the exceptional performance of the BRIC economies. The authors also focused on the BRICs current and future global importance, and suggested that by 2050, the sum of the GDP of the four countries may surpass the sum of the G6 (G7, less Canada)<sup>5</sup> countries’ GDP.

The persistent growth in the BRICs is strengthened by the growth realised in China and India. These two Asian giants are emerging as the most important economic driving forces in the world, with a combined GDP of approximately 18 percent of the world’s economy, in terms of PPP. The United Nations Economic Commission for Africa (UNECA, 2010) notes that the emergence of China and India as an economic power has contributed to a significant decline in poverty, implying that the standards of living of people living in these countries have improved substantially.

Shortly after the BRICs thesis, research on these economies gained unprecedented popularity and the results of the publication raised a number of questions. One of the most important was why the BRICs? To justify the reasons for studying only the BRIC economies, Goldman Sachs argued that ‘the BRICs have the economic potential to

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<sup>4</sup> Dreaming with the BRICs: The path to 2050.

<sup>5</sup> Consisting of France, West Germany, Japan, United Kingdom, United States and Canada.

become important largely because of their size<sup>6</sup> and the ability to challenge major developed economies in terms of their weight'. Another important question raised is why Mexico and South Africa were not included in the BRICs thesis? In their defence, Goldman Sachs in a paper "How Solid are the BRICs?" published in 2005, Jim O'Neill argued that though Mexico has the potential to rival the BRICs, it is considered a developed market rather than an emerging market. However, according to the World Bank Database, in 2004, Mexico was ranked the tenth largest country in the world in terms of economic size and the eleventh by PPP, compared to Brazil, Russia, India and China, that were 13<sup>th</sup>, 16<sup>th</sup>, 11<sup>th</sup>, and 5<sup>th</sup>, respectively, in terms of economic size.

When looking closer at Latin America and the Caribbean countries, the World Bank (2008) indicates that in 2007, Mexico grew at an annual growth of 3.2 percent compared to 5.4 percent in Brazil. Consequently, we find it interesting and useful to extend our studies to include Mexico. Thus, this thesis focuses on a group of five countries, which are becoming increasingly economical and politically influential, i.e. BRIC plus Mexico. These five countries will, henceforth, be referred to as BRIMC, representing countries from both Asia<sup>7</sup> and the Latin American region, which is of economic significance to the process of globalisation.

Overall, it is observed that the success of the BRIMCs was driven by a combination of various policy reforms. While the financial sector grew following a series of financial crises in the early and mid-1990s, the BRIMCs became top destinations for FDI because of their large population. The Denmark National Bank (2004: 48) also notes that the level of education and economic openness of these countries contributed to the impressive growth realised in these economies.<sup>8</sup> Other factors such as; accumulation of production capital, higher rate of employment, expansion of capital input, labour productivity, labour supply and improvement in technology also account for this change. In addition, the quality of institutions has been found crucial for the duration and sustainability of growth accelerations (Rodrik, 2003 and 2005).

Although many African countries record poor and sluggish economic growth, Radelet et al. (1997) argue that faster growth is possible, and indeed likely, as these countries adopt market-based strategies and increased openness to world markets. Nonetheless,

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<sup>6</sup> In terms of demographic (population) and economic size.

<sup>7</sup> The World Bank regional classification, groups Russia under the Europe and Central Asian region. However, for simplicity, all member countries under East Asia, South Asia and Europe and Central Asia are referred to as Asia in the present study.

<sup>8</sup> This growth is in terms of the relation between economic development and a country's size.

achieving such good performance and sustained growth might pose a challenge for many SSA countries because of the lack of investment in physical and human capital, the perception of high risk for investing, trade, and political instability, and inappropriate economic policies. The most important challenge is the inconsistency in growth policies, quality of institutions and the neglect of the role of technological innovation.

Technological innovation enables developing countries to catch up with developed countries, in the process of international integration, through trade or FDI. This implies that access to foreign investment would lead to technological change, which in turn raises the relative marginal productivity of capital through education and training of the labour force, and the creation of new managerial structures and work organisations. The new endogenous growth models allow foreign investment to impact economic growth in the long-term through knowledge transfers from multinational companies (MNCs) to the host country. Therefore, to catch up with other developing economies, what is needed is a sustained increase in real GDP per capita growth, coupled with significant improvement in socio-economic development.

Given the experience of the BRIMC countries, the present study finds that the emergence of the BRIMC countries presents a very good backdrop to re-examine the role of financial development, FDI and economic growth, in the context of SSA. The BRIMCs create a space for ‘vertical learning’, where policy makers in the SSA can learn without having to go through the international institutions dominated by the US or Europe.

### **1.3 Objective of thesis**

After several years of economic stagnation, there has been a remarkable turnaround in the economic performance of Sub-Saharan African countries. Though many empirical literatures tend to highlight the challenges and long standing problems affecting the region’s economic performance, they have failed to acknowledge the potential for improving economic performance and hence, sustainable economic growth. Nevertheless, in recent research conducted by the World Bank (2010) on ‘Yes Africa Can: Successes from a dynamic continent’, Chuhan-Pole concludes that the economic turnaround witnessed in many SSA countries, in the 21<sup>st</sup> century, is as a result of: stronger leadership, better governance, improving business climate, innovation, market-



based solutions, listening to the people and involvement of the citizenry, and an increasing reliance on home-grown solutions.

Having said that, to achieve the Millennium Development Goals (MDGs)<sup>9</sup> and catch up with Asia and other fast growing Latin American countries, there is a need to find a reliable economic model which is suitable for the type of environment these countries find themselves in. Consequently, the main objective of this thesis is to examine whether, by following a similar model to that of the BRIMCs [in terms of developing the financial sector and improving access to foreign direct investment], SSA countries can reach high growth rates and sustain them for long-term development. To achieve the aim, this thesis attempts to find an answer for one main research question, which is whether and how financial development and foreign direct investment affect economic growth in developing countries and how this effect is significant in the BRIMC and SSA countries. The study draws data on financial development, foreign direct investment and economic growth for 60 developing countries during the period 1980 to 2007, by drawing different econometric techniques into one single framework. The objectives of the thesis, thus, are:

- To examine the determinants of financial development and the role of financial liberalisation in the emerging and frontier markets of the BRIMC and SSA countries.
- To identify the effects of institutional quality on financial development in SSA countries.
- To examine the determinant of FDI and its impact on economic growth in developing countries, with particular interest in the BRIMC and SSA countries, within the theoretical framework of an endogenous growth model. In particular, it tries to capture whether FDI is a sufficient condition for countries to achieve higher growth rates, or whether FDI, through its interactions with trade openness and human capital, enables these countries to absorb and adopt new technologies and knowledge from advanced countries, in order to catch up.
- To investigate the long-term causal relationship between financial development, FDI and economic growth in developing countries, focusing on the BRIMC and SSA countries.

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<sup>9</sup> The MDG refers to a set of goals set to reduce poverty, by half, by the year 2015. See United Nations <<http://www.un.org/millenniumgoals/bkgd.shtml>> for more details.

These objectives are further broken into different testable hypotheses in the empirical chapters.

#### **1.4 Research methodology**

The methodological and analytical approaches used in this study are drawn from the empirical literature focusing on financial development, FDI and growth, so as to examine the objectives of the research. The research reviews extensive theoretical and empirical literature that underpins the role of financial development and FDI in the economic growth of the BRIMC and SSA economies. This research is partly qualitative and makes use of some descriptive statistics to provide a clearer detail of the analysis. The second part of the research is quantitative and involves econometric techniques using secondary data published by various international and domestic financial institutions. Different econometric models are constructed and form the basis of the test of the hypothesis. These methods are highlighted in each of the chapters that they are used along with the justifications and limitations for their use. Where necessary, visual illustrations (graphs and tables) are used to support the results obtained in the study.

This thesis relies on a panel data technique and time series estimators (where applicable) to study the impact of finance and FDI on growth. Specifically, it examines the importance of institutional environment, openness to trade and human capital, and their interactions, in the process of economic growth, in a sample of 60 developing countries. In terms of location, 12 of these 60 developing countries are from Asia, 11 are from Latin America and the Caribbean, and 37 are from Sub-Saharan Africa, including a group of fastest growing emerging economies from Brazil, Russia, India, Mexico and China (which make up the BRIMC countries). In terms of income, 21 of these 60 developing countries are low income countries, 21 are lower and middle income countries and 18 are upper and middle income countries. All the regressions are done using STATA 11 or EVIEWS software, version 6 and 7.

##### **1.4.1 Panel Data Analysis**

Panel data analysis is used to prevent some distortions, in terms of size, which might occur with time series analysis due to a limited number of observations. This is because it consists of both  $i$  cross-section dimension and  $t$  time series dimension. The use of panel data method has a number of advantages and disadvantages. Hsiao (2003), Eller et al. (2005) and Baltagi (2008) identified several benefits of panel data analysis, including:

- It provides a large number of observations.
- It increases the degrees of freedom.
- It reduces the co-linearity among explanatory variables.
- It identifies and measures the effects that time series or cross-sectional methods are unlikely to detect (e.g. country-specific or time specific effects). One of the main uses of panel data analysis is to control for heterogeneity. Countries, individuals and firms vary, and ignoring this effect can lead to heterogeneity in model specification. Hence, the unobserved differences that are related across countries and are constant overtime can be considered within the panel data analysis by using a country-specific effect (Eller et al., 2005).
- It improves the efficiency of Granger causality tests.
- It is useful in studying the dynamics of adjustments, in that it is able to explain the adjustments to economic policy changes, if the panels are long enough. Hsiao (2003: 5) argued that this can be done ‘by using information on both the inter-temporal dynamics and individuality of the entities being investigated’.

The use of the panel data method also poses some problems because it consists of both cross-section and time series dimensions. The disadvantages of using panel data include:

- Having a time series dimension. Baltagi (2008) argues that most panel data deals with annual data, which covers a short period of time as a consequence, asymptotic arguments rely on the number of individuals tending to infinity while the number of time periods remains constant.
- The issue of cross-sectional dependence (CSD) also needs to be considered as it may lead to misleading inference. CSD is the possibility that the individual units in the panel are interdependent. Several tests have been developed to take into account the cross-sectional side of the panel including: Pedroni (1999), Levin and Lin (1992), Quah (1994), Levin et al. (2002) and Im et al. (2003) to mention a few.

The present study, thus, relies on several panel data methods for analysis including: pooled ordinary least squares (POLS) method, fixed effects (FE) and random effects (RE) methods, panel corrected standard errors (PCSE) estimation, Generalised Methods of Moments (GMM) as well as panel unit root, panel co-integration and panel causality

tests. The various panel data methodology is further described in the chapters where they are utilised.

#### 1.4.2 Data Quality and Characteristics

A common feature of many data sets used in empirical research on developing countries is the limited availability of sufficiently long time series variables and that of missing observations. In this thesis, the entire data set is an unbalanced and incomplete panel. An observation is considered incomplete if a value is missing for one or more of the variables. Missing observations are either random or non-random. An observation is missing at random if the fact that they are missing is unrelated to the actual values of the missing data while an observation is referred to as non-random missing if the fact that they are missing is related to the actual missing data. In statistical analysis, the use of missing observations is not without its risks. On one hand, if the missing variable is considered to be an important part of a model, simply omitting the variables from the analysis brings with it the possibility of substantial ‘omitted variable bias’. On the other hand, if the variable is considered important and to be missing at random, then a simple way to deal with the problem is to omit the observations and estimate the model using observations with ‘complete data’ although based on a smaller sample size than the original data set (Abrevaya and Donald, 2010).

Missing data were filled out using linear interpolation by country. However, after filling in for missing observations with the linear interpolation method, there were still some missing observations for some of the variables. To deal with this problem, the remaining incomplete observations were purged.<sup>10</sup>

The original data set comprised 60 countries and includes annual observations between 1980 and 2007; however, each chapter uses data set based on the questions addressed. The data was retrieved from various sources of information. World’s Bank *World Development Indicators* (2009, 2010) and *World Governance Indicators*, (2010), Beck et al.’s (2000, updated 2010) financial structure dataset, UNCTADs’ *World Investment Report* (WIR), Penn World Table versions 6.3, International Monetary Statistics (2009), *International Financial Statistics* and UNESCO *UIS data*, Heritage Index of Economic Freedom database, (2010), Bekaert et al. (2002), Chinn and Ito’s index (2006, updated 2010) and Teorell et al.’s (2010, 2011) the quality of government dataset.

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<sup>10</sup> See more details in the empirical chapters.

The selection of the variables that are representative of each chapter was necessarily affected by the option of using a sufficiently large sample of developing countries. Thus, from theoretical standpoint, some important variables that were included in some of the studies reviewed were left out. A list of the countries is presented in Appendix I. The variables used in this study include liquid liabilities, private credit, bank credit, stock market capitalisation, value of stocks traded, financial liberalisation dates, financial freedom index, KAOPEN index, trade openness as a ratio of GDP (sum of import plus exports of goods and services), trade freedom index, inflation, institutional quality (average of bureaucratic quality, control of corruption and rule of law), World governance Indicators (political stability, government effectiveness, control of corruption, voice and accountability, regulatory quality and rule of law), external capital in the form of FDI as a ratio to GDP, GDP per capita, annual growth of GDP per capita, GDP and annual growth of GDP, adult literacy rate, government consumption as a ratio of GDP and government fixed consumption formation as a ratio of GDP.

## **1.5 Contributions to the literature**

The combined effect of financial development and FDI has been a contentious issue that has resulted in several different views from scholars due to the methodological approaches applied and the samples used in their studies (Carkovic et al., 2005; Alfaro et al., 2006 and Eller et al., 2005). As a result, this thesis sets out to present a different sample in the study of financial development, FDI and the effects of their interaction, on economic performance, in response to a call by Eller et al. (2005) for a different sample in the study of the impact of financial development and FDI in an economy.

To this end, this thesis contributes to the literature in four ways:

*First*, it contributes to the finance-growth literature by focusing on the effect of financial liberalisation on financial development, using emerging and frontier markets as a case study. The contribution here lies in the area of which aspect of the financial sector<sup>11</sup> contributes to financial development in developing countries. The study extends the existing literature on determinants of financial development and the impact of financial liberalisation on financial development.<sup>12</sup> Evidently, though, these studies focus mostly on the experiences of developed and developing countries. Otherwise, the current

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<sup>11</sup> In this study, we focus on the banking sector and stock market.

<sup>12</sup> See, for instance, the works of Baltagi et al., (2007), who show that economic institutions are more important than openness for financial development, in 42 developing countries during 1980-2003, and more recently, Huang, (2010), who examined the role of political institutions in financial development, in 90 developed and developing countries between 1960-1999.

literature offers very limited empirical research on the impact of financial liberalisation in frontier markets. In fact, the majority of the existing literature on frontier markets tends to focus on the impact of financial liberalisation on savings, investment and economic growth, whereas, this study concentrates on its indirect impact on financial development. It is observed that low levels of institutions limits the impact of financial liberalisation on financial development in frontier markets, hence in the fourth chapter, the thesis examined the role of institutions in financial development in SSA countries, taking into account the effect of individual institutions on financial development. Furthermore, it examines whether financial development, through better institutions affect economic growth in the region.

*Second*, the study investigates the determinants of FDI and aim to demonstrate the importance of trade openness and human capital in the attraction of FDI to developing countries.

*Third*, it assesses the growth effect of FDI through the financial sector in our sample. Previous studies investigated the consequences of financial sector FDI for the host country's financial system<sup>13</sup> and the role of financial system in the FDI-growth nexus. However, they focus mainly on developed countries, transition economies in Central-Eastern Europe or recent emerging economies, with very scant literature from developing regions and, in particular, SSA.

*Fourth*, it employs both panel data and time series cross-section (TSCS) estimation techniques to take advantage of the time varying financial measures and macroeconomic policy shocks, as well as any available country-specific characteristics. These country-specific characteristics are important from an investment and competition point of view.

The use of the BRIMC countries as a learning strategy for the SSA countries, gives this study its uniqueness.

## **1.6 Structure of the study**

This study is organised into seven chapters. Chapter one and two set the tone of the thesis. In the first chapter, an introduction and general information on global economic growth and development is discussed, with reference to the experience of the 'gang of

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<sup>13</sup> See for example Goldberg, (2004); Herrero et al. (2003); BIS, (2004)

four' (South Korea, Singapore, Taiwan and Hong Kong) and the fastest growing emerging economies, the BRIMC countries (Brazil, Russia, India, Mexico and China).

Chapter two presents an economic comparison of the BRIMC and SSA countries. The purpose of this chapter is to show how these economies developed and how their paths of development differ. It provides an overview with the aid of tables and figures. It reviews the strategies of the BRIMC countries and traces the role of financial development, FDI, trade openness and human capital in promoting sustainable economic growth. It is believed that by systematically identifying and assessing positive outcomes, it will be possible to draw out lessons regarding what has worked in practice and why. In addition, it projects the performance of GDP growth, income per capita and currency movements in the selected SSA countries in our sample until 2050, by following a similar methodology to that presented by Garrido (2009) in a World Bank publication 'Income Benchmark'.

The next four chapters present the empirical analyses which form the core aspect of this thesis. The first three empirical chapters focus on the interrelationship between financial development and FDI. In particular, the first empirical chapter (Chapter three), entitled *financial development in emerging and frontier markets: The role of financial liberalisation* examines the role of financial liberalisation in determining financial development, and investigates the importance of financial liberalisation for financial development. The analysis in this chapter, and its evidence, will be used to build on the argument of the second empirical chapter (Chapter four) which will investigate the importance of institutions in financial development. In this chapter, *Institutional quality in Sub-Saharan Africa: An empirical examination of its impact on financial development* investigates whether financial development has a positive impact on growth through improving institutional quality in developing economies of the SSA region. In particular, this chapter seeks to establish the impact of economic, political and legal institutions on financial development.

Chapter five, *On the determinant and impact of Foreign Direct Investment: Evidence from developing countries* examines. Here, some propositions put forth by economists to elucidate the concept of FDI are surveyed and a theoretical and empirical underpinning of what drives FDI to developing countries is presented. It aims at testing empirically some propositions advanced by economists to justify FDI. Economic growth is mainly targeted. Economic growth, in the literature, turns to be a determinant

as well as an effect of FDI. Some researches have confirmed that a high rate of growth encourages foreign investments. There are also investigations that examine the role of economic openness and human capital in promoting FDI. Chapter six, *Foreign Direct Investment, financial development and economic growth: A panel co-integration approach* studies the long-term relationship between FDI, financial development and economic growth. The chapter investigates the role played by financial development in determining the contribution of FDI to growth. That is, it tests whether financial development in host countries is a precondition for reaping the positive spillovers (externalities) generated by FDI inflows.

Chapter seven is the concluding chapter. It highlights the main findings of the study and their significance and policy implication.



## Appendix I

**Table 1-4: List of countries and data**

<i>Developing Countries (60)</i>			
Angola	Colombia	Mali	Senegal
Argentina	Congo, Rep.	Mauritania	Seychelles
Bangladesh	Costa Rica	Mauritius	Sierra Leone
Benin	Côte d'Ivoire	Mexico	South Africa
Bolivia	Ethiopia	Mozambique	Sri Lanka
Botswana	Gabon	Nepal	Sudan
Brazil	Gambia	Niger	Swaziland
Burkina Faso	Ghana	Nigeria	Tanzania
Burundi	India	Pakistan	Thailand
Cameroon	Indonesia	Papua New Guinea	Togo
Cape Verde	Kenya	Paraguay	Uganda
Central African Republic	Lesotho	Peru	Uruguay
Chad	Madagascar	Philippines	Venezuela
Chile	Malawi	Russia	Zambia
China	Malaysia	Rwanda	Zimbabwe

Source: World Bank (World Development Indicators, 2011, September edn)

**The World Bank classification of countries by income groups:** economies are divided among income groups according to 2008 gross national income (GNI) per capita, calculated using the World Bank Atlas method. The groups in this classification are: (low income, \$975 or less; lower middle income, \$976–3,855; upper middle income, \$3,856–11,905).

**Table 1-5: Low income countries**

<i>LIC (21)</i>		
Bangladesh	Gambia	Niger
Benin	Kenya	Rwanda
Burkina Faso	Madagascar	Sierra Leone
Burundi	Malawi	Tanzania
Central African Republic	Mali	Togo
Chad	Mozambique	Uganda
Ethiopia	Nepal	Zimbabwe

See Table 1-4

**Table 1-6: Lower middle income countries**

<i>LMIC (21)</i>		
Angola	India	Paraguay
Bolivia	Indonesia	Philippines
Cameroon	Lesotho	Senegal
Cape Verde	Mauritania	Sri Lanka
Congo, Rep.	Nigeria	Sudan
Côte d'Ivoire	Pakistan	Swaziland
Ghana	Papua New Guinea	Zambia

See Table 1-4

**Table 1-7: Upper middle income countries**

<i>UMIC (18)</i>	
Argentina	Mauritius
Botswana	Mexico
Brazil	Peru
Chile	Russia
China	Seychelles
Colombia	South Africa
Costa Rica	Thailand
Gabon	Uruguay
Malaysia	Venezuela

See Table 1-4

## **2 Can Sub-Saharan African Countries Learn from the BRIMCs Success?**

In the last two decades, Brazil, Russia, India, Mexico and China (the BRIMC countries) have become very important actors in the globalisation process. Which is why, analysing the evolution of the drivers of the growth process and its impact on economic performance is important to a better understanding of these countries' economies, as well as of the living standards in other developing countries. During this period, the East Asian region experienced sustained economic growth, a period of growth so long and exceptional for it to be referred to as the 'East Asian Miracle' (World Bank, 1993). In the same years, SSA countries experienced a period characterised by a surprising decline and stagnation of growth that induced several authors, including Easterly and Levine (1997), to write of 'Africa's growth tragedy.' Unlike many Asian countries where growth has been sustained in order to catch up with developed economies, the poor economic performance in the SSA has been attributed to a failure in establishing a virtuous growth circle involving complementary increase in savings and exports (Akuyz, 2001). In addition, low levels of investment, governance, political stability and access to credit were other major development challenges facing the SSA region.

The period between 2000 and 2007 brought strong hopes to Africa, especially the SSA countries, as an increasing number of countries are showing signs of economic progress, reflecting the implementation of better economic policies and structural reforms (Basu et al., 2000) such as the Millennium Development Goals (MDGs), a policy strategy that aims to; among other things, end poverty and hunger and to develop global partnership by 2015. Nonetheless, the success of the BRIMC countries delivers some important lessons: the importance of trade openness, human capital, financial development and the need for foreign direct investment. This chapter, therefore, examines the economic performance of the BRIMC countries in the last two decades, in comparison to each other and to some select SSA countries. In doing so, this thesis examines the BRIMC model of economic development in light of the different approaches undertaken by the different countries. It is hoped that SSA policymakers can draw from these experiences by following some useful policy guidance for further economic development and growth in the region.

The analysis in this chapter is similar to the work of Harrold et al. (1996), who examined the experience of East Asian countries in terms of industrial development and export growth and its implications for SSA countries. However, this study is unique in that it focuses on the big emerging economies of Brazil, Russia, India, Mexico and China, (BRIMC). The BRIMCs captures East, South, Europe and Central Asian and Latin American regions as identified by the World Bank (2010). Based on the literature, we highlight common factors that have contributed to the growth success of the BRIMCs and derive practical lessons for the SSA region. I discuss various strategies for economic development and, in particular, I examine the role of financial development, FDI, trade openness and human capital development. I then present a simple economic growth simulation for SSA countries following similar methodology presented by Wilson and Purushothaman (2003). Identifying these factors is of particular importance for SSA, because it is believed that sustainable economic growth-oriented policies could be drawn from the successful experience of other developing countries.

## **2.1 Introduction and general background**

The BRICs is an acronym created by Jim O'Neill from the Goldman Sachs Investment Bank that stands for Brazil, Russia, India and China, the four largest emerging countries most analysed and debated nowadays. With the outstanding growth obtained in these countries in the current decade, they have been studied together because they represent a significant change in the world, after implementing various economic reforms and liberalisation in the 1990s. In this thesis however, I include Mexico and coin the acronym BRIMC, hence, focusing on five of the fastest growing developing countries. These countries have had distinguished level of development during the last few years, however, their individual growth patterns does not seem to be similar. Individually, and collectively, these are significant global actors to which other developing countries must pay attention, especially the SSA region.

The BRIMC countries are a highly heterogeneous group, differing significantly in terms of size, population and weight in the world economy. Around the middle of the 20<sup>th</sup> century, China witnessed its communist revolution, India became independent, Mexico recovered from depression, Brazil went into a period of twenty-one years of military regime, and the former Soviet Union came out of the Second World War as a major rival to the United States. Later on, in all these countries, inward orientated and more or less centrally planned development strategies from the 1950s to the 1970s were replaced

by gradual integration in the global economy in the 1980s and 1990s. These countries became quite significant in the world economy following major institutional transition and changes in their economic structure during the 1990s.

According to data from the USDA/ERS International Macroeconomic Data Set (2010), the combined GDP of the five BRIMC countries, in terms of constant 2005 US \$, reached a high of US \$6,589 billion and approximately 30 percent of the world's GDP in 2007. Their share of GDP in the world fluctuated between 9 and 10 percent in the 1980s and 1990s respectively. These five countries combined, cover approximately 30 percent of the world's land area over three continents. The relevance of these vast land areas relates to the likelihood of the existence of mineral resources and fertile lands for agriculture. All the countries have significant underground resources and their extractions are reflected in the sector composition of their GDP (see Table 2-1).

**Table 2-1: Sector composition of GDP**

Countries	Agriculture				Industry				Services			
	1980	1980-99	2000-07	2007	1980	1980-99	2000-07	2007	1980	1980-99	2000-07	2007
Brazil	11.01	8.66	6.15	5.56	43.83	38.59	28.19	27.81	45.16	52.75	65.65	66.63
Russia	N/A	9.43	5.64	4.41	N/A	42.43	35.88	36.44	N/A	48.13	58.48	59.15
India	35.70	29.81	20.35	18.26	24.69	26.19	27.27	29.04	39.61	44.00	52.38	52.70
Mexico	9.00	7.58	3.89	3.64	33.65	31.02	31.68	34.95	57.36	61.40	64.43	61.41
China	30.17	24.95	12.92	10.77	48.22	44.86	46.34	47.34	21.60	30.19	40.74	41.89
BRIMC	85.89	76.18	48.96	42.64	150.38	164.00	169.36	175.58	163.73	214.82	281.68	281.78

Source: World Banks *World Development Indicator*, (September edn, 2011)

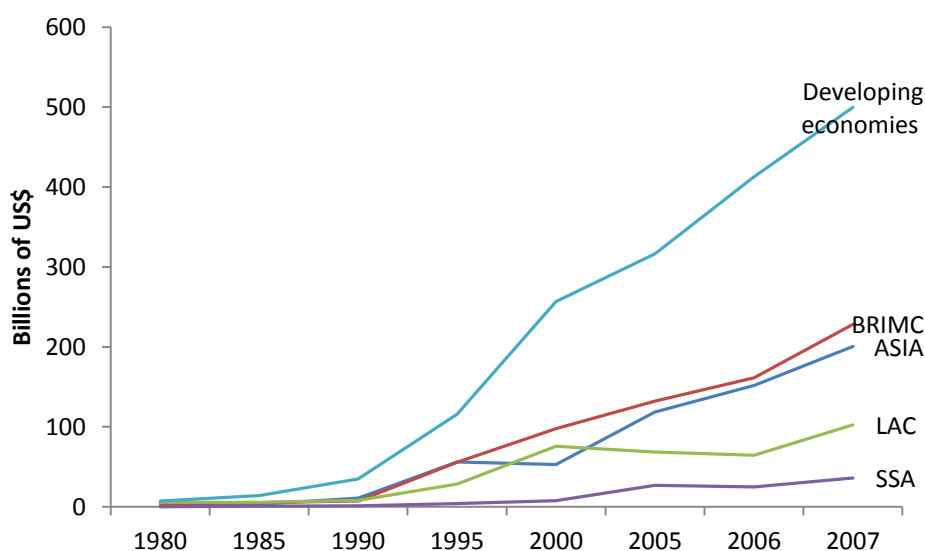
In terms of land, agriculture remains an important sector of the BRIMC countries, accounting for an average 43 percent of GDP in 2007. This is especially true in India and China where agriculture is of particular importance and accounts for 18 and 11 percent of GDP in 2007, respectively. The share of the population of these countries with regard to the total world population is quite significant because they accounted for 44 percent of the world's population in 2007. China, the most populous country of the group, has been trying to control population growth and as a result has managed to decrease its share of the world's population from approximately 22 percent in 1980, to 20 percent in 2007.

The BRIMC countries are also at different stages of development, but the variation in their levels of GDP per capita is similar to that of the G7 countries overall. The BRIMC

countries also have different long-term growth prospects (OECD, 2010). GDP per capita in the five countries increased from US \$16,164 billion in 1980 to US \$22,672 billion in 2007, growing at an annual rate of 1.3 percent. The rise in growth is supported by the decline in population growth rate, rise in demand, total factor productivity and investment in human capital. With these characteristics, the BRIMCs have become increasingly noticeable in the global economy.

The process of globalisation has led to a rapid increase in the inflow of FDI in the last few decades, especially in developing countries. Inward FDI flows to developing countries rose from US \$7.5 billion in 1980, reaching US \$35.1 billion in 1990 to a peak of US \$256.6 in 2000 and jumped by 51 percent to reach US \$499.7 billion in 2007 (see Figure 2-1) (UNCTAD, 2008). Asian countries and, in particular, the BRIMCs have been successful in attracting FDI compared to the SSA, where FDI inflow still lags behind other developing regions. The magnitude of FDI destined to the BRIMCs totalled US \$218 billion in 2007, showing an increase of approximately 55 times that which was obtained in 1980 (US \$4 billion). The share of BRIMCs in total FDI inflow to developing economies increased from 40 percent in the 1990s to 46 percent in 2007 (see Table 2-2). Similarly, the share of developing economies FDI to the SSA increased from approximately 0.5 percent in the 1990s to approximately 1 percent in 2007 (see Table 2-3).

**Figure 2.1: Trend in FDI inflows to developing economies, 1980-2007**



Source: UNCTAD, World Investment Report, (2008).

**Table 2-2: Evolution of FDI inflows to the BRIMCs, 1980-2007 (in billions of US \$)**

Year	Brazil	Russia	India	Mexico	China	BRIMC	Developing economies	Share in percent
1980	1.9	N/A	0.1	2.1	0.1	4.2	7.5	56.2
1985	1.4	N/A	0.1	2.0	2.0	5.5	14.2	38.8
1990	1.0	N/A	0.2	2.6	3.5	7.4	35.1	21.1
1995	4.4	2.1	2.2	9.5	37.5	55.7	116.0	48.0
2000	32.8	2.7	3.6	18.1	40.7	97.9	256.6	38.2
2005	15.1	12.9	7.6	24.1	72.4	132.1	316.4	41.7
2006	18.8	29.7	20.3	20.1	72.7	161.6	413.0	39.1
2007	34.6	55.1	25.3	29.7	83.5	228.3	499.7	45.7

Source: UNCTAD World Investment Report, (2008). N/A implies not applicable

**Table 2-3: Evolution of FDI inflows to the SSA, 1980-2007 (in billions of US \$)**

Year	Botswana	Gabon	Mauritania	Seychelles	South Africa	SSA	Developing economies	Share in percent
1980	0.1	0.0	0.0	0.0	0.0	0.2	7.5	-0.1
1985	0.1	0.0	0.0	0.0	-0.4	-0.4	14.2	-3.2
1990	0.1	0.1	0.0	0.0	-0.1	0.1	35.1	-0.2
1995	0.1	-0.3	0.0	0.0	1.2	1.0	116.0	1.1
2000	0.1	0.0	0.0	0.0	0.9	1.0	256.6	0.3
2005	0.3	0.1	0.8	0.1	6.6	7.9	316.4	2.1
2006	0.5	0.3	0.2	0.1	-0.5	0.5	413.0	-0.1
2007	0.5	0.3	0.2	0.2	5.7	6.9	499.7	1.1

Source: UNCTAD World Investment Report, (2008)

Financial globalisation has also caused significant transformation in the world economy. According to Das (2006), financial globalisation refers to ‘the integration of domestic financial system of a country with the global financial markets and institutions’. It involves the liberalisation and deregulation of the domestic financial sector, as well as the liberalisation of the capital account. The BRIMC countries differed in the speed, pace and content of the reforms they implemented. Although all five countries liberalised their financial markets in the late 1980s and early 1990s, as expected, it has provided opportunities for foreign investors to actively participate in these markets, which in turn, increased the level of liquidity, savings and growth of these economies.

In contrast, the macroeconomic performance in the Sub-Saharan African (SSA) region seems to differ a lot from Asia and Latin America and the Caribbean. Even after the implementation of several economic reforms, economic performance in SSA has been weak. Many economists including Aryeetey et al. (2003) believe that the SSA countries failed to take advantage of the opportunities provided by the increasing international interactions. In the 1960s, for instance, both SSA and East Asian countries started at a similar level of income per capita; however, there is an increasing gap in growth pattern

between them. East Asia emerged from stagnation in the early post-war period and within several decades achieved a status of industrial competitiveness and an improved standard of living. Although the pattern of growth varies across the region, their economic and social achievement has been outstanding making them the only developing region that succeeded in catching up with the industrialised regions (Ohno, 2006).<sup>14</sup> Whilst several lessons were drawn from this for the SSA countries, they have still not addressed the challenges facing the region, some of which include poor governance, corruption, macroeconomic mismanagement and bad policies.

For the sake of clarity, Table 2-4 below directly compares the economic performance of Asia, BRIMC, LAC and SSA countries.<sup>15</sup> It can be seen that in the last three decades the four groups grew following very different paths. Economic comparisons show economic development in all these countries. The data presented in Table 2-4 indicates that during the period 1970-2007 (Period A) and 1980-2007 (Period B), Asia and the SSA countries started from quite a small difference in GDP per capita (Asia GDP per capita was 0.9 times the SSA GDP per capita in 1970), but they ended with an amazing difference: the mean Asian GDP per capita in 2007 was \$2,047 billion, while the SSA's GDP per capita was only \$1,398 billion (an increase of 1.5 compared to 2.6 percent in Asia). This is also reflected in the annual difference of the rate of growth (1970-2007), which was 1.5, in the case of the SSA countries, and 2.6, in the case of the Asian countries. A similar observation is noted in the difference in growth pattern between the BRIMCs and LAC countries. In both period A and B, I observe a similar development path with increasing convergence in performance in both the BRIMCs and LAC countries.

**Table 2-4: Economic performance in developing regions, 1970-2007**

Region	real GDP per capita (in billions of 2005 dollars)						Annual difference in growth rate	
	1970	1980	2000	2005	2006	2007	1970-2007	1980-2007
ASIA	780	1036	1499	1823	1928	2047	2.6	2.5
BRIMC	2213	3233	3520	4088	4302	4534	1.9	1.3
LAC	2859	3566	4028	4337	4564	4804	1.4	1.1
SSA	806	1020	1221	1298	1342	1398	1.5	1.2

Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

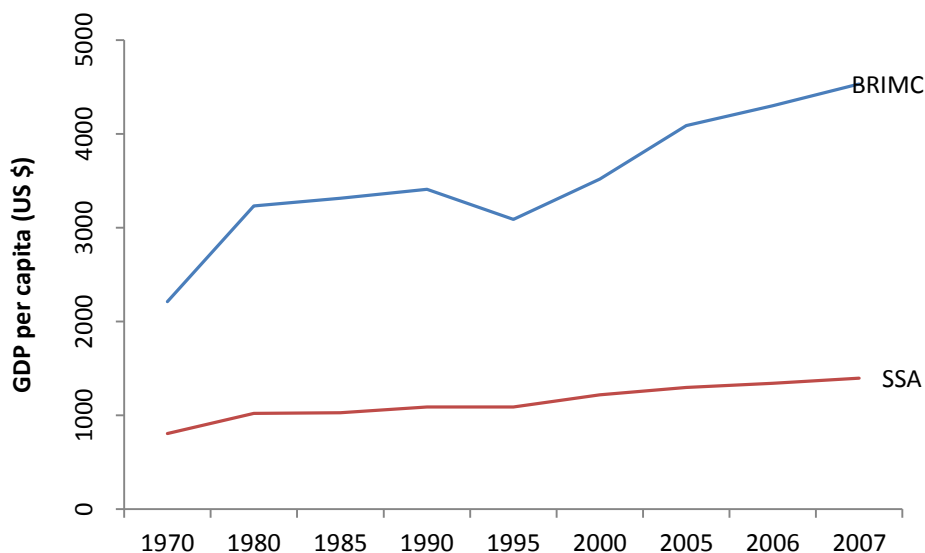
<sup>14</sup> See Appendix II

<sup>15</sup> The data used in this analysis refers to 12 Asia, 5 BRIMCs, 11 LAC and 37 SSA countries for period A, 1970-2007 and period B, 1980-2007.



The BRIMCs and SSA also show varying growth patterns in both periods. As one can see in the figure below, the economic performance of both groups, in terms of GDP per capita, is far from homogenous. In fact, there is an increasing divergence in economic performance between both groups as a result of different policies and institutions, (Uy, 2010).

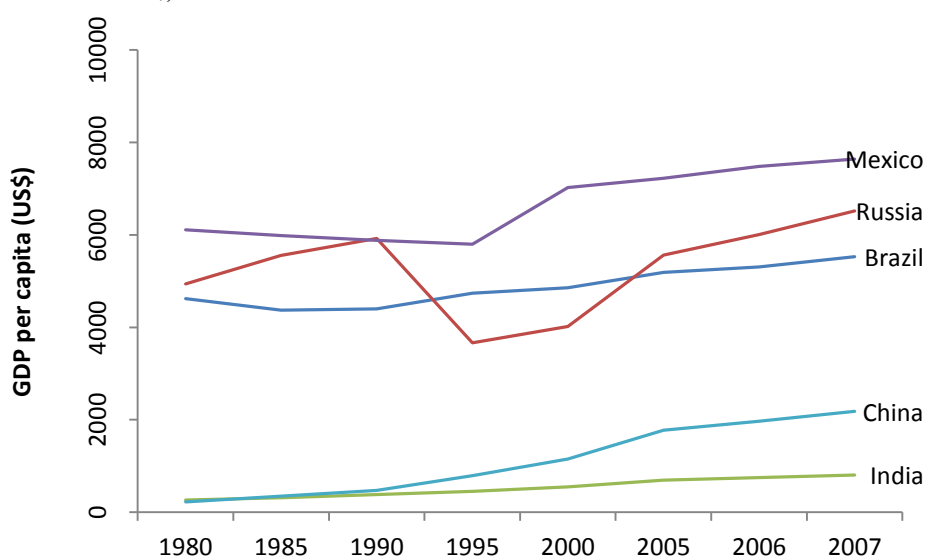
**Figure 2.2: Divergence in performance between BRIMC and SSA, 1980-2007**



Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

Within the BRIMCs and SSA itself, there has been significant divergence (Figure 2-3 and 2-4). Real GDP per capita in Mexico is similar to that of Russia, but higher than Brazil, China and India.

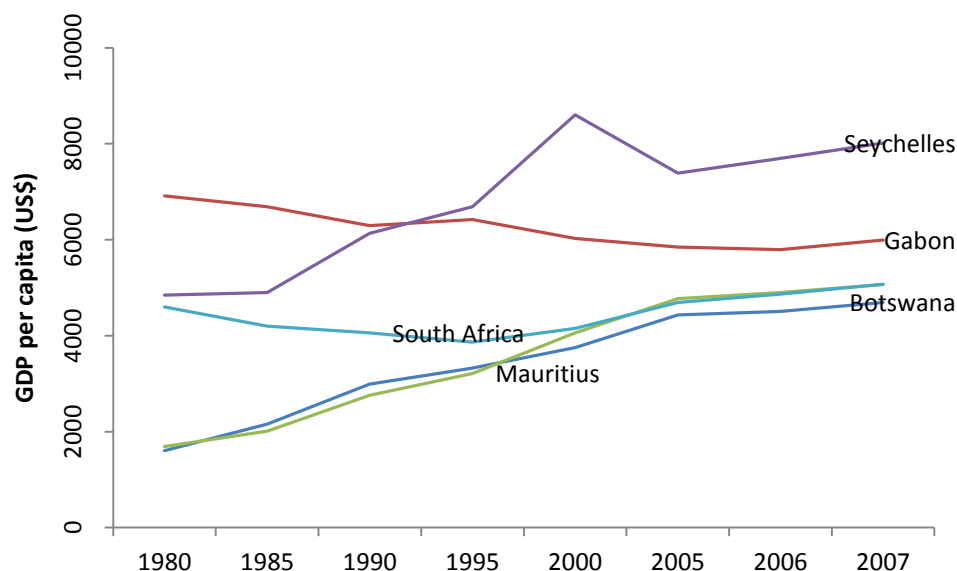
**Figure 2.3: Economic performance, Brazil, Russia, India, Mexico and China, 1980-2007 (GDP per capita, constant 2005 US \$)**



Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

Similarly, GDP per capita in the Seychelles is higher than the rest of the SSA countries in our study. Further, South Africa, Botswana and Mauritius seem to have a similar GDP per capita.

**Figure 2.4: Economic performance, Brazil, Russia, India, Mexico and China, 1980-2007 (GDP per capita, constant 2005 US \$)**



Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set.

From the foregoing discussion, it is possible to identify the growth strategies responsible for the current economic performance of the BRIMCs in comparison to each other and to the top five fastest growing countries in the SSA region.<sup>16</sup> Given the scope and nature of this study, it will remain at a fairly general level of analysis and where necessary, individual country case studies will be used to further elucidate the point. I seek to benchmark the experience of the BRIMCs, because of their rapid growth, against conditions in the SSA, so as to identify potential constraints to sustaining the SSA's growth take off. Though it could be argued that there is no basis for comparison given that these economies differ in size, to address this issue and allow for fair comparison, countries with a similar standard of living are used. Table 2-5 compares the economies of the BRIMCs with five of the fastest growing economies in the SSA using 2007 as the base year. From the table, it is obvious that the stagnant growth of the SSA

<sup>16</sup> GDP per capita is used to proxy the standard of living of a country. It is important to take into account the rate of population growth, especially in countries with a high population growth, if not it may result in an overestimation of the improvement in standards of living. GDP per capita is important, where growth rates decline to a level lower than the population growth rate, because a declining standard of living will result. With this in mind, the top five richest countries in SSA, based on the average GDP per capita between 2000 and 2007, are listed.

countries, in the last twenty years or so, has led to a significant decline in GDP per capita, which was obvious in Gabon.

**Table 2-5: Economic growth in fast growing emerging economies of the BRIMCs and SSA**

Countries	Real GDP 2007	Share in developing countries GDP(percent)	1980-2007		2000-2007		Real GDP 1980	Real GDP 2000
			Real GDP growth	Real Per capita growth	Real GDP growth	Real Per capita growth		
China	2859.8	23.5	9.5	8.4	9.6	7.3	222.3	1456.1
Brazil	1071.5	8.8	2.4	0.7	3.2	2.0	568.8	856.2
Russia	921.9	7.6	1.1	1.0	6.4	1.4	686.6	589.6
India	906.4	7.4	5.9	4.1	7.1	3.2	183.5	550.0
Mexico	830.3	6.8	2.6	0.8	2.4	1.7	417.5	702.0
South Africa	245.2	2.0	2.2	0.4	3.9	0.5	134.5	187.2
Botswana	8.9	0.01	6.7	3.9	4.9	5.5	1.4	6.3
Gabon	8.7	0.01	2.1	-0.5	2.3	0.7	4.9	7.5
Mauritius	6.5	0.01	5.1	4.1	4.3	4.1	1.6	4.8
Seychelles	0.7	0.01	3.1	2.0	0.7	3.0	0.3	0.7

*Source:* USDA (2010), Economic Research Service, International Macroeconomic Data Set.

Tables 2-6 to 2-8 present other socio-economic indicators for each individual country. Socio-economic indicators provide a background to the understanding of the health scenario in a country. A look at these key economic indicators for each country reveals similar stories. From Table 2-6, I notice that between 1980 and 2007, real GDP in Botswana, China, India and Mauritius grew above 5 percent. The acceleration of the growth in the 1980s is the result of macroeconomic reforms in response to various fiscal and monetary troubles. As compared to the 1980s, these countries have performed relatively well in stabilising inflation rates, particularly since the late 1990s. By 2007, I find that inflation has dropped from two figures to one figure. Despite improvements in overall macroeconomic management, as reflected in a significant decline in inflation rates between the end of the last decade and the current decade, inflation remains one of the major challenges to national efforts for economic recovery, and for integration and poverty reduction in the SSA region.

**Table 2-6: Key economic indicators**

Country	Real GDP		Real GDP per capita		GDP growth	GDP per capita growth	Inflation	
	1980	2007	1980	2007			1980	2007
Botswana	1.4	9.0	1600.9	4691.7	6.8	4.0	13.6	7.1
Brazil	568.8	1071.5	4624.0	5525.5	2.4	0.7	82.8	3.6
China	222.3	2859.8	225.7	2182.1	9.5	8.4	5.6	2.9
Gabon	4.9	8.7	6914.6	5991.5	2.1	-0.5	36.8	5.0
India	183.5	906.4	268.0	806.3	5.9	4.1	11.4	6.4
Mauritius	1.6	6.4	1693.7	5064.5	5.1	4.1	42.0	8.8
Mexico	417.5	830.3	6108.1	7637.9	2.6	0.8	26.3	4.0
Russia	686.6	921.9	4938.5	6520.6	1.1	1.0	2.4	8.8
Seychelles	0.3	0.7	4845.9	8014.9	3.0	1.9	13.6	5.3
South Africa	134.5	245.2	4599.1	5070.1	2.2	0.4	13.7	6.1

Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set, UN database, (2010)

According to Table 2-7, the growth in exports in the Seychelles, Mauritius, China, Russia, India and Brazil also supported economic growth in 2007. Furthermore, the improvement in fixed capital formation indicates that investment in these economies has improved. Investment (gross fixed capital formation) improved in China, India and Mauritius during the period between 1980 and 2007, and this increase should help sustain the high economic growth in these countries. Regarding the relationship between FDI flow and GDP, in almost thirty years, 9 of the 10 countries have witnessed an increase. Not only did these countries provide incentives for foreign investors, their reform packages have helped in the various types of capital entering the countries.

**Table 2-7: International trade and investment**

Country	Exports (%)	Investment (gross fixed capital formation)	FDI as a percent of GDP	Exports (%)	Investment (gross fixed capital formation)	FDI as a percent of GDP
	Botswana	53.1	34.5	10.5	47.5	23.9
Brazil	9.1	22.9	0.8	13.4	17.4	2.5
China	10.7	29.1	0.0	38.4	39.1	4.6
Gabon	64.7	26.7	0.7	62.3	25.9	2.3
India	6.2	18.4	0.0	20.4	32.7	2.1
Mauritius	51.0	23.2	0.1	56.8	24.3	4.4
Mexico	10.7	24.8	1.1	27.9	21.1	2.9
Russia <sup>a</sup>	21.9	31.8	0.3	30.2	21.0	4.2
Seychelles	68.0	36.5	6.5	97.4	29.7	24.5
South Africa	35.4	25.9	-0.0	31.3	20.2	2.0

Source: World Bank, *World Development Indicators*, (September edn, 2011), UNCTAD, *World Investment Report*, (2008).

Note: a implies data for Russia is for 1989.

Table 2-8 presents other socio-economic data on population, population growth, mortality rate, life expectancy, literacy rate and labour force. These indicators for the countries will help in identifying the linkages between socio-economic indicators and achievement of health goals. In 1980, the average population in the BRIMC countries was approximately 400 million, with the highest population recorded in China (687 million) and grew to 576 million in 2007, with an annual growth of approximately 1.4 percent. In the SSA countries, the population grew on average 2 percent a year from 30 million in 1980 to 53 million in 2007. The infant mortality rate per thousand live births was 62 in the BRIMCs in 1980, and fell to 24 in 2007. Relative to the international goal of reducing infant mortality to 22 per thousand live births by 2015, childhood mortality seemed to have dropped in SSA. The level was estimated at an average of 52 per thousand live births in 1980, while in 2007, it was estimated as 34 per thousand live births. The implication of this is that many SSA countries seem to be working towards reducing infant mortality by 2015. The average life expectancy at birth in 2007 was 70.5 years in the BRIMCs, while in SSA it was 62 years.

In 1980, there were, on average, 78.8 percent of the population in the BRIMCs that were literate, compared to 66.8 in SSA. As per the latest information, the literacy rate for BRIMC adults (15 years and older) increased from 78.8 percent in 1980, to 91.4 percent in 2007. A similar story was found in the SSA region, where adult literacy increased from 66.8 percent in 1980 to 88.7 percent in 2007. The average labour force total doubled in most of the BRIMC countries with the exception of Russia which decreased from 76.7 million in 1980 to 76.1 million in 2007. Many factors including labour force participation, aging and demographic change account for this decline. In 1980, the Russian total labour force participation rate, as a percentage of total population aged 15 years and above, was 70 percent, while this had dropped to 63 percent in 2007 (World Bank, 2011). During the same period, the SSA countries also witnessed an increase in total labour force, from 2 million in 1980 to approximately 4 million in 2007.

**Table 2-8: Socio-economic indicators**

Country	Population (millions)	Population growth	Infant mortality rate (per 1,000 live births)	Life expectancy	Literacy rate	Labour force (million)
	1980					
Botswana	1.0	3.8	60.0	60.5	57.5	0.4
Brazil	121.7	2.3	73.6	62.5	74.6	46.4
China	981.2	1.3	49.8	67.0	67.1	503.1
Gabon	0.7	2.9	81.0	54.8	72.2 <sup>a</sup>	0.3
India	687.3	2.3	101.7	55.4	41.0	251.7
Mauritius	1.0	1.5	32.3	67.0	74.0	0.4
Mexico	68.8	2.4	56.3	66.6	83.0	21.6
Russia	139.0	0.7	26.5	67.0	98.8	76.7
Seychelles	0.1	1.3	22.7	N/A	87.8 <sup>a</sup>	N/A
South Africa	27.6	2.3	65.3	57.0	76.2	7.5
Country	2007					
Botswana	1.9	1.4	39.4	52.1	82.9	1.0
Brazil	189.8	1.0	20.8	72.1	90.01	97.8
China	1317.9	0.5	18.9	72.6	93.3	773.1
Gabon	1.4	1.9	57.0	60.9	87.8 <sup>a</sup>	0.7
India	1124.8	1.3	52.1	64.1	66.0	443.7
Mauritius	1.263	0.6	13.4	72.6	87.4	0.6
Mexico	109.2	1.3	16.6	76.0	92.80	46.9
Russia	142.1	-0.3	11.4	67.5	99.5	76.1
Seychelles	0.1	0.5	11.7	73.2	91.8 <sup>a</sup>	0.0
South Africa	48.3	1.1	47.3	51.0	88.7	18.0

Source: World Bank, World Development Indicators, (September edn: 2011).

Note:

(1) Literacy rate = 100 – illiteracy rate, Author’s calculation, from UN data, (2010),

(2) Literacy rate for Gabon is for 1993, while Seychelles corresponds to 1994 and 2002 respectively. N/A implies not applicable

## 2.2 The long-term economic growth experience in today’s largest developing countries

Some of the largest developing countries have put their economies on track to catch up with developed countries, yet many have not. After the Second World War, countries such as Japan and the Republic of Korea caught up with the income levels of many industrialised economies to also become developed countries. A World Bank report published in 2008 on ‘The growth report: strategies for sustained growth and inclusive development’ notes that, only 6 developing countries have grown faster than 3 percent in per capita terms, with 10 having growth rates below 2 percent since the 1960s. According to this report, the implication of this is that many countries have fallen farther behind developed countries’ incomes. However, the shift in global power has

moved to the emerging economies of the BRIMCs in the last two decades. These countries account for approximately 54 percent of developing countries GDP. Although the growth performance of these 5 countries has been uneven (as shown in Table 2-5 and 2-6), their contribution to the world economy has been driven by the growth in China.

For economic growth to be sustainable and to catch up with the industrialised economies, many developing countries needed to grow at a higher rate. Hence, in the mid-1980s and early 1990s, several developing countries, including the BRIMCs and five of the fastest growing SSA countries, embarked upon several different economic and financial reforms which focused mainly on integration into the global economy. The purpose of this chapter, thus, is to examine the growth experiences of these countries and to examine whether the SSA countries can achieve some if not all the MDGs by 2015. The analysis sheds light on the strengths and weaknesses of the growth in these countries by identifying similarities and differences with other countries and also assesses their economic performance on that comparative basis.

### **2.2.1 Brazil**

The economic history of Brazil covers various events tracing changes in the economy. Through the 1980s and 1990s, the Brazilian economy suffered low and volatile growth where the economy suffered from rampant inflation, high real interest rates and balance of payment problems. Between 1980 and 2007, the average growth of GDP was 2.7 percent compared to the 8.7 percent obtained between 1970 and 1979. During this period, Brazil introduced a series of economic reforms including import substitution industrialisation (ISI).

Between 1981 and 1992, Brazil's GDP increased at an average annual rate of 1.9 percent and the per capita income declined 0.1 percent. Physical capital, that is gross fixed capital formation as a ratio of GDP, fell from 22.1 to 18 percent, partly due to the fiscal crisis and the loss of public sector investment capacity. According to economists, the 1980s was referred to as the 'lost decade' for Latin American countries. In Brazil for example, the 1980s was plagued by chronic inflation problems as a result of expansion of the money supply which government used in financing investment. Inflation was as high as 1430 percent in 1989 and remained a problem in the 1990s with the average rate of 1667 percent between 1990 and 1994. In the beginning of the 1990s, the Washington Consensus recommendations were spread out across all developing countries, including

Brazil. Following this, Brazil developed and implemented several different strategies and economic policies, including trade and capital liberalisation, privatisation, flexible exchange rates and the shock stabilisation programs referred to as the 'Plano Real' in mid-1994. These plans aimed at removing restrictions on free enterprise, increasing competition and privatising public enterprises. The plan brought stability and enabled the country to sustain economic growth through the coming decade. In the present decade, Brazil has steadily improved its macroeconomic stability, building up foreign reserves and reducing its debt profile by shifting debt burden towards real dominated and domestically held instruments.

### **2.2.2 Russia**

Since the fall of the Union of Soviet Socialist Republics (USSR) in 1991, Russia has gone through a series of economic reforms in order to promote economic development. Russia's long-term development prospects are characterised by their dependence on the extraction of natural resources. Russia's recent rapid expansion has contributed to improved living standards and a narrowing of the income gap, in comparison to other emerging markets and the Euro area (Beck et al., 2007).

Russia entered the 1990s with a huge production structure inherited from the Soviet Union. After its collapse, the Russian economy underwent tremendous strain as it liberalised both its trade and production systems in 1992. This was to accommodate raising government revenues and the government's dependence on short-term borrowing to finance budget deficits. Although Russia reached a high level of economic openness,<sup>17</sup> the reforms did not produce the expected results and the economy witnessed a negative growth in the first half of the 1990s (Aghion and Blanchard, 1998) leading to a major financial crisis in 1998. During this period, the government devalued the Ruble and inflation reached approximately 85 percent. But, following implementation of several economic reforms and tight fiscal policy, both inflation and the exchange rate stabilised. Household consumption and fixed capital investments both grew by approximately 10 percent per year, replacing the role of exports as the main drivers of demand. World oil prices rapidly rose during 1999 and 2000, further contributing to the recovery of the Russian economy. In addition, during the period between 1998 and 2007, GDP grew at an average of approximately 6.7 percent.

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<sup>17</sup> According to the World Bank (2011), in 1992, trade as a percent of GDP reached 111 percent.



Investment also played an important role in Russia's take off in growth. Foreign direct investment (FDI) contributed approximately 4.2 percent to GDP in 2007, up from approximately 0.3 percent in 1992. In absolute terms, it grew at an annual average of 25.7 percent over fifteen years, from US \$1.2 billion in 1980 to over US \$55 billion in 2007. Although international trade played a remarkable role in the growth of the Russian economy during the 1990s, it has, however, suffered a reduction in the current decade, reaching 52 percent in 2007.

In terms of population, the size, age and literacy rate seem to work as an advantage in promoting sustained growth. However, the distribution of employment in the different sectors of the economy seems to be typical of developing economies. For example, in 1990, the agriculture and industry sectors employed 54 percent of the work force and the services sector employed 41 percent. By contrast, in a more industrialised country like the United States, for example, 29.3 percent of the labour force is in the agriculture and industry sectors, and 70.7 percent is in the services sector. However, in the present day (2007), a series of changes have occurred in the composition of employment in the various sectors of the economy, reflecting a configuration of modern industrialised economies, partly due to the transition of the Russian economy as among one of the fastest growth economies in the world. The service sector now employs approximately 62 percent of the labour force and the agriculture and industry sectors now employ approximately 38 percent of the labour force.

### **2.2.3 India**

The Indian economy has faced many different economic reform packages to become one of the fastest growing economies in recent years. The process of economic growth in India has been mainly caused by improvements in labour productivity (Alessandrini and Buccellato, 2008). Following the implementation of an import substitution strategy, which focused on the restriction of all goods and services coming into the country, economic growth in India improved in the 1980s, after the liberalisation era. The economy grew at an average annual rate of 4.6 percent in the period 1980 to 1989. Both the agriculture and industry sectors contributed an average of 58 percent to GDP compared with 42 percent in the services sector in these nine years.

The loss of India's major trading partner (the USSR) in the 1990s, led to a series of political and social instabilities, and India faced a severe balance of payments crisis. Therefore, India turned to the International Monetary Fund IMF for assistance.

Following the recommendation from the Washington Consensus in 1994, India embarked upon various economic reform programs including a plan to move the economy to a more market-oriented one, through reducing the regulations and public sector share in the economy. India's growth rate averaged 7.5 percent during the period 1994 to 1996. Unfortunately, the high growth was short lived as a result of the 1997 East Asian financial crisis' effect on India's exchange rate.

In the second half of the 1990s, the services sector began to contribute more to GDP resulting in the rise in telecommunication and information technology. Recent liberalisation programs, in particular the import substitution policy, led to the development of a broad industrial base with the state owned enterprises playing a major role in heavy industry. Throughout the 1990s, the share of industry to India's GDP remained almost constant at 26 percent. By 2007, the share of services in GDP had risen to 53 percent from an average of 46 percent in the 1990s. India benefits from its large population, making it a potential consumer market and relevant players in the world economy.

#### **2.2.4 Mexico**

The economic history of Mexico is quite similar to that of many developing Latin American countries. In the early 20<sup>th</sup> century, Mexico experienced macroeconomic problems due to international price fluctuations of primary goods, and its main economic and financial resources. In the 1930s, there was an intense process of nationalisation of the most important natural resources, such as crude oil. During the 1940s, it was evident that the country required an industrialisation policy that could reduce its dependency on agricultural produce. Although protectionist policies were widespread in Latin America, the Mexican government considered that an Import Substitution Industrialisation (ISI) policy would be the most viable strategy that could lead to economic development. Thus, manufacturing produced Mexico's main exports contributing approximately 50 percent to GDP.

Mexico's economic performance was quite impressive during the 1960s and some of the 1970s. After the discovery of oil in 1979, the government promoted industrial growth by financing public expenditure with the money realised from exporting the oil. During the 1980s, oil contributed approximately 75 percent to Mexico's foreign exchange earnings, but the oil glut in the mid-1980s deflated petroleum prices and led to Mexico's worst recession in decades. During this period, Mexico accumulated huge foreign debt,

large government deficit and inflation increased. By mid-1982, Mexico declared its inability to service foreign debt and this sparked a global crisis leading to emerging markets being cut off from international capital. In order to stem capital flight and correct the imbalance, President Lopez Portillo devalued the peso and nationalised private banks. While ISI had produced an era of industrialisation in previous decades, by the 1980s, it was evident that the extended protection had produced an uncompetitive industrial sector with low productivity gains. Thus, in 1986, Mexico signed the General Agreement on Tariffs and Trade (GATT) moving them towards openness and world economic integration.

Soon after President Carlos Salinas de Gortari began his term in 1988, the government took steps to restructure the failing economy by introducing monetary and fiscal discipline, and a wage and price stabilisation program, in order to control the rising inflation. The new policies seemed to work as inflation reduced from over 132 percent in 1987 to 27 percent in 1991. In fact, the evidence from economic indicators show that real GDP growth rate went from 1.9 percent in 1987 to 5.1 percent in 1990. In addition, the country gradually decreased its dependence on petroleum exports that accounted for 34 percent of 1990s exports down from 75 percent in GDP in 1982. Whilst the policies introduced by Salinas were able to bring inflation down, growth averaged only 2.8 percent a year. Moreover, by fixing the exchange rate, the peso became rapidly overvalued while consumer spending increased, causing the current account deficit to reach 7 percent of GDP in 1994. During the first quarter of 1996, the economy started to emerge from its recession and contracted by a modest 1 percent. The Mexican government recorded a strong growth of 7 percent for the second quarter of the same year.

Mexico is considered one of the better managed emerging economies and has enjoyed relatively stable economic growth during the current decade, with an average annual growth rate of 2.4 percent between 2000 and 2007. Total employment in Mexico, in 2007, was 60 percent and unemployment rate dropped to 3.4 percent. Compared with other BRIMC countries, Mexico has the lowest rate of employed individuals as a percent of the population.

### **2.2.5 China**

China has sustained an impressively high GDP per capita growth spanning more than three decades, which is supported by a decline in population growth rate. The Chinese

economic take off started with economic reforms in the early 1980s. The first part of these Chinese economic reforms involved implementing an export-led growth pattern that involves labour shifts from agriculture to industry and services. As a result, the share of agriculture in China's GDP decreased from 28 percent in 1985 to 20 percent in 1995, while industry and services increased from 43 and 29 percent in 1985 to 47 and 33 percent in 1995, respectively.

China's trade and investment reforms and incentives have led to a surge in FDI since the beginning of the 1990s. The data obtained from the World Bank (2011), show that both trade and FDI have contributed a lot to the development of the Chinese economy. For example, China's growth in foreign trade averaged 14 percent during the 1990s, and by 2007, the country exported nearly US \$1.2 trillion in goods, resulting in a trade surplus of US \$340 billion. In the same year, China recorded a surplus in current account balance of US \$354 billion, as opposed to the deficit of US \$11 billion recorded in 1993.

The Chinese government implemented several economic reforms in the 1990s, in order to tackle inflation, reform the state owned enterprises and integrate with the international economy. During this period, China went through a slow and progressive internationalisation of the economy by selectively introducing elements of the market economy. According to the World Bank (2011), China's FDI in absolute terms increased more than three-fold from US \$42 billion in 1997 to US \$143 billion in 2007, making china one of the world's largest destinations of FDI.

The large population in China makes it a consumer market for the global economy. However, there are various problems associated with having such a large population size. China suffered severe food supply problems and starvation in the late 19950s and with the increasing decline in the contribution of the agricultural sector to GDP since the mid-1990s, the government introduced the 'one child policy' so as to control population growth. The implementation of this policy has led to the reduction of population growth from 1.3 percent in 1980 to 0.5 percent in 2007 (World Bank, 2011).

The Chinese government has strongly promoted literacy and education of the whole population because improving the education and skills levels of Chinese workers could make the economy more productive (Banister et al., 2010). Focus on these basic goals has resulted in an increase in the number of literate persons in China, from 66 percent in 1982 to approximately 93 percent in 2007.

### **2.3 Long-term economic growth experience in five of the fast growing SSA countries**

After Asia, Africa is the world's second largest and most populous continent. It is home to 54 countries and is divided into five regions (Northern, Western, Central (Middle), Eastern and Southern Africa) by the United Nations (UN) or two regions (North and Sub-Saharan Africa) geographically. Africa is also one of the poorest continents in the world. The Sub-Saharan African (SSA) region alone comprises of 48 countries including the recently formed South Sudan. The World Bank lists 34 of these countries as the world's poorest. SSA is the only part of the world experiencing absolute declines in virtually all economic development indicators (Lubeck 1992: 520)<sup>18</sup>.

Across the region, millions of people do not have access to food and safe drinking water, 75 percent of the people lack access to proper sanitation, and every year, approximately two million children die in the first twelve months of their lives (World Bank, 2010). Moreover, Friedman (2006: 400) notes that as of 2001, approximately 313 million people, in the SSA, lived on less than US \$1 per day. In fact, a study by the United Nations Development Programme (UNDP 2006: 269) confirmed that almost half of the population of the SSA region live on less than US \$1 per day and this number is expected to increase to at least 340 million people by 2015. Furthermore, the human development indicator (HDI) reveals that, since the 1990s, the level of human development have declined in many SSA countries, leaving the region the poorest in the world.

With respect to economic performance, many SSA countries witnessed economic stagnation and decline in the last two decades. Compared with growths recorded in the 1960s, the disappointing economic performance in the early 1980s was characterised by a slowdown in GDP growth and decreasing investment (Yago and Morgan, 2008). Many economists link the poor economic performance of the African continent as a whole and, indeed, SSA countries to several factors. For example, while Easterly and Levine (1997) claim that ethnic diversity and the geographical location of Africa are to blame for its poor performance, others stress that the underdeveloped market institutions, constraints on business environments and lack of good governance are what make international trade and investment in Africa costly (Sachs and Warner, 1997; Goldsmith, A. 1998 and Collier and Gunning, 1994).

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<sup>18</sup> See Appendix II table 2-13.

The region and continent as a whole has been the most economically underdeveloped region of the world; however, some economies do seem to be improving. Data from the United States Department of Agriculture (USDA, 2011), reveals that during 2000-2007, the average growth of GDP per capita was an impressive 2.3 percent. The continent also witnessed an increase in GDP per capita from US \$872 to US \$906 in 2006 and 2007 respectively. The following sub-section assesses the growth performance of five of the fastest growing countries in the SSA region.

### **2.3.1 Seychelles**

The mainstay of the Seychelles' economy is tourism and tuna fishing, of which tourism accounts for approximately 30 percent of the labour force. The available data indicates that approximately 130,000 tourists visited the Seychelles in 2000. This number grew by 3 percent annually and within seven years reached a total of 161,000. In 1991, tuna fishing generated approximately US \$12.3 million of total exports from the country.

In the 1980s, the government proposed various economic development plans focusing on a successive five year plan. The 1985-1989 plan focused on tourism, agriculture and fisheries. During this period, the service sector contributed approximately 78 percent to GDP. At the same time, the performance of the agricultural sector has been intimately tied to overall economic growth, in general, as GDP grew at an annual average of 5 percent.

The 1990-1994 plan emphasised the need to attract FDI in order to upgrade hotels and promote other services, and the need for greater food self-sufficiency. Unfortunately, the economy rebounded because the objectives of the plan were rendered ineffective due to the Gulf war between 1991 and 1992. During this time, growth averaged approximately 3.8 percent and the tourism sector witnessed a small decline. This prompted the government to reassess their dependence on tourism by promoting the development of farming, fishing and most recently, the offshore financial sector. They did this through the establishment of the Seychelles International Business Authority (SIBA) and the enactment of several important pieces of legislation, such as the International Corporate Service Providers Act, the International Business Companies Act, the Securities Act, and the Mutual Funds and Hedge Fund Act. In 1994, the government introduced the Investment Promotion Act, this emphasised the importance of promoting a good investment climate through the provision of tax concessions in the most productive areas of the economy (tourism, agriculture and marine manufacturing).

The government also created the Seychelles International Trade Zone (SITZ), whereby companies could benefit from tax concessions, as well as having recourse to foreign labour (Seychelles-European community, 2007).

The Seychelles joined the World Trade Organisation (WTO) in 1995, in order to integrate with the global economy and improve the role of trade in the country. In 2007, trade contributed up to 226 percent to Seychelles' GDP, reflecting an annual average of 144 percent between 1980 and 2007. Due to the limited contribution of agriculture, the Seychelles had few goods to export, including canned tuna, frozen fish, cinnamon bark, fuel and vanilla, and consequently, they imported approximately 90 percent of their consumption. This is reflected in their various contributions to GDP, as exports represented approximately 97 percent of the total Seychelles' GDP in 2007, while imports accounted for approximately 129 percent of GDP in the same year. In absolute terms, Seychelles' exports were worth roughly US \$0.9 billion and its imports worth US \$1.1 billion. The majority of Seychelles' exports are concentrated towards the European Union (EU), while South Africa, Saudi Arabia and Singapore are the main import partners.

In the current decade, inflation has become one of the main problems facing the Seychelles government because the inflation rate has increased from 0.5 percent in 2002, to 5 percent in 2007. During the early 2000s, the Seychelles experienced a negative growth rate due to internal and external forces. The economy contracted by approximately 2 percent in 2001 and 2004, and by 6 percent in 2003, this is compared to growth rates of 10 percent in 1985 and 12 percent in 1997.

### **2.3.2 Gabon**

Gabon has consistently been one of the top five fastest growing African economies in the last three decades. This strong economic performance is largely dominated by oil dependence and the extraction industry, with revenues from oil reaching approximately 46 percent of the government's budget and 43 percent of GDP. In the 1980s, the economy grew by approximately 2 percent, while towards the end of the 1980s, GDP contracted by 17 percent. This poor performance of the economy has been due to poor fiscal management.

In order to transform the economy, in the 1990s, the government embarked upon various economic reform programs, including the privatisation of its state owned companies, and administrative reform programs, including reducing public sector

employment. By the mid-1990s, GDP had grown by approximately 5 percent reaching a high of 7 percent in 1997. With Gabon's dependence on the extractive industry and in particular oil, total oil production reached approximately 370 thousand barrels per day in 1997. In that same year, the industrial sector contributed approximately 54 percent to the GDP, while the services and agriculture sectors contributed 9 and 7 percent, respectively. Although the industrial sector seems to be the largest sector in the country, employment in this sector is quite low.

Although the economic performance of Gabon seems to be weak, an average person in Gabon earns a per capita income four times that of most other SSA countries. This is mainly due to the fact that Gabon's population is not as high, when compared to other countries like Nigeria. However, as of 2005, approximately 33 percent of the population still suffered from poverty (World Bank, 2011).

In the current decade, exports still seem to drive Gabon's economy. While industry contributed approximately 56 percent to GDP, exports generated approximately US \$25 billion, and approximately 61 percent to GDP. As of 2007, Gabon enjoyed a trade surplus of US \$712 million.

### **2.3.3 South Africa**

South Africa's economy has been shaped by an abundance of natural resources. South Africa is the world's largest producer of platinum, gold, chromium and coal, and their mineral wealth surpasses that of almost any other country in the world, except the Soviet Union. The mining industry has, therefore, provided the foundation for the growth of the economy. However, by the early 1980s, South Africa encountered a series of negative economic annual growths (1982, 1983 and 1985) due to a distortion by government policies, which excluded some selected South African's from any significant participation in the nation's wealth. Inflation reached its highest at 18.7 percent in 1986, forcing the depreciation of the rand.

During the second half of the 1980s, South Africa's GDP grew by 2 percent, while per capita GDP increased by 0.5 percent from US \$4100 in 1986, to US \$4165 in 1989. According to the University of Pretoria (1989: 1), the recent growth performance of the economy has proven that even though South Africa has achieved a period of political stability, it does not necessarily follow that the long-term growth rate will rise to a level that will permit a steady improvement in per capita income. By the early 1990s, South Africa experienced slow and constant growth, and despite the vast mineral wealth, the



weaknesses in the economy were becoming increasingly apparent. Some segments of the population were poorer, with approximately 41 percent of the population living on \$2 a day. The recovery of the economy strengthened in 1994 when GDP grew by 2.2 percent to US \$158 billion from US \$151 billion in 1992. GDP per capita also increased to US \$3798, placing South Africa among the World Bank's upper middle income developing countries.

Unemployment contributed to the weak economic performance experienced in South Africa. The level of unemployment was high and averaged 29 percent between 2000 and 2004, as industries concentrated on capital intensive investments to reduce labour costs (EIU, 2005). Growth in GDP declined from 3.6 percent in 2002, to 2.8 percent in 2003, due to this high rate of unemployment. In 2004, the appreciation of the rand and low inflation rate fostered high domestic demand and low interest rates, leading to a GDP growth of approximately 3.8 percent (OECD, 2005). Between 2006 and 2007, strong demand and favourable external environments increased the GDP growth to 4 percent. South Africa remains one of the strongest nations in Southern Africa despite its slow economic growth in the past few years. Its largest trading partner is Europe and in 2004, trade with Europe accounted for 35 percent of total exports, China accounted for only 2.5 percent and Africa, 13 percent. South Africa witnessed a trade deficit in 2004, due to a slight increase in the demand for imported goods, even though there was also an increase in exports (OECD, 2005).

While FDI inflow to South Africa is declining, the country is the main source of outward FDI in Africa (OECD, 2005). The nations' bilateral agreements are mostly between the Southern African Customs Union (SACU) members, Southern African Development Community (SADC) and the US. Studies suggest that in order to build a competitive environment and reduce unemployment and poverty, South Africa needs to promote the diversification of exports, and encourage domestic and foreign investments.

#### **2.3.4 Mauritius**

The history of the economy of Mauritius reflects various distinct stages of economic development. From the time of independence until now, the Mauritian economy has undergone remarkable transformations. The economy is based on the exportation of sugar, textiles, tourism and financial services. Since the 1970s, Mauritius has recorded very high growth rates and increased human development marked by the governments' determination and commitment to diversifying the economy, in order to provide better

paying jobs for the population. These changes occurred following a combination of good macroeconomic policies, a strong institutional framework and a favourable regulatory environment. The promotion of tourism, the beginning of the sugar preferences and the export preference zones (EPZs) in the 1970s and 1980s, helped the government to succeed in transforming their economy and laying the foundation for stable growth in the future.

Both economic and socio-economic indicators reveal that the economy had improved during this time. Between 1970 and 1977, approximately 64,000 jobs were created; real GDP growth averaged approximately 5.3 percent since 1970 and per capita GDP has also been strong in the last thirty years. However, by the end of the 1970s, the economic situation deteriorated with the rise in oil prices, the sugar boom ended and the balance of payment deficits steadily increased. Imports grew faster than exports, and by 1979 the deficit amounted to over \$110 million.

By the 1980s, several macroeconomic reforms were put in place in response to the growing balance of payment deficit and the fiscal troubles. With this in place, the economy experienced steady growth, low inflation, high employment and increased domestic savings. The EPZ came into its own, surpassing sugar as the principal export-earning sector and employing more workers than the sugar industry and government combined. GDP, meanwhile, increased more than six-fold between 1970 and 2007, from less than \$1 million, to more than \$6.4 billion in 2007, and even better, the standard of living also improved. GDP per capita increased approximately five-fold between 1981 and 2007 from less than \$2000 to nearly \$6000.

By the end of the 1980s and the beginning of the 1990s, the economy slowed down, nevertheless, the government proposed various economic development plans in order to diversify the economy and to promote long-term economic growth. Several development goals were introduced including: modernising sugar, diversifying the manufacturing infrastructure, and diversifying services, agriculture and tourism. In addition, because of the threats to agriculture, as a result of Europe's common agricultural policy, and the potential effects on textiles of the General Agreement on Tariffs and Trade (GATT), Mauritius also hopes to transform itself into a centre for offshore banking and financial services.

The development plans seemed to be successful and allowed the country to move from sugar to textiles, which is a broader service economy. During the late 1990s and 2000s, imports and exports boomed, reaching an average of approximately 62 percent of GDP. The dependence of the county on trade-led development helped to achieve a respectable level of export performance. In the current decade, GDP grew by 4 percent from approximately US \$4 billion in 2000, to US \$6 in 2007. GDP per capita averaged US \$4670 between the same period, and inflation decreased by approximately 2.5 percent, from 13 percent in 1990, to approximately 8 percent in 2007. Also by 2007, agriculture was now contributing less to GDP, when compared to the services sector.

Overall, the effects of these economic reforms have enabled Mauritius to become one of the most competitive countries in SSA.

### **2.3.5 Botswana**

Botswana is known as one of the best performing economies in Africa and one of the most inspiring success stories on the continent (EIU, 2005). The experience of Botswana provides a suitable and appropriate basis for an analysis of the recent economic successes experienced in SSA, during the period 2000-2007. During the 1980s and the 1990s, annual growth in GDP per capita averaged approximately 7 percent in Botswana. However, by the 1990s, this declined to approximately 3 percent. In the same vein, the country had periods of sustained high unemployment of approximately 20 percent for most of the 1990s and early parts of the new millennium. Unemployment has, however, now started to decline, being estimated at 17.6 percent in 2005-06 (CSO, 2006, Preliminary Results from the LFS). Between 2002 and 2003, Botswana was one of the top performing economies in SSA with a GDP growth of 6.7 percent. The economy is mostly dependent on the mining and export of diamonds, which contributed more than 30 percent to total GDP, 80 percent of the export and approximately 50 percent to government revenue (EIU, 2005). Between 2003 and 2004, GDP growth was 5.7 percent, coming mostly from strong growth in the non-mining industry (8.5 percent).

In terms of international trade and external finance, Botswana is committed to trade liberalisation, implying that it is looking to become more integrated with the global economy. The country has an open market policy and it is currently an active member of various multilateral, bilateral and regional trade arrangements including the EU/Republic of South Africa Free Trade Agreement. The majority of Botswana's

export is concentrated on a few commodities (minerals), which are mostly exported to Europe. The nation's major trading partners include the EU, South Africa and Zimbabwe.

Another economic development strategy used by the government was to increase its level of FDI inflow. In 2001, the majority of FDI went into the mining sector (77 percent). The economy has a trade policy of promoting a sustainable and diversified economy beyond minerals and diamonds. Since 2002, Botswana officially became a beneficiary of the Africa Growth and Opportunity Act. In 2007, trade contributed approximately 31 percent to GDP, and during the same year, FDI also contributed 2 percent to GDP. It seems like exports drives Botswana's economy, owing to the contribution of FDI in the mining sector and the exports of minerals.

From the foregoing discussion, the main challenges posed by the prevailing economic development framework, in the SSA integration agenda, is to overcome the underdeveloped structure of the regional economy, improve macroeconomic performance, eradication of poverty, and the establishment of a sustainable economic development path. It is also important to improve political and corporate governance, and thus, unlock the untapped potential that lies in both the region's human and natural resources.

#### **2.4 Sustainable economic growth scenarios in BRIMCs: implications for SSA countries**

In 2000, United Nations launched the Millennium Development Goals (MDGs) to be achieved by 2015. To meet these goals, the target is to achieve an average real GDP growth of 7 percent by 2015. Table 2-11 provides an assessment of how far countries in the region are from the target. The top five performers of the region during 2000-2007 are Angola with an average real GDP growth of 11.5 percent, Chad (8.9 percent), Mozambique (8 percent), Sudan (7.5 percent) and Mauritania (7.3 percent). Aside from the top five performers, the table shows that the selected SSA countries are still far from reaching the growth target of 7 percent; Seychelles have an average real GDP growth of (1.3 percent), Gabon (2.3 percent), South Africa (4 percent), Mauritius (5 percent) and Botswana (4.7 percent). Countries in the region are still facing the challenge of not achieving the MDGs and need therefore to accelerate their growth. To achieve these goals requires a sustainable rate of economic growth. In addition, to obtain the developed country status, SSA needs to achieve rapid economic growth as this is

essential to catch up with industrial countries. As such, comparing SSA's economic performance against that of countries of similar or greater degree of development can provide a baseline from which to identify the development gap that the country's authorities face in designing their policies.

This section examines the implication of the economic performance of the BRIMCs for SSA countries and asks: to what extent can lessons from BRIMC countries achievements be applied to other developing economies, particularly SSA countries? Following series of policy reforms, the details from the five case studies in the SSA region suggest that Africa's economic performance has improved over the last decade. But, can this growth be sustained? To this end, I examine what the SSA would look like in 2050. To do this, I rely on different growth scenarios, where I posit a set of assumptions about growth rate of GDP per capita and use benchmarking tools to relate these growths to economic outcomes and produce projections that are presumed to be part of a range of plausible outcomes.<sup>19</sup>

In projecting economic growth, previous studies<sup>20</sup> mainly base their work on the Solow (1956) growth model framework. The basis of the Solow model is a production function that relates output to the input of capital and labour. The production function also contains a productivity index referred to as "technical change" or "technological growth". An increase in technological growth implies a higher output even for an unchanged input of capital and labour. In the model, it is assumed that the production function is characterised by constant returns to scale. This implies that a doubling of both capital and labour inputs will lead to no more or less than a doubling of output. The Solow growth model is usually represented by a Cobb-Douglas production function which takes the form:

$$Y = AK^\alpha L^{1-\alpha} \quad (2.1)$$

where, Y is GDP (output), C is the input of capital, L is the total labour input (number of workers) A is the technological change and  $\alpha$  is positive and  $< 1$ .

According to Solow (1956), output per worker is one of the most important variables. This is because output per worker and the share of workers in the population determines GDP per capita.

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<sup>19</sup> This is used to help understand long term implication of a country's or region's hypothetic growth path from a benchmark point of view. The methodology used in this analysis is similar to World Banks' Income Benchmark tool, <[siteresources.worldbank.org/.../468980.../IncomeBenchmarkTool.xls](http://siteresources.worldbank.org/.../468980.../IncomeBenchmarkTool.xls)> accessed [26<sup>th</sup> November, 2011].

<sup>20</sup> Wilson and Purushothaman (2003), 'Dreaming with BRICs: The Path to 2050', Hawksworth (2006), 'The World in 2050: How big will the major emerging market economies get and how can the OECD compete?' and Hawksworth and Cookson (2008), 'The World in 2050: Beyond the BRICs: a broader look at emerging market growth prospects.'

This can be obtained by dividing equation (2.1) by L:

$$\frac{Y}{L} = \frac{AK^\alpha L^{1-\alpha}}{L} = A\left(\frac{K}{L}\right)^{1-\alpha} \quad (2.2)$$

Equation (2.2) helps us to explain output per worker and hence, GDP per capita income can be increased.

The model assumes that sustained GDP growth is driven by the following:

1. Growth in the physical capital stock, which is determined by new capital investment less depreciation of the existing one;
2. Growth in labour force, (based on the latest available UN projection of working age population growth);
3. Growth in quality of labour ‘human capital’ which is assumed to be related to current and projected average education levels in the workforce; and
4. Technological progress, which drives improvement in total factor productivity, (TFP).

This analysis is different from previous studies (Wilson and Purushothaman, 2003; Hawksworth, 2006; Hawksworth and Cookson, 2008 and Kharas, 2010) in that it tries to examine the number of years it would take SSA countries to reach the status of China (benchmark country) and the rest of the BRIMCs using specific growth rates in the analysed country. Using three different options on periods of historical growth rates (1980-2007, 2000-2007 and 2007) I try to predict economic growth in the short term (2015), medium term (2025) and long term (2050); using 2007 as the benchmark year. It is worth noting that the objective of this exercise is not to forecast SSA’s economic growth over the next four decades, rather it is intended to construct a growth scenario based on hypothetical growth scenarios which is assumed might be attainable and, at the same time sustainable in the long run. In addition, it is important to note that the model is only intended to make projections for long term or potential growth. It is made under the assumptions that markets stay open and macroeconomic policies remain sound; additionally, catastrophes-economic, natural, or geopolitical- are assumed not to occur. For these reasons, the projections represent only an educated assessment of the present direction of the international economy. In applying this approach, China is used as the benchmark economy. In previous studies, the US is used as the benchmark economy

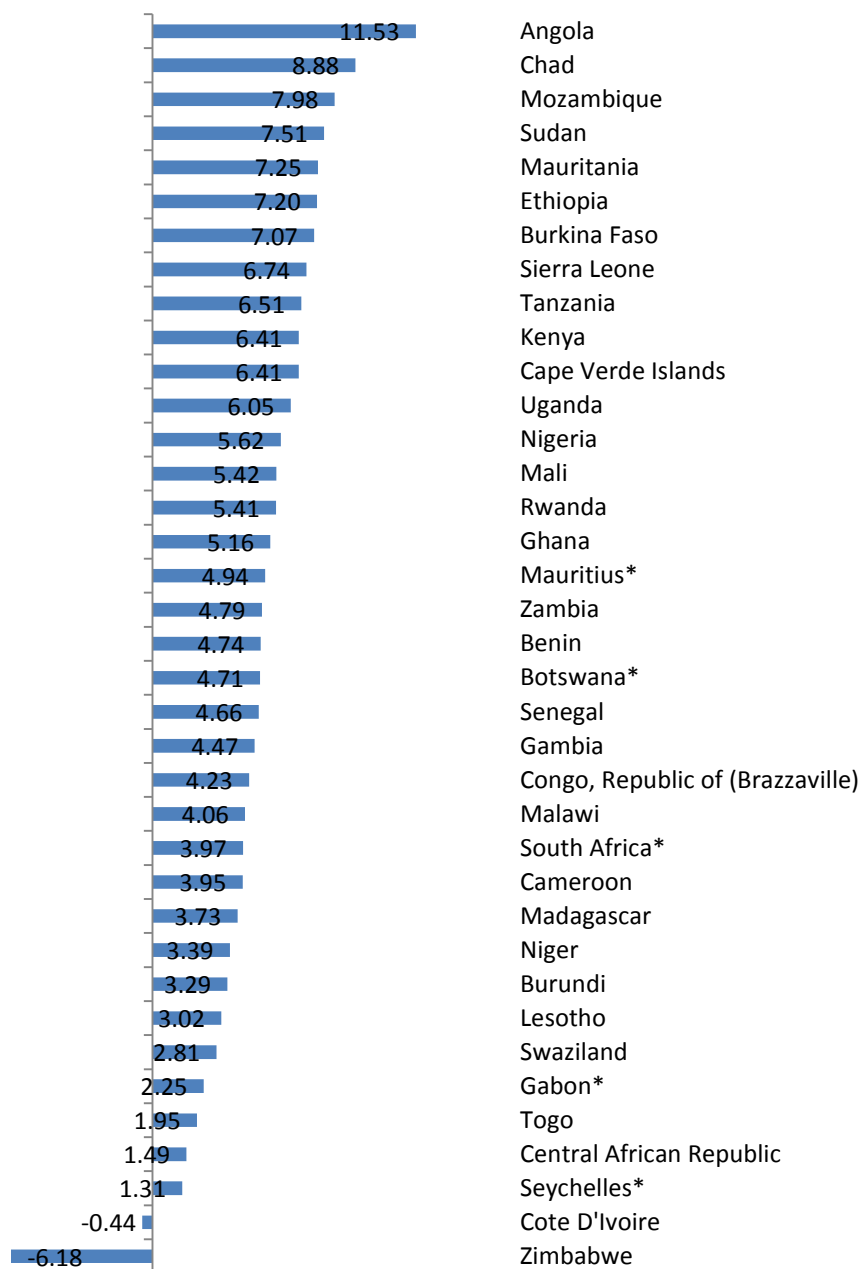
because it is assumed to be at the ‘global frontier’ in terms of technology and productivity. However, the use of China as the benchmark economy is mainly driven by the fact that the study is based on developing countries and China is assumed to be ‘developed’.

#### **2.4.1 The Millennium development goals and Economic growth in SSA countries**

I present below the difference in growth performance in the SSA countries during 2000-2007 period. Figure 2-5 (below) plots the difference in growth performance in the SSA region. The five top performers of the region for the period 2000-2007, are Angola with an average real GDP growth of 11.53 percent, Chad (8.88 percent), Mozambique (7.98 percent), Sudan (7.51 percent) and Mauritania (7.25 percent) and the five bottom performers of the region for the period are Togo (1.95 percent), Central African Republic (1.49 percent), Seychelles (1.31 percent), Cote d’Ivoire (-0.44 percent) and Zimbabwe (-6.18 percent).

Following the launch of the MGDs to achieve an average real GDP growth of 7 percent by 2015, figure 2-6 (below) assesses how far countries in the region are from the target. The figure plots the performance in terms of average growth rates. It exhibits the largest and smallest SSA countries over the period 2000-2007. The top five performers of the region during 2000-2007 are Angola with an average real GDP growth of 9.2 percent, Mozambique (5.7 percent), Chad (5.5 percent), Sudan (4.9 percent) and Mauritania (4.6 percent); the bottom five performers are Zimbabwe with an average real GDP growth of -5.9 percent, Cote d’Ivoire (-2.7 percent), Central African Republic (-1.1 percent), Togo (-0.8 percent) and Niger (-0.4 percent). It comes out from the figure that apart from Angola, the rest of the countries in the region are still far from reaching the growth target of 7 percent.

Figure 2.5: Average annual growth of real GDP in SSA countries, 2000-2007

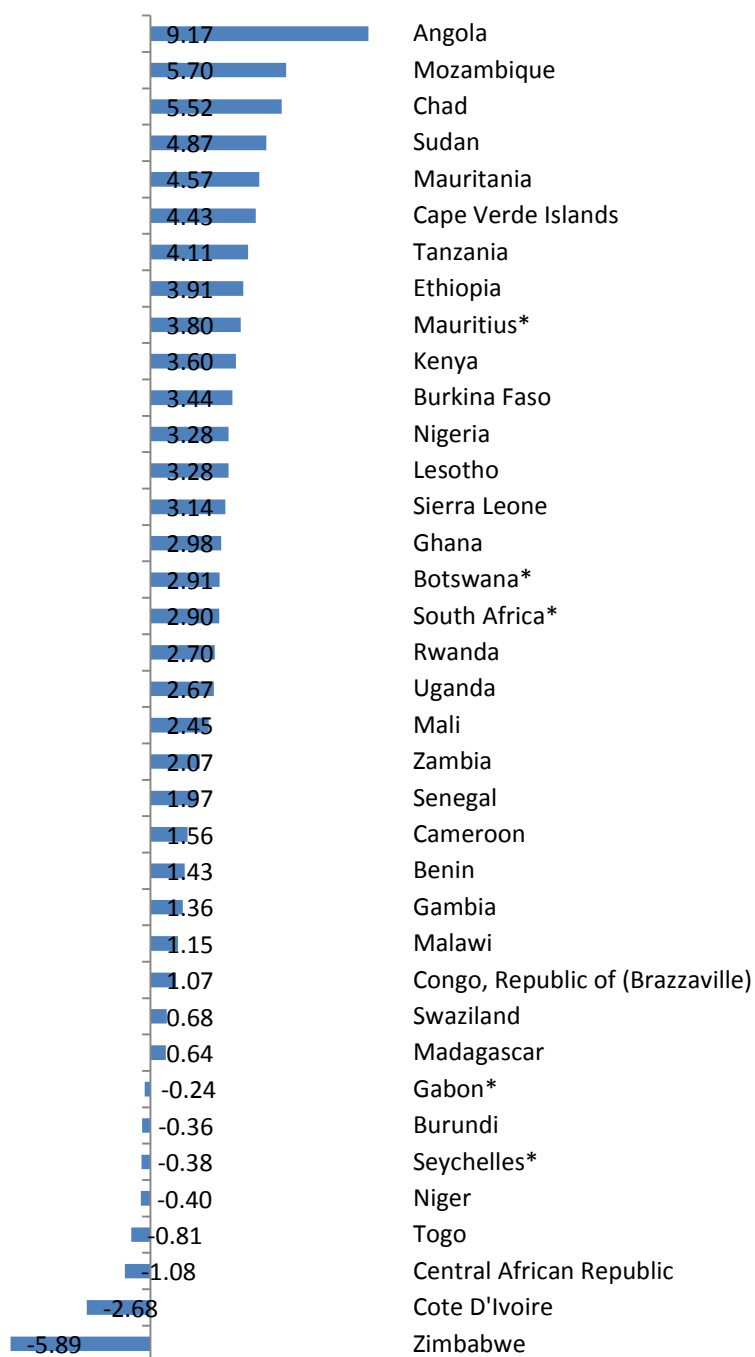


Source: ERS/USDA, (2010).

Note: \* indicates countries in the sample



Figure 2.6: Average annual growth of real GDP per capita in SSA countries, 2000-2007



Source: ERS/USDA, (2010).

Note: \* indicates countries in the sample

#### **2.4.2 Economic growth simulation**

To achieve the MDGs, catch up with developed countries and achieve the developed country status, it is important for SSA countries to grow at a rapid and sustainable rate. Thus, this section compares economic growth in the SSA countries with the BRIMCs based on the assumption that, the BRIMCs are the industrialised countries SSA aims to catch up with. The BRIMC countries is sub-divided into two, China and rest of BRIMCs (RoB), where China is our benchmark economy (an economy in which the SSA aims to be like with respect to their social indicators, quality of life and standard of living) and the others (economies with a similar level of economic development).

The section starts by comparing economic growth cycle (or business cycle) in the BRIMCs and SSA countries for the period 1980-2007. Economic cycles are a common feature of industrialised countries because economic activity moves between periods of expansion and recession, where expansion is defined as a sequence of years with positive rates of real GDP growth or real GDP per capita growth, and a recession is a sequence of years with negative real GDP growth or real GDP per capita growth. An economic cycle differentiates developed countries from the developing ones (Cashin, 2004). In developed countries for instance, peaks and troughs are less pronounced when compared to developing countries.

**Table 2-9: Comparison of real GDP per capita growth in SSA and BRIMCs, 1980-2007**

Country	Average Growth	Min	Max	Stdev
<b>1980-2007</b>				
Botswana	4.21	-1.30	10.57	2.90
Gabon	-0.22	-19.17	10.48	5.57
Mauritius	3.60	-11.65	8.92	3.68
Seychelles	1.74	-9.27	10.95	5.16
South Africa	0.52	-4.91	4.18	2.75
<b>SSA</b>	9.85	-2.24	31.86	8.68
<b>Benchmark/RoB</b>				
<b>China*</b>	8.72	2.21	13.61	2.83
Brazil	0.92	-6.65	6.52	3.42
India	4.20	-0.93	8.04	2.09
Mexico	1.10	-7.78	6.80	3.56
Russia	1.28	-14.59	10.48	6.33
<b>BRIMC</b>	16.22	0.15	33.10	9.57
<b>1990-2007</b>				
Botswana	2.78	-1.30	7.78	2.13
Gabon	-0.05	-9.21	4.13	3.39
Mauritius	3.80	0.31	7.88	1.78
Seychelles	2.02	-7.36	10.95	4.65
South Africa	1.13	-4.07	4.18	2.44
<b>SSA</b>	9.68	-1.93	21.21	6.79
<b>Benchmark/RoB</b>				
<b>China*</b>	9.06	2.21	12.85	2.50
Brazil	0.98	-5.67	4.29	2.61
India	4.44	-0.93	8.04	2.23
Mexico	1.68	-7.78	5.21	2.95
Russia	0.65	-14.59	10.48	7.90
<b>BRIMC</b>	16.80	0.15	33.10	10.76
<b>2000-2007</b>				
Botswana	2.91	0.51	4.86	1.34
Gabon	-0.24	-2.40	3.42	1.73
Mauritius	3.80	2.11	7.88	1.99
Seychelles	-0.38	-7.36	4.17	4.17
South Africa	2.90	1.58	4.18	0.98
<b>SSA</b>	8.98	1.49	19.17	5.57
<b>Benchmark/RoB</b>				
<b>China*</b>	9.33	7.70	11.04	1.28
Brazil	1.99	-0.25	4.29	1.72
India	5.29	2.18	8.04	2.34
Mexico	1.71	-1.47	5.21	2.21
Russia	7.58	5.34	10.48	1.65
<b>BRIMC</b>	25.90	15.13	33.10	6.76

Source: ERS/USDA, (2010). \* refers to benchmark economy.

**Table 2-10: Comparison of real GDP for SSA and BRIMCs, 1980-2007**

Country	Average Growth	Min	Max	Stdev
<b>1980-2007</b>				
Botswana	7.22	1.98	14.12	3.38
Gabon	2.30	-17.15	12.85	5.52
Mauritius	4.67	-10.06	9.74	3.59
Seychelles	2.85	-8.22	11.96	5.19
South Africa	2.43	-2.14	6.62	2.41
<b>SSA</b>	19.47	6.60	42.16	8.86
<b>Benchmark/RoB</b>				
<b>China*</b>	9.88	3.80	15.20	2.82
Brazil	2.66	-4.39	9.11	3.44
India	6.13	0.91	9.86	2.05
Mexico	2.87	-6.22	9.23	3.56
Russia	1.36	-14.53	10.00	6.20
<b>BRIMC</b>	22.91	7.67	37.23	8.89
<b>1990-2007</b>				
Botswana	5.35	1.98	11.08	2.16
Gabon	2.54	-6.20	6.96	3.31
Mauritius	4.86	1.38	9.06	1.82
Seychelles	3.17	-6.30	11.96	4.66
South Africa	2.54	-2.14	5.14	2.10
<b>SSA</b>	18.45	7.25	30.31	6.89
<b>Benchmark/RoB</b>				
<b>China*</b>	9.96	3.80	14.20	2.49
Brazil	2.48	-4.07	5.85	2.60
India	6.27	0.91	9.69	2.19
Mexico	3.19	-6.22	6.77	2.99
Russia	0.40	-14.53	10.00	7.64
<b>BRIMC</b>	22.29	7.67	37.23	9.76
<b>2000-2007</b>				
Botswana	4.88	2.76	6.72	1.27
Gabon	2.25	0.00	5.60	1.63
Mauritius	4.77	3.00	9.06	2.09
Seychelles	0.77	-6.30	5.30	4.21
South Africa	3.97	2.74	5.14	0.92
<b>SSA</b>	16.64	8.93	26.37	5.73
<b>Benchmark/RoB</b>				
<b>China*</b>	9.91	8.30	11.60	1.25
Brazil	3.40	1.15	5.72	1.71
India	6.98	3.94	9.69	2.31
Mexico	2.96	-0.16	6.60	2.24
Russia	7.02	4.74	10.00	1.67
<b>BRIMC</b>	30.28	19.71	37.23	6.68

Source: ERS/USDA, (2010). \* refers to benchmark economy.

Table 2-9 and Table 2-10 (above) shows a comparison of economic growth cycle between the SSA countries and the benchmark and 'other' countries. Among the countries sampled for the overall period (1980-2007), aside from China, Seychelles and

Botswana displayed one of the highest peaks in rates of economic growth (10.95 and 10.57 percent in 1997 and 1988 respectively). Gabon and Mauritius experienced a sharper trough during the same period. Among the 'RoB', only Russia experienced a sharper trough during same period. Gabon, Mauritius and Russia also experienced the highest volatility in economic growth (as measured by the standard deviation) among the countries sampled. The aggregate indicators of economic growth cycles for both the SSA and the BRIMCs indicate that both regions displayed almost similar economic growth in the sample period (31.86 and 33.1 in 1988 and 2007 respectively).

In the 1990s, average standard of living in Mauritius, Seychelles and South Africa had improved considerably. The data shows that Russia experienced economic growth contraction during the 1990s. In this period, many Asian countries were affected by the 1997 East Asian crisis, including Russia. The data shows that Russia had seven consecutive years of negative per capita growth before the 1997 crisis, after which it also witnessed a negative growth in 1998. In terms of output growth, the impact of the East Asian crisis can be seen in China and Mexico. While Mexico witnessed two years of negative growth during this period, Brazil had about seven years of negative growth in the same period with a sequence of negative growth witnessed in the years immediately after the 1997 crisis. In the Benchmark/RoB group, Russia displayed a larger standard deviation of real GDP growth during the sample period.

When only the period 2000-2007 is considered, I observe that economic growth in two of the five SSA countries had improved (Botswana and South Africa).<sup>21</sup> In terms of output growth, only South Africa seemed to have improved when compared to the previous period. Economic growth in the benchmark/others group also improved in the period, however, growth in Mexico contracted.

Where the SSA countries faced many years of economic growth contractions, it is important to note that being able to maintain a stable economy with the absence of sharp economic contraction during economic cycle has helped China and most of the RoBs to grow substantially in the last decade. Hence, it is important for SSA countries to develop policies that would be able to manage if not eradicate long period of sharp troughs during economic cycle.

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<sup>21</sup> In absolute terms.

### 2.4.3 Simulating future growth paths of real GDP per capita

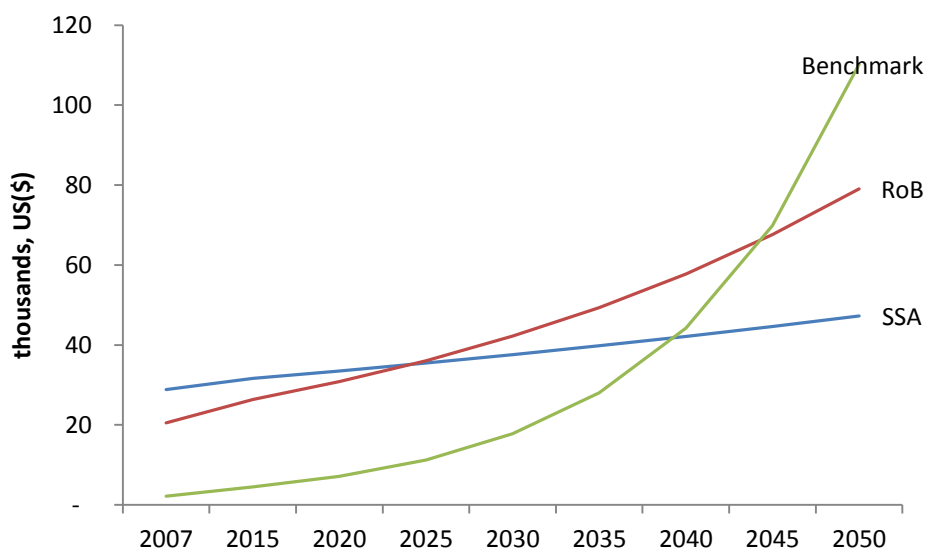
A simple simulation exercise is used to emphasise the importance of high, sustainable economic growth if SSA's GDP per capita is to converge significantly with that of the benchmark and RoB countries. For the purpose of this study, economic growth is not defined in such rigorous terms, but takes any measured increment in total output, over a period of time, to be acceptable evidence of economic growth.

Four alternative growth scenarios are developed:

1. SSA countries maintain an average growth rate attained during 2000-2007 period (1.15 percent)
2. SSA countries grow at the average growth required to meet the MDGs in 2015 (7 percent)
3. SSA countries grow at the same rate as the benchmark country during 2000-2007 (9.12 percent).

Figure 2-7 depicts a simple simulation of economic growth pattern in the SSA, benchmark and the RoB countries. In this scenario, it is assumed that the benchmark country (China) grows at an average annual rate of 9.12 percent (average growth rate of China during the 2000-2007 period) *ceteris paribus*. It is also assumed that the RoBs grew on an average of 3.14 per annum using the 2000-2007 period. According to the figure, it will take about 17 years (2024) for the SSA countries to reach a similar level of economic development with the rest of the BRIMC countries. Convergence would occur by 2040, implying that SSA it would take at least 33 years for the SSA countries to attain the size of China.

**Figure 2.7: Growth pattern for GDP per capita, 2007-2050**

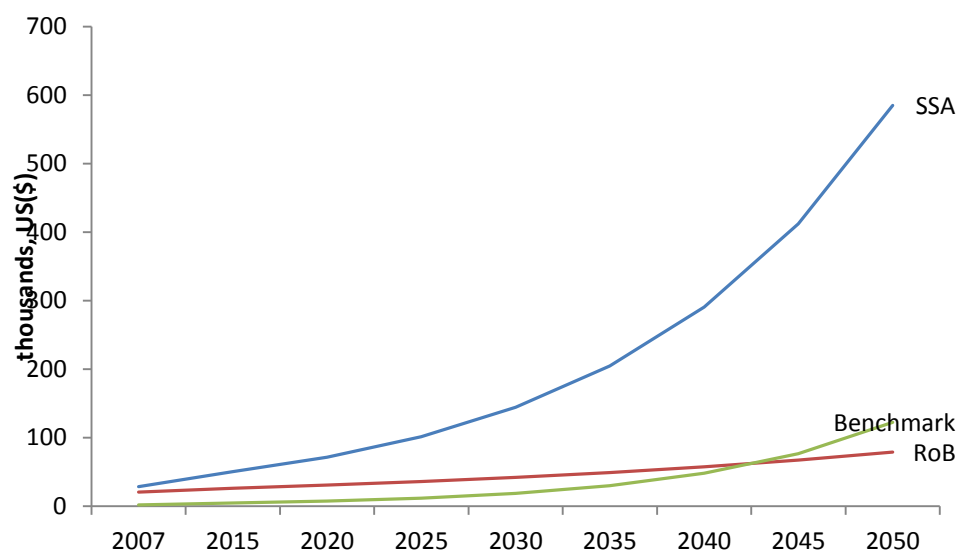


Source: Authors' calculations using data from ERS/USDA, (2010).

Note: It is assumed that exchange rate remains unchanged.

Figure 2-8 shows the second scenario. When SSA countries grow at an annual average of 7 percent in order to meet the MDGs, the figure indicates that SSA have already reached the status of the benchmark economy and would even perform better than the rest of the BRIMCs.

**Figure 2.8: Growth pattern of GDP per capita, 2007-2050**

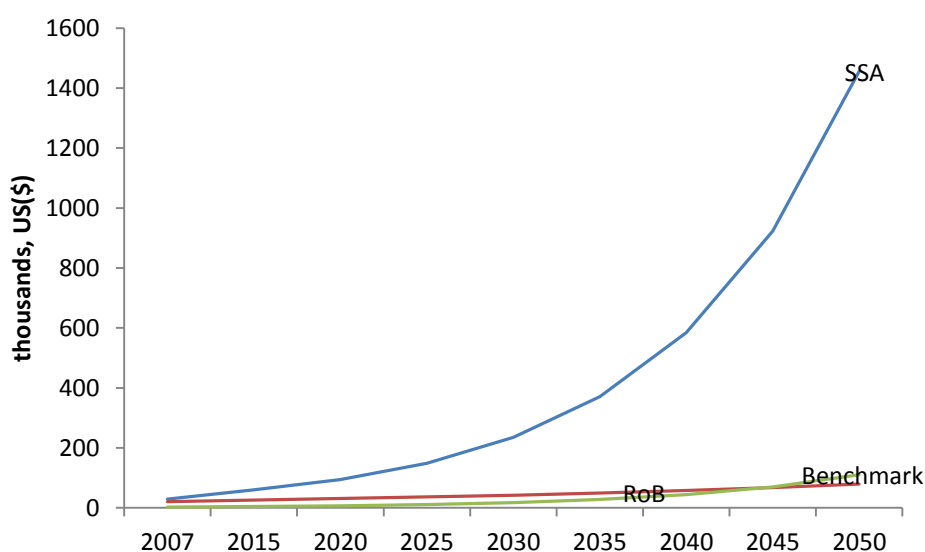


Source: Authors' calculations using data from ERS/USDA, (2010).

Note: It is assumed that exchange rate remains unchanged.

In the third scenario, I find that SSA countries seem to have the highest GDP per capita when compared with benchmark (China) and the RoB countries. According to figure 2-9, if the SSA's grew by 9.33 percent per annum, China and the rest of the BRIMCs would struggle to reach their level of development. Not that a growth of 9.3 percent is not doable, but our analysis indicates that Angola is the only country in the SSA that may be able to reach the benchmark status if it continues to grow at 9.2 percent.

**Figure 2.9: Growth patterns of GDP per capita, 2007 to 2050**



Source: Authors' calculations using data from ERS/USDA, (2010).  
 Note: It is assumed that exchange rate remains unchanged.

## 2.5 Conclusion

The recent economic performance in the BRICs raises a number of questions, and providing answers to these may promote better economic strategies for other developing countries looking to also achieve higher economic growth, reduce poverty and obtain the developed-country status. This chapter uses various socio-economic indicators to explain the economic performance of five of the fastest growing developing countries (referred to as BRIMCs), in comparison to one another and the SSA region.

Although the BRIMC countries show many similarities in their economic performance, these countries follow very different models of economic development. These can be analysed by considering the choices made by these countries, in terms of economic reforms. Brazil, Russia, India, Mexico and China all seem to have implemented different strategies in order to achieve long-term and sustainable growth and their



timing has played a determinant role in the transformation of their economies. Looking at the recent policies in the BRIMCs and their development plans for the future, I find that there are common factors and characteristics for high sustained economic growth. These include: the size of the economies, diversity, economic openness, large sources of labour, rising consumption, demographic factors, expenditures, good governance, and macroeconomic stability.

On the other hand their differences are also reflected in the structure of their economies. It is suggested that the services sector has played an important role in promoting growth in Brazil, Russia, India and Mexico, while in China; the key role is played by the industrial sector. Brazil has a domestically oriented service economy, Russian economy is heavily dependent on energy and raw material resources, India's economy is essentially services-led supported by exports, the Mexican economy is dependent on oil and foreign capital (remittance) and finally, China's economic development is driven by manufacturing exports and investment.

Although there are many challenges hindering the promotion of long-term economic growth in the SSA region, sustainable economic growth is necessary in order to increase income, and to also become a significant trade and investment partner in the world economy. It is also important if the MDGs are to be achieved by 2015. The details from the five case studies in the SSA region suggest that Africa's economic performance has improved over the last decade. According to the discussions above, SSA's growth and economic development, over the past decade, has been impressive. The period between 2000 and 2007 brought hope for the future because economic performance improved substantially. More than 20 SSA countries grew at an annual average of 4 percent, with an overall real GDP growth rate of 6.6 percent in 2007. For instance, a combination of political stability, strong institutional frameworks, low levels of corruption, and favourable regulatory environments has helped lay the foundation for economic growth in Mauritius. However, its open trade policies have been important in sustaining growth. However, to further promote development in South Africa, there is a need to improve the institutional environment in other areas, such as reduced crime rates, more flexible labour regulations, increased skilled labour, increased economic literacy, and finally, a business climate conducive to customer satisfaction.

The BRIMC experience provides some lessons for SSA, despite their unique characteristics. Firstly, SSA countries should increase their level of savings, in order to

promote investment. Secondly, SSA countries should attempt to attract FDI. For instance, many African countries (for example Tanzania and Zambia) fail to attract FDI, during the decades after independence, due to problems with governance and their failure to open their doors to new foreign investment. Although Africa is regarded as poor and potentially unstable, new investment has been concentrated in the natural resources sector, in particular, the oil industry (Nigeria, Mauritania and Angola). Thirdly, increasing trade by promoting exports can help improve economic growth.

## Appendix II

**Table 2-11: List of countries**

BRIMCs	SSA
Brazil	Botswana
Russia	Gabon
India	Mauritius
Mexico	Seychelles
China	South Africa

Source: World Bank, (2010).

**Table 2-12: Target to reach the Millennium Development Goals, average real GDP growth**

Country	2000-2007	Position
Angola	11.53	1
Chad	8.88	2
Mozambique	7.98	3
Sudan	7.51	4
Mauritania	7.25	5
Mauritius*	4.94	17
Botswana*	4.71	20
South Africa*	3.97	25
Gabon*	2.25	32
Seychelles*	1.31	35

Source: Authors' Calculation using data from Source: USDA (2010), Economic Research Service, International Macroeconomic Data Set. \* indicates fastest growing SSA countries between 2000 and 2007.

**Table 2-13: Economic performance in the world and other developing countries between 1980 and 2007**

Region	Year	Annual growth rate of GDP per capita	Annual growth rate of GDP	General fixed capital formation (growth)	Exports (growths)	Population (millions)	Population growth	Poverty Headcount ratio on \$1.25 per day % of population	Life Expectancy	Literacy rates	Inflation <sup>a</sup>
World	1980-89	1.27	3.04	3.01	4.94	4810.05	1.74	N/A	63.18	60.78	5.47
	1990-99	1.23	2.72	2.92	6.26	5646.21	1.47	N/A	65.44	69.99	3.99
	2000-07	1.95	3.2	3.71	7.15	6352.58	1.22	N/A	68.04	78.47	2.86
<sup>a</sup> EAP	1980-89	5.97	7.71	7.76	6.1	1462.61	1.64	65.77	64.55	68.08	4.06
	1990-99	6.82	8.21	10.64	10.24	1698.76	1.29	44.25	67.63	79.23	3.69
	2000-07	7.91	8.82	10.77	15.39	1862.73	0.85	22.19	71.23	90.64	1.35
<sup>a</sup> ECA	1980-89	N/A	N/A	N/A	N/A	412.88	0.97	1.41	67.42	N/A	6.24
	1990-99	-1.77	-1.55	-7.92	-0.05	438.1	0.22	4	67.84	95.07	3.44
	2000-07	5.98	6.04	10.13	9.4	440.71	0.05	4.15	68.88	97.42	2.16
<sup>a</sup> LAC	1980-89	-0.29	1.8	-1.12	4.21	391.57	2.1	13.93	65.38	80.46	15.07
	1990-99	1.25	2.95	4.55	7.92	470.58	1.68	10.81	69.05	N/A	23.03
	2000-07	2.22	3.54	5.16	6.35	536.35	1.3	9.46	72.47	88.97	6.82
SA	1980-89	3.23	5.55	6	5.87	1004.09	2.25	56.35	55.39	38.56	8.89
	1990-99	3.33	5.32	6.66	9.92	1232.88	1.93	47.46	58.67	46.55	9.37
	2000-07	5.08	6.79	10.72	14.02	1443.48	1.63	42.07	62.74	58.16	4.94
SSA	1980-89	-0.72	2.17	0.43	4.48	441.86	2.91	54.57	48.74	N/A	17.58
	1990-99	-0.66	2.04	2.54	4.14	582.7	2.71	57.9	49.93	N/A	27.75
	2000-07	2.25	4.83	8.03	5.08	734.26	2.53	52.97	50.91	57	9.78

Source: Author's calculations from *World Development Indicator*, World Bank, ESDS International, University of Manchester, MIMAS (2010).

Notes:

(1) Data are averages for the periods 1980-89, 1990-99 and 2000-07.

(2) EAP refers to East Asia and Pacific, ECA is Europe and Central Asia, LAC is Latin America and the Caribbean and SSA is Sub-Saharan Africa. a corresponds to inflation growth from Asia, Europe and Latin America. N/A refers to not available.

Table 2-13 presents facts and summarises the key indicators for SSA, in comparison to other developing countries and the world as a whole. According to this table, the EAP and SA region recorded remarkably higher economic growth between 1980-89, 1990-99 and 2000-07 when compared to LAC and SSA regions. During the 1980s, the average annual GDP growth was approximately 1.80 percent in the LAC and 2 percent for SSA countries. In Latin America for instance, economic performance was poor during the 1980s and the first half of the 1990s as a result of high inflation and political instability. On the other hand, despite several economic reforms, there is no definite growth takeoff recorded in the SSA region. In fact, Table 2-13 shows that the growth performance of the SSA countries during the 1990s was rather dismal, owing to a high inflation rate. Furthermore, many Latin American and SSA countries suffered from distorting financial systems as government's kept interest rate controls, allocated credit arbitrarily and deterred the expansion of security markets (Edwards, 1999). The poor performances

of both regions have led many economists to refer to the 1980s as the 'lost decade'. Nevertheless, to achieve long-term and sustainable economic growth, it is important to maintain the 'right policies', (World Bank, 2005).

### **3 Financial Sector Development in Emerging and Frontier Markets: The Role of Financial Liberalisation**

#### **Abstract**

This chapter empirically investigates the role of financial liberalisation in the form of official liberalisation dates, capital account opening and financial freedom in the development of the financial sector of 11 developing countries from Asia, Latin America and Sub-Saharan Africa (SSA) for the period 1980-2007. The chapter considers six various financial development indicators that various researchers use to proxy for the degree of financial development in countries. Overall, the results provide support for the positive impact of financial liberalisation on financial development. In particular, the move to financial liberalisation has led to an increase in the credit provided by the private sector and overall financial development.

The sample is further split into two sub groups: emerging and frontier markets. The result indicates that the benefits of improving the financial sector is more pronounced in emerging markets, however, financial liberalisation seems to favour the development of the stock market in frontier markets. Using several robustness checks, I examine the sensitivity of these results to alternative measures of trade liberalisation and economic growth. The result is supportive of the earlier findings that financial liberalisation has led to financial development in the countries studied. Finally, the chapter examines whether the simultaneous openness hypothesis holds for the sample of countries. Contrary to the Rajan and Zingales (RZ) hypothesis, our empirical result suggests that both financial and trade openness might be substitutes rather than complements. The main policy lesson that can be drawn from this chapter is that policy makers in both emerging and frontier markets should focus on developing and implementing policies that would accommodate a more open capital account.

#### **3.1 Introduction**

The relationship between globalisation and financial development remains a significant interest of the growing empirical literature. The central aspect of globalisation, which has received considerable attention in recent times, is the world's trend towards a larger financial openness. While globalisation refers to 'the integration of the world through trade, financial flows, exchange of technology and information, and the movement of people' Ouattara (1997:1) and occurs as a result of an increase, diversification and

deepening of trade and financial links between countries, financial openness is the willingness of a country to adopt liberalised policies regarding removal of restrictions on capital account movement or the presence of government intervention in the financial sector. In some countries, it also involves the introduction of measures to attract foreign capital and to reduce the discrimination against foreign financial institutions operating in domestic markets. In today's globalised environment, developing countries are being encouraged to liberalise their financial systems under the notion that this would lead to greater financial development (Greenidge, Moore and Reed, 2004). This unprecedented change therefore reached developing countries as early as the 1980s through the opening of their capital accounts, trade liberalisation, penetration of foreign banks and the increase in cross border financial flow.

These changes in policy provide an opportunity to assess the issues involved in the financial liberalisation debate. In the centre of this debate is the question whether financial liberalisation is a benefit or curse to the development of the financial system. Indeed globalisation and in particular financial liberalisation has several benefits to countries as it can induce a more efficient allocation of resources, provide risk diversification and ease transportation and communication. In turn; it will transform both the financial and economic sectors by reducing transaction costs, transmitting information and speeding up financial innovation (Mobolaji, 2008). Consequently, in countries where access to external finance is limited or poor, it is argued that financial liberalisation has played a major role in promoting financial development.

Although policy makers understand the importance of foreign participation in the financial sector, it is widely believed that financial liberalisation (globalisation) may result in loss of control over the economy and may not be economically beneficial. Brownbridge and Kirkpatrick (1999) and Tokat (2005) observe that financial globalisation carries some risks and has led to serious economic and financial crises in developing countries, particularly in Asia, Russia and Latin America in the 1990s. However, the proponents of financial liberalisation argue that the financial crisis of 1997-98 occurred as a result of lack of developed financial infrastructure<sup>22</sup> and volatile international capital movements brought about by the globalisation of financial markets (Goldstein 1998). Furthermore, Stiglitz (2000) and Mishkin (2007) observe that financial liberalisation promotes financial instability in countries where the financial

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<sup>22</sup> These include but are not restricted to legal and regulatory framework, supervision, accounting and auditing, financial corporate governance rule and institution.

system is underdeveloped. The literature points out that non-diversified source of income, weak institutions and pre-existing policies led to the misallocation of capital, increasing the likelihood of financial crises in developing economies. Schmukler (2003) however notes that financial globalisation only leads to financial crises in the short run. This argument is strengthened by the fact that those countries with more open financial and trade policies grow faster than those that are closed. Thus, the most important benefit of financial globalisation for developing countries is the development of their financial system, because it involves a deeper, more stable and better regulated financial market.

In theory, financial liberalisation can lead to the development of the financial system through the development of its structure, size and efficiency.<sup>23</sup> Accordingly, financial globalisation will improve a country's financial system by increasing the availability of funds and improving the financial infrastructure, which can reduce the problem of asymmetric information (Schmukler, 2003).

This debate over what the policy of financial liberalisation has or has not done to the developing countries financial systems raise some questions that need to be addressed if we need to find out the experience amongst developing countries in particular those in Asia, Latin America and SSA regarding the relevance of financial liberalisation. One, has financial liberalisation worked in the way that its advocates or its critics claimed it would? In developing countries and in particular SSA countries, the absence of strong credit markets has been a barrier to sustained economic growth. Prior to financial liberalisation, the financial sector was heavily controlled by the government and because productive economic activity is limited by poor external finance, evidence suggests that financial liberalisation can help improve financial development in countries where access to financial services is quite poor. In theory, financial liberalisation would allow for more efficient global allocation of capital from capital rich developed countries to capital poor developing economies. However, Rajan and Zingales (RZ, 2003) theory hypothesise that a country's financial development positively relates to the opening of both the trade and financial sector. Another important question then is should financial liberalisation proceed cautiously and with the appropriate sequencing in order to avoid financial crisis?

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<sup>23</sup> The main purpose of this research is to investigate the impact of financial liberalisation on the size and activity of the financial system (banking and stock market) in emerging and frontier countries.



Using the theory of demand and supply to explain the relationship between finance and trade, Rajan and Zingales (2003) find that openness in the goods market can improve the supply of external finance, because it aligns the interests of the economically powerful more closely with financial development. According to the authors, openness often leads to competition within incumbent firms; moreover incumbent firms, worried by the threat of entry have strong incentives to resist financial development by shaping policies and institutions to their own advantage when they are in power. However, because potential competitors would need external finance for investment opportunities, the authors argue that when a country becomes more open to trade and international capital flows, they would be able to develop their financial sector which will lead to competition between the incumbent and potential investors, because such globalisation will force a country to do what is beneficial for their economic development, rather than for the incumbent.

In contrast, Svaleryd and Vlachos (2001) note that openness to trade is associated with risk diversification. The authors argued that countries are at the risk of being exposed to external demand shocks from foreign competition, and as such it will create a new demand for external finance. In this view, the effect of trade on finance is likely to work through the demand side. Some economists argue that there is a need to first improve the macroeconomic background and to follow the correct order of liberalisation before partaking in the broad liberalisation process (i.e. banking system, foreign exchange, capital inflows and trade regimes). Yet still, Anayiotos and Toroyan (2009), notes that whilst it is important to carry out economic and financial reforms, it is also critical to set priorities to developing the institutions that contribute to developing the financial sector and to weigh the benefits of financial liberalisation against the increased potential financial fragility it can cause (Demirguc-Kunt and Detragiache, 1999).

Whilst a number of research studies have investigate the effect of financial liberalisation (openness) on financial development, these studies mainly focus on banking sector development (Baltagi et al. 2007) and equity market development (Huang and Temple, 2005 and Chinn and Ito, 2006). Despite recent contributions, research on the effect of financial liberalisation on the overall development of both banking and the stock market in emerging countries is scant. This study differs from previous ones in that it analyses the impact of financial liberalisation on financial development by considering the structure and classification of the financial sector. The main idea is that financial

liberalisation has a differential impact on financial development in different regions, depending on the stages of economic and institutional development in these economies.

Based on these arguments, this chapter seeks to ask the following questions:

1. Does financial liberalisation lead to financial development in emerging countries? If so, what is the impact of financial liberalisation in the emerging countries of the BRIMCs and frontier markets in the SSA region? It captures the differences in economic development and institutional quality by controlling for the effects of economic growth and institutional quality.
2. Does the simultaneous opening of both the financial and trade sector improve financial development? This question is raised in order to examine the impact of the openness hypothesis proposed by Rajan and Zingales (2003) in the sample.

In this spirit, this chapter aims to contribute to the ongoing debate by exploring the implications of financial liberalisation on financial development in developing countries, because the existing literature is mostly driven by data from developed countries. I classify these markets into two: emerging and frontier markets. The choice of sample countries is determined by the Financial Times Stock Exchange (FTSE) and the Morgan Stanley Capital International (MSCI Barra, 2009) classification of emerging and frontier markets. I classify the sample into two sub groups: BRIMCs, which consist of Brazil, Russia, India, Mexico and China, and selected SSA countries, which consist of Botswana, Ghana, Kenya, Nigeria, South Africa, Zambia and Zimbabwe. According to the FTSE, South Africa is an emerging market, however, for the purpose of this analysis; I have included it in the SSA sample. This chapter will also contribute to the empirical literature by analysing the effect of financial liberalisation on financial structure. Following a similar formula used in Demirguc-Kunt and Levine (1999) in their analysis of '*Bank-based and Market-based financial systems: Cross-country comparisons*',<sup>24</sup> I construct the financial structure for six countries (Botswana, China, Ghana, Nigeria, Russia and Zambia). The chapter also contributes to the debate on the sequence of financial liberalisation by examining the RZ hypothesis in the BRIMC and SSA context.

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<sup>24</sup> To construct the financial structure, I used the mean of the sample's private credit and the total value of stock traded.

The rest of the chapter is organised as follows: Section 3.2 provides a brief literature review on the relationship between financial liberalisation and financial development. It looks at the effect of financial liberalisation on financial development in the sample countries and discusses related empirical literature. Section 3.3 describes the specification of our model and other explanatory variables used in our analysis. Section 3.4 analyses the impact of financial liberalisation on financial development and provides a discussion of the results. Finally, Section 3.5 concludes this chapter with a summary and policy implications.

### **3.2 Financial sector development and liberalisation in emerging markets: An overview**

In the past three decades, economic reforms and most importantly, financial liberalisation have been the main reform strategies used in both advanced and developing countries to achieve the gains of globalisation. According to Tokat (2005), advanced countries have always been the first to initiate and complete any reforms through the liberalisation of their financial sector. Whereas, developing countries impose restrictions on capital movement, making it difficult for foreign countries to penetrate their financial system.

In pioneering work on financial repression, McKinnon (1973) and Shaw (1973) both note that developing countries have a more closed financial sector as a result of government intervention. They argued that governments impose a series of regulations on domestic banks, such as interest rate regulation, directed credit schemes and high reserve ratios, which make it impossible for firms to raise the finance needed for productive investment. In addition, as McKinnon-Shaw hypothesised, repressing the financial sector leads to a fragmentation of the domestic capital markets and resulting in highly adverse consequences for the quality and quantity of real capital accumulation (McKinnon, 1988, 1993). The authors suggest that freeing interest rates, reducing reserve requirements and allowing foreign penetration in the financial sector, will increase these developing countries access to finance, which in turn increases savings and improves the financial sector.

These reform strategies, according to McKinnon (1973) and Shaw (1973), were important in order to overcome financial repression, and in most cases, investment and growth would pick up either by complementary effect or by credit availability effect (Agenor and Montiel, 1996: 494). Consequently, the recommendation made by

Mckinnon (1973) and Shaw (1973) towards financial liberalisation as a means to improve financial depth has been adopted by a lot of developing countries since the mid-1980s and early 1990s. During this period, most countries witnessed a surge in financial flows across the border as evidence of the increased pressure of globalisation. In the literature, these flows in the form of FDI, official development assistance (ODA) and portfolio investments have important implications for both domestic investments and overall output growth.

Broadly speaking, financial liberalisation involves the deregulation of domestic financial markets and capital account liberalisation. The latter, involves enhancing a country's integration with the rest of the world. Thus, the distinction between the two is worth mentioning. Kaminsky and Schmukler (2003) define financial liberalisation to consist of "the deregulation of the foreign sector capital account and the domestic financial sector with the stock market sector viewed separately from the domestic financial sector". According to Carmignani and Chowdhury (2007), financial liberalisation and integration are two different stages of financial globalisation. On the one hand, the liberalisation of the financial sector involves lifting of the administrative or legal restrictions on capital movement, therefore, creating the necessary conditions for the integration of the domestic financial market with the global financial market. On the other hand, financial integration involves linking a country's financial market together with that of another country, or with those of the rest of the world, resulting in the removal of restrictions on capital accounts and the deregulation of financial systems in developing countries (United Nations Economic Commission for Africa, 2008). Nevertheless, the process of financial liberalisation does not necessarily foster financial integration.

A number of recent studies have attempted to add to the literature on the effect of financial liberalisation on financial development, however, most of the empirical analyses are unable to find robust evidence to support the benefits of financial liberalisation. Moreover, some researchers show that financial liberalisation improves financial development only in the presence of a 'threshold effect', which is mainly related to sound macroeconomic policies, proper institutions, rule of law and a sound banking sector. On one hand, Bekaert et al. (2001) observes that the process of financial liberalisation may not yield the intended benefits in developing countries due to the strength of the domestic institutions. On the other hand, Arestis and Carner (2009) argued that it is possible that the financial liberalisation process can lead to an

improvement in institutions and other macroeconomic policies, which in turn can lead to a reduction in poverty rate in developing countries. Furthermore, the literature notes that only after a country has met the threshold conditions can it reap the benefit of financial liberalisation and integration. Thus, it can be argued that better institutions and sound macroeconomic policies are required for financial liberalisation to lead to financial development in developing countries. Indeed, in order to benefit from the financial reforms, the financial systems of the SSA countries must be accompanied by a sufficiently developed institutional framework. Hence, most studies dealing with financial liberalisation tend to show that the level of development of the financial system requires the existence of a legal environment protecting the rights of the creditors and clearly codifying contracts (Demetriades and Andrianova, 2004 and Chinn and Ito, 2006).

The outcome of financial liberalisation among countries have had varied results – from greater financial deepening to higher growth, however it has also led to greater incidence of financial crises. In a pioneering study, Dermiguc-Kunt and Detragiache, (1999) empirically studied the relationship between banking crises and financial liberalisation using a panel of 53 countries over the period 1980-1995. The authors observed that the liberalisation process can be attributed to the increase in financial instability and crisis, particularly in the banking sector. However, financial liberalisation's impact is weaker in environments where the institutional factors and rule of law are well developed. A closer look at the Dermiguc-Kunt and Detragiache thesis shows that the authors focused on interest rate liberalisation, but in reality, financial liberalisation encompasses much more than freeing interest rates from government control to a complete deregulation of the financial sector.<sup>25</sup>

According to the proponent of financial liberalisation through the deregulation of interest rates, interest rates will rise, and as a result, this will encourage savings and improve the efficiency of the financial sector by allocating credit to productive and high yielding projects. Heeding to this advice, several developing countries, including the countries in our sample, commenced on an extensive reform of their respective financial sector in the 1980s and early 1990s.<sup>26</sup> These reforms involved liberalising interest and

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<sup>25</sup> According to Asogwa, (1993), financial liberalisation involves moving away from direct control of money and credit towards indirect control of money and credit, through the use of market-based instruments and the relaxation of all regulatory controls that tend to impede the efficient functioning of the financial system. In addition, Ucer (1998) notes that the process of financial liberalisation has extended towards measures that would eliminate various restrictions on the financial sector, such as the removal of portfolio restrictions on the banking sector and the reform of the external sector, as well as, changes in the institutional framework of monetary policy.

<sup>26</sup> Appendix III reports details of the key financial liberalisation undertaken in the sample countries over the period 1980-2007.

exchange rates, abolishing directed credit allocation, liberalising entry into the banking sector, strengthening the regulatory and supervisory framework and promoting market-based systems.

Sandoyan et al. (2007) note that financial liberalisation will benefit financially underdeveloped countries because this will lead to financial integration and, consequently, spur financial development. Under these circumstances, the argument goes that by removing capital controls and allowing domestic and foreign investors to engage in more portfolio diversification, would reduce the cost of capital and increase the availability of funds, therefore, increasing the efficiency of the financial sector and stimulating growth. In addition, Bencivenga and Smith (1991) notes that financial liberalisation would benefit developing countries by moving them closer to the frontier of technology. As such, many developing countries encouraged both trade and financial sector reforms as part of their structural adjustment programs (SAP).

The literature suggests that the liberalisation of the financial sector not only increased credit directly, but also indirectly, through their impact on capital flows. For example, Wakeman-Lin et al. (2008) in a report published by the IMF note that private capital flows to African countries increased almost five-fold from US \$11 billion in 2000, to US \$53 billion in 2007. FDI inflows have also been reported to have increased substantially, as did portfolio investment during the period 2002 to 2006. In the countries under study, I note that the removal of capital controls during the late 1980s and early 1990s allowed for foreign penetration, and as such, increased foreign capital in the form of FDI and portfolio investment in the equity sector. Furthermore the literature suggests that the liberalisation of the financial sector might encourage technology transfer, due to the attraction of FDI inflows.

### **3.2.1 Financial sector development and liberalisation: Empirical analysis**

Financial liberalisation has been intensively studied during the past, but there is still no consensus on its effect on financial development. Pill and Pradhan (1995) and Gelbard and Leite (1999), are one of the first studies to investigate the effect of financial liberalisation on financial development. In examining the role of financial liberalisation in financial sector development process, Pill and Pradhan (1995) identified three stages of financial development: (i) the financial repressed economy, (ii) a domestically liberalised economy and (iii) an internationally liberalised economy. The study found that the outcomes of financial liberalisation in some African countries (i.e. Gambia,

Ghana, Kenya, Madagascar, Malawi and Zambia) were less than the results that were obtained in the case of other Asian countries (i.e. Indonesia, Korea, Malaysia, Philippine, Sri Lanka, and Thailand). According to the authors, financial development in the African samples did not change in the post-liberalisation period because the necessary and appropriate preconditions, such as a stable macroeconomic climate, institutional and financial development, were not favourable in those African countries for the success of financial liberalization as compared to the Asian countries.

Using a sample of 38 SSA countries over the period 1987 to 1997, Gelbard and Leite (1999) considered; (i) the structure of the market, (ii) the availability of financial product, (iii) financial liberalisation, (iv) the institutional environment, (v) the degree of financial openness, and (vi) the sophistication of the available monetary policy instrument. According to their findings, 14 of the countries improved their financial sector through financial liberalisation and adoption of other monetary policies. The implication of this result is that completing the financial liberalisation process would lead to financial development (FD).

Huang .Y (2005) analysed the impact of political liberalisation on FD in 90 developed and developing countries. The author first examined whether institutional improvement promotes FD using a panel data method. The results showed that political liberalisation has a positive effect on FD in the short-term in lower income countries, ethnically divided countries and French legal origin countries. Using an events study method, the author then examined the impact of democratic transitions on FD. The evidence showed that democratic transitions are preceded by low FD and greater FD volatility. However, an increase in FD volatility may be related to immediate consequences of democratic transition and as a result this may lead to more openness to trade and competition, and eventually to promoting economic growth. Chinn and Ito (2006) and Baltagi et al. (2008) have also emphasised the role of openness and institutions on FD.

Law and Habibullah (2009) examined the determinant of FD in 27 economies, over the period 1980-2001, using a dynamic panel data analysis method. They found that institutional quality was statistically significant in determining both banking sector and capital market development. In a more recent study, Cherif and Gazdar (2010) used both panel data and instrumental variable methods to study the determinant of financial development in 14 MENA countries over the period 1990 to 2007. According to their findings, income level, savings rate, stock market liquidity, interest rate and stock

market development are all positively related. The authors also studied whether the banking sector and stock markets are complements or substitutes. Their results showed that both financial structures are complements. However, their result did not provide support for the influence of institutional development on stock market development.

Various indicators of financial liberalisation have been used to examine whether developing countries have moved from a repressed to an open financial economy. In a recent publication, Abiad and Mody (2005) examine how a country's structure can influence the impact of financial liberalisation in 30 countries over twenty-four years. Using an index of financial liberalisation which the authors developed, they found that economies in Latin America and Sub-Saharan Africa had moved to partly liberalised, while some countries in South Asia still remained partly repressed.

The evidence nevertheless has been unconvincing. While some studies emphasise positive impacts (Fry, 1997; Quinn, 1997 and Henry, 2006), others indicate the potential risks (Stiglitz, 2000 and Demetriades and Luintel, 2001). These conflicting results confirm the need for more research in this area.

### **3.2.2 The variation of financial sector development and liberalisation in developing countries: Trends and pattern**

This section uses tables and figures to visually examine the effect of financial liberalisation policies on select financial development indicators during the last twenty years. The sample of countries are divided into two sub groups; emerging and frontier markets.<sup>27</sup> Following Beck et al. (2000), the study uses both banking and stock market development indicators.<sup>28</sup> For the banking sector, private credit (PC) and liquid liabilities (M3) have been used. PC measures the activity of the banking sector while M3 indicates the overall size of the banking sector. The indicators of stock market development included here are: stock market capitalisation (MCAP) and value of stocks traded (TVALUE). MCAP measures the size of the stock market while TVALUE measures the activity of the stock market.

Using a simple arithmetic average, Tables 3-1 and 3-2 presents the effect of financial liberalisation in emerging and frontier markets between 1980 and 2007. To capture the effect of financial liberalisation, the table includes different sub-periods. From the table, it is observed that in the 1980s, financial liberalisation had no significant impact on the

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<sup>27</sup> Emerging and frontier markets are used interchangeably with the BRIMCs and SSA countries respectively.

<sup>28</sup> This study focuses on both the banking sector and stock markets, hence other aspects of the financial sector have been excluded from the empirical analysis.



level of financial development in the full sample. It should be pointed out that emerging countries experienced rapid development in both the banking sector and the stock market. However, frontier markets witnessed growth in both the banking sector and stock market sector starting from the 1990s, which may be as a result of the effect of financial liberalisation. Furthermore, the liberalisation of the financial sector has also led to an increase in the level of capital accumulation, with the most significant increase witnessed during the 2000s, in particular, 2007.

**Table 3-1: Banks, Stock Markets and Capital accumulation pre- and post- financial reforms, 1980-2007**

Year	Bank		Stock Market		Capital Accumulation	
	Private Credit	Liquid Liabilities	Traded Value	Market Capitalisation	Investment	FDI
	<i>Full Sample</i>					
1980-89	1.26	1.31	0.72	0.73	15.89	1.10
1990-99	0.96	1.08	0.13	0.29	17.31	1.88
2000-04	0.88	1.07	0.13	0.27	16.71	2.32
2005	0.90	1.13	0.13	0.34	18.28	2.18
2006	0.91	1.15	0.21	0.45	19.21	3.06
2007	0.95	1.19	0.43	0.63	19.98	3.73
<i>Emerging Markets</i>						
1980-89	2.13	2.00	1.07	1.02	19.74	0.60
1990-99	1.36	1.41	0.24	0.42	22.62	1.75
2000-04	1.13	1.30	0.26	0.32	21.25	2.43
2005	1.15	1.35	0.25	0.43	22.10	2.05
2006	1.18	1.37	0.43	0.62	22.76	2.33
2007	1.22	1.40	0.90	0.93	24.04	3.12
<i>Frontier Markets</i>						
1980-89	0.62	0.77	0.00	0.06	13.32	1.43
1990-99	0.67	0.83	0.01	0.14	12.88	1.97
2000-04	0.68	0.88	0.02	0.23	12.93	2.23
2005	0.69	0.94	0.03	0.27	15.10	2.30
2006	0.69	0.97	0.02	0.32	16.25	3.68
2007	0.72	1.02	0.03	0.37	16.60	4.24

*Notes:* The data on private credit, liquid liabilities, trade value and markets capitalisation are obtained from the updated version of Beck et al., (2000). Investment as a share of GDP per capita was obtained from Penn World, Table 6.3, and FDI as a percent of GDP (inflow) was extracted from *World Development Indicators*, World Bank, ESDS, 2009.

Table 3-2 examined two different types of capital flows in the emerging and frontier markets. According to the table, foreign capital in the form of FDI and portfolio investment, increased substantially in Nigeria and South Africa and the other countries that embarked on financial sector reforms during the same period. The steady growth realised during the 1990s to 2006 appears to decline in 2007 in some of the economies,

for instance in the SSA country, Nigeria. In absolute terms, FDI increased in 10 out of the 12 countries. However, only 5 of these countries had a percentage change of over fifty percent between 2006 and 2007.

When I consider the BRIMC countries, I notice that India and China, the two major economies that drive the BRIMC, registered a contrasting percentage change in total capital flows. While India recorded an increase of 98.34 percent between 2006 and 2007, China recorded a decrease of approximately 11 percent. According to a study on private capital flows to SSA countries by Wakeman-Linn et al. (2008), the authors observe that the performance of the SSA regions in 2007 compares favourably to the Association of Southeast Asian Nations (ASEAN) countries in 1980s.<sup>29</sup> One of the reasons for this could be that by realising the potentials of a well-developed financial sector,<sup>30</sup> developing policies that would ensure such benefits, has become a major priority for the governments of these countries, so as to build on improving economic growth. While the reforms succeeded in improving financial development, the impact on growth and investment has been inconsistent, whilst financial systems remain shallow and relatively underdeveloped in most African countries (Batuo and Kupukile, 2009).

Portfolio investment did not seem to have improved after financial liberalisation; in fact, it is observed that portfolio investment declined drastically in the 2000s in most of the frontier markets while it increased considerably in Brazil, Russia and India. A closer look at the table suggests that the inflow of capital to the countries under observation considerably increased after financial sector liberalisation.

Figure 3-1 present a comparison of the various indicators of financial development in the emerging and frontier markets and in various income groups during the period 1980-2007. According to the figure, the level of market capitalisation (MCAP) has been on the increase in the BRIMC and SSA countries since 1990; however both region encountered a drop in 1992 and 1997 respectively. This decrease may be due to the various financial and banking crisis experienced in many of these countries during the 1990s almost after many developing countries began to pursue capital control deregulation policies.

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<sup>29</sup> Emerging and Frontier markets are used interchangeably with the BRIMCs and SSA countries respectively.

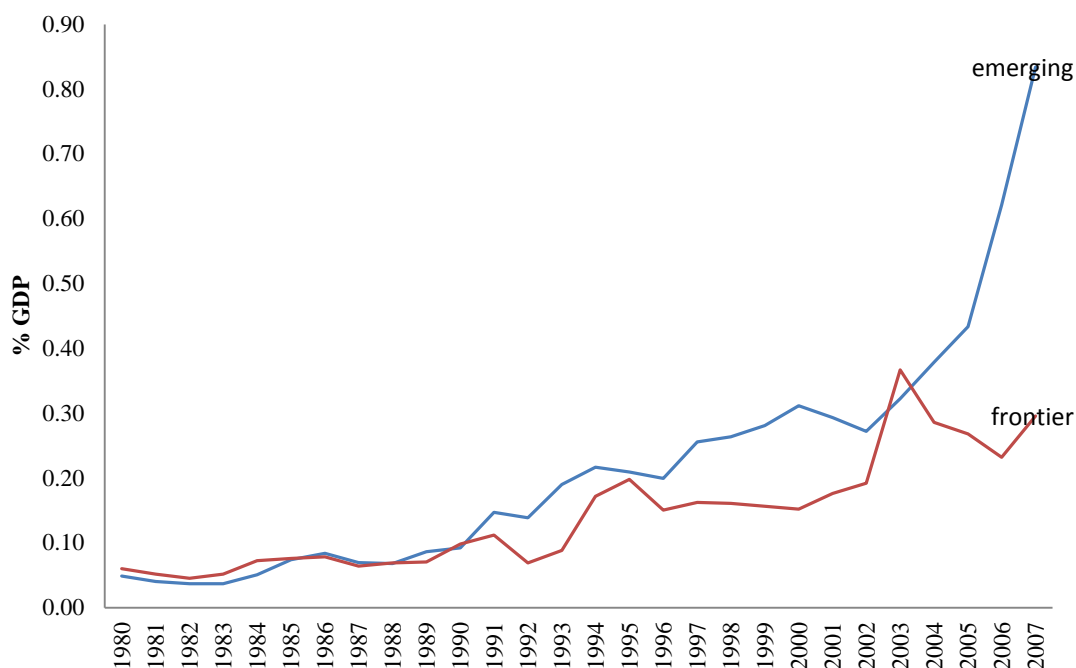
<sup>30</sup> This study focuses on both the banking sector and stock markets, hence other aspects of the financial sector have been excluded from the empirical analysis.

**Table 3-2: Capital inflows to selected Sub-Saharan Africa and BRIMC countries**

Year	Capital inflows	1980-89	1990-99	2000-04	2005	2006	2007	% Change 2006-07
Botswana	FDI	62.67	15.89	260.76	281.32	488.8	494.9	1.25
	PI	0	2.34	3.6	61.6	35.9	9.4	-73.82
	TCI	62.67	18.23	264.36	342.92	524.7	504.3	-3.89
Ghana	FDI	8.72	113.47	111.75	144.97	636	855.4	34.5
	PI	0	0	0	0	0	0	N/A
	TCI	8.72	113.47	111.75	144.97	636	855.4	34.5
Kenya	FDI	30.42	20.96	54.33	21.28	50.73	728.01	1335.17
	PI	0.03	3.37	0.64	3.1	1.8	0.5	-72.22
	TCI	30.45	24.33	54.97	24.38	52.53	728.51	1286.94
Nigeria	FDI	434	1494.06	1785.15	4978.26	13956.49	12453.74	-10.77
	PI	0	0	0	0	0	4648	N/A
	TCI	434	1494.06	1785.15	4978.26	13956.49	17101.74	22.54
South Africa	FDI	14.16	850.32	2156.46	6643.77	-527.1	5692.06	-1179.87
	PI	-120.47	2807.63	2032.96	7230	14959	8669.9	-42.04
	TCI	-106.31	3657.95	4189.42	13873.77	14431.9	14361.96	-0.48
Zambia	FDI	51.65	139.16	241.56	356.9	615.8	983.9	59.78
	PI	0	1.47	3	5.3	2	3.8	90
	TCI	51.65	140.63	244.56	362.2	617.8	987.7	59.87
Zimbabwe	FDI	8.02	95	13.08	102.8	40	68.9	72.25
	PI	0	5.69	0	0	0	0	N/A
	TCI	8.02	100.69	13.08	102.8	40	68.9	72.25
BRIMC								
Brazil	FDI	1721.42	9921.66	20023.24	15066.29	18822.21	34584.9	83.75
	PI	20.4	3069.8	2518.26	6451.3	7715.8	26217.3	239.79
	TCI	1741.82	12991.46	22541.5	21517.59	26538.01	60802.2	129.11
Russia	FDI	0	1864.2	6465.23	12885.81	32387.03	52475.41	62.03
	PI	0	393.62	1061.14	-99.8	6479.7	18844.4	190.82
	TCI	0	2257.82	7526.37	12786.01	38866.73	71319.81	83.5
India	FDI	104.75	1516.57	4955.6	7606	19662	22950	16.72
	PI	0	1696.88	4694.74	12144.1	9548.8	34986	266.39
	TCI	104.75	3213.45	9650.34	19750.1	29210.8	57936	98.34
Mexico	FDI	2388.25	8507.47	21997.21	20945.43	19290.64	24686.44	27.97
	PI	49.4	3754.74	-430.28	3352.9	2805.2	-482.1	-117.19
	TCI	2437.65	12262.21	21566.93	24298.33	22095.84	24204.34	9.54
China	FDI	1618.65	29042.7	50893.99	72406	72715	83521	14.86
	PI	0	703.4	5732.44	20346	42861.2	18509.6	-56.82
	TCI	1618.65	29746.1	56626.43	92752	115576.2	102030.6	-11.72

Notes: FDI = Foreign Direct Investment, PI = Portfolio Investment and TCI = Total Capital Inflows. Total capital inflow is the sum of portfolio investment and foreign direct investment in millions of US \$. N/A – not available.

**Figure 3.1: Stock market development by market capitalisation**

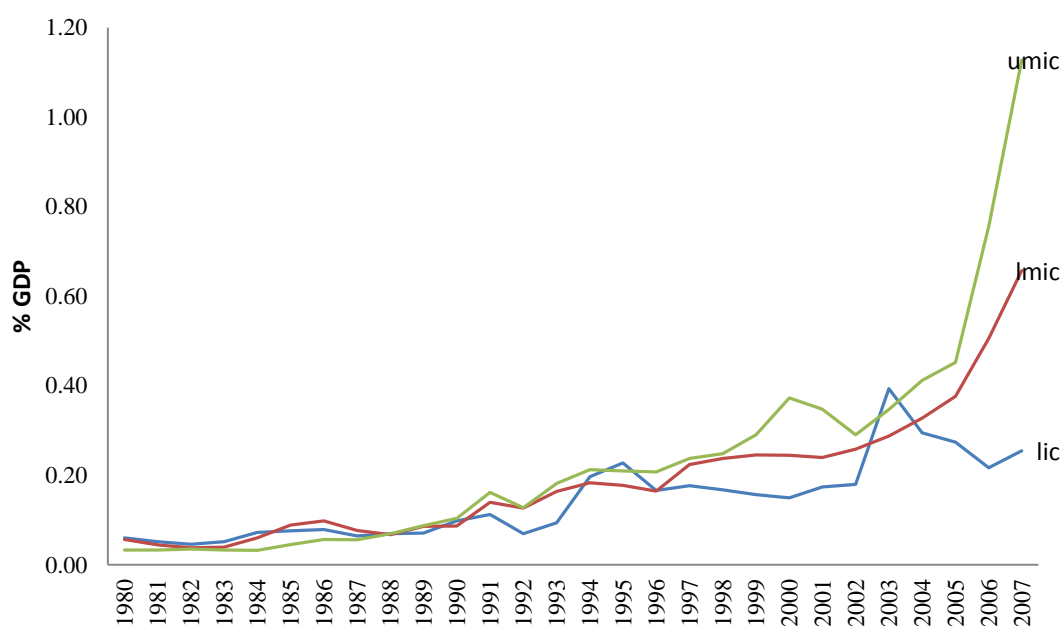


Notes: Averaged stock market capitalisation as a % of GDP by market classification. The data was extracted from the updated version of Beck et al. (2009) financial structure database.

Figure 3-2 shows the evolution of market capitalisation in the different income groups. According to the figure, the three income groups started from the same level of stock market development, however, by 2005, there had been an increase in the level of market capitalisation in the upper middle income countries.<sup>31</sup> Lower income countries also show a rise in market capitalisation from 1993, whereas in low income countries, market capitalisation only began to increase in 2002, but declined again in 2006.

<sup>31</sup> Botswana and Mexico belong to this group.

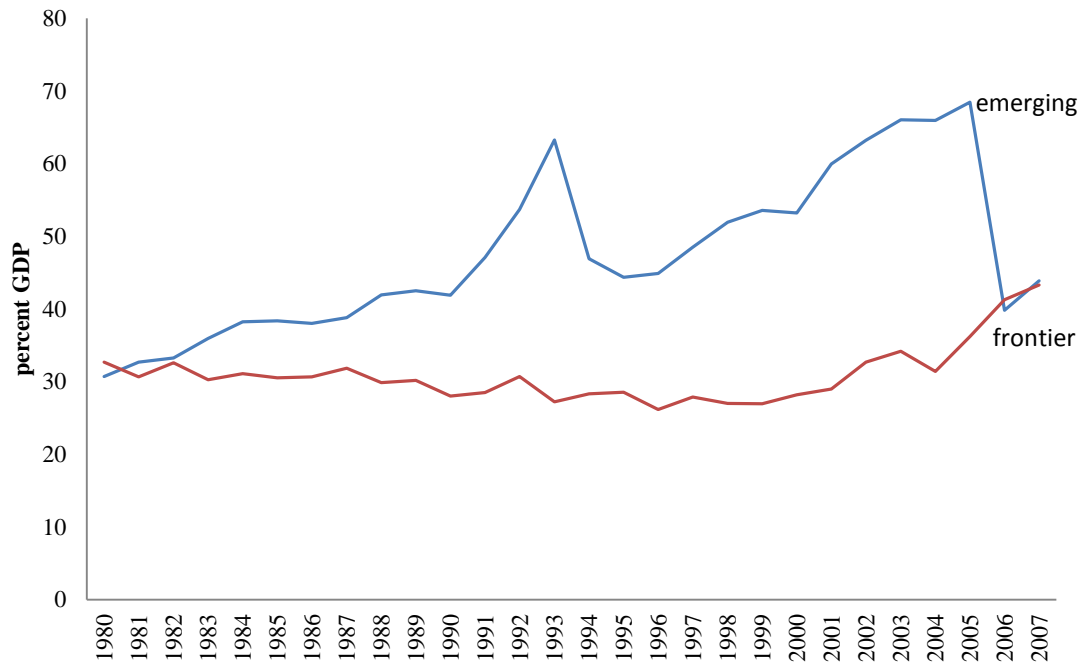
Figure 3.2: Stock market development by income group



Notes: Averaged stock market capitalisation as a % of GDP by income group classification. The data was extracted from the updated version of Beck et al. (2009) financial structure database.

In Figure 3-3 (below), using liquid liabilities as a ratio of GDP to capture the size of the banking sector, I notice that the development of frontier markets' banking sector has not really improved since the 1980s. An exception, however, can be made during the period 1992-1993, where there was a slight increase. The implication of this is that the financial intermediaries did not transfer funds within this period. On the other hand, the BRIMC countries exhibited an increase in liquidity ratio since 1995 up until 2007. This increase can be associated with their link with developed countries, and as a result of their financial openness.

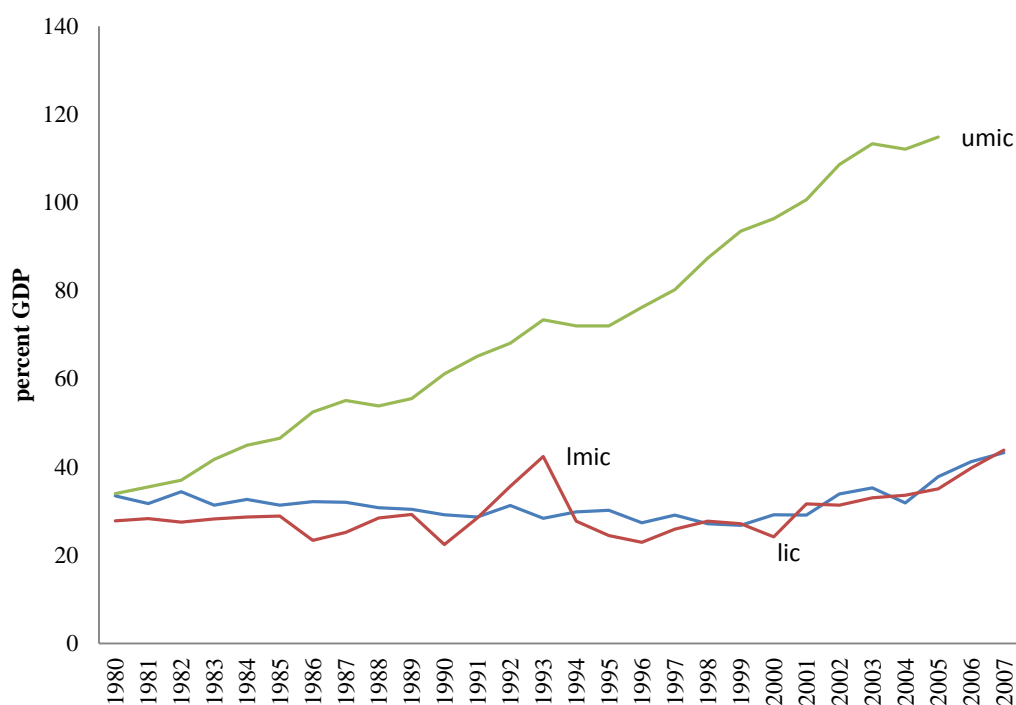
**Figure 3.3: Banking sector development by market classification**



Notes: Averaged liquid liabilities as a percent of GDP by market classification. The data was extracted from World Banks' *World Development Indicators*, (2010).

Figure 3-4 shows the differences in financial deepening (proxied using liquid liabilities) across income groups. While upper middle income countries exhibit a better developed banking sector, the pattern of development in the low and lower middle income countries seem to be similar.

**Figure 3.4: Banking sector development by income group classification**

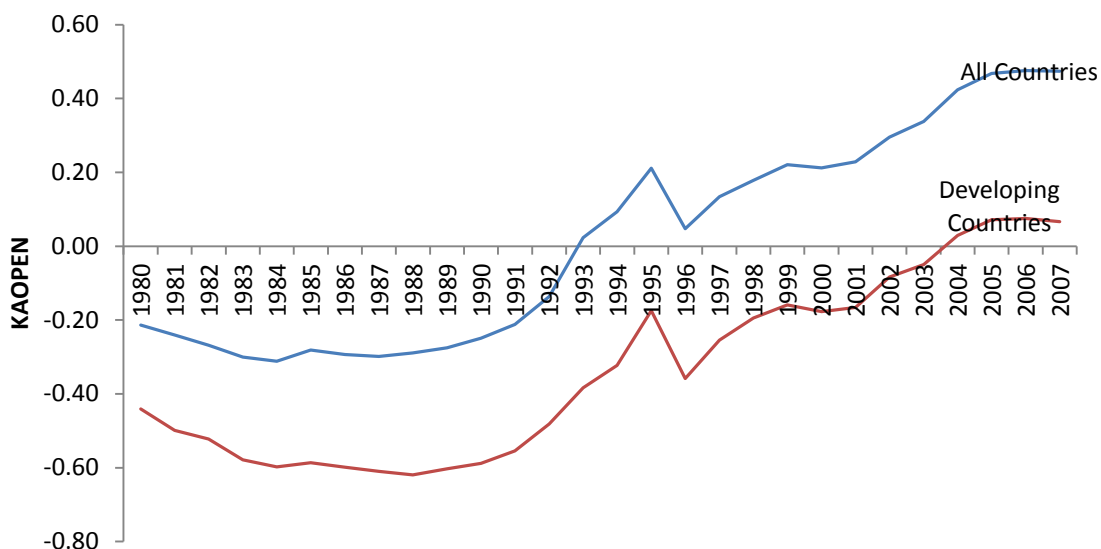


Notes: Averaged liquid liabilities as a percent of GDP by income group classification. The data was extracted from World Banks' *World Development Indicators*, (2010).

The global trend towards capital account openness has been steady in the last three decades. According to Chinn and Ito (2008), between 1980 and 2007, the degree of financial openness increased about 40 percent worldwide, while for the developing countries, the index more than doubled (see Figure 3-5 below). As indicated in the figure, the mean of the Chinn-Ito index (0) was passed in 1993, as a result, from that point, countries around the world became more open. However, openness to cross border transaction became more pronounced in the early 2000s in developing countries.

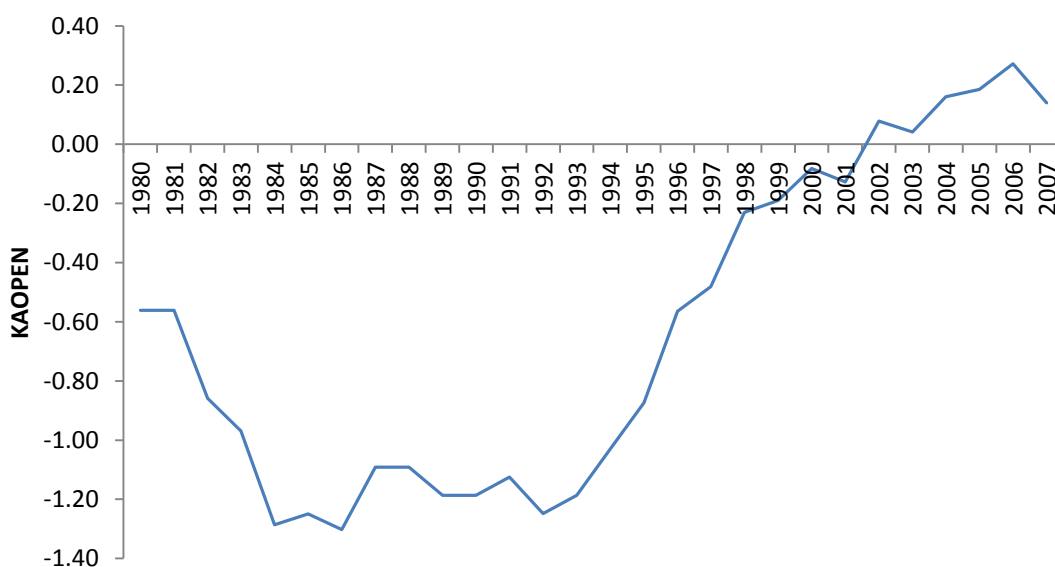
Using a sample of 11 countries, Figure (3-6) shows that the move towards financial openness started in the late 1990s. By mid 2000s, most of the countries in the sample had moved from having a closed financial system to a more open one.

**Figure 3.5: Development of Capital account openness, 1980-2007**



*Note:* KAOPEN is an index of capital account openness. The data was extracted from the updated version of the Chinn and Ito (2008) dataset. Sample includes 182 countries, 139 of which are developing.

**Figure 3.6: Capital account openness in developing countries, full sample**

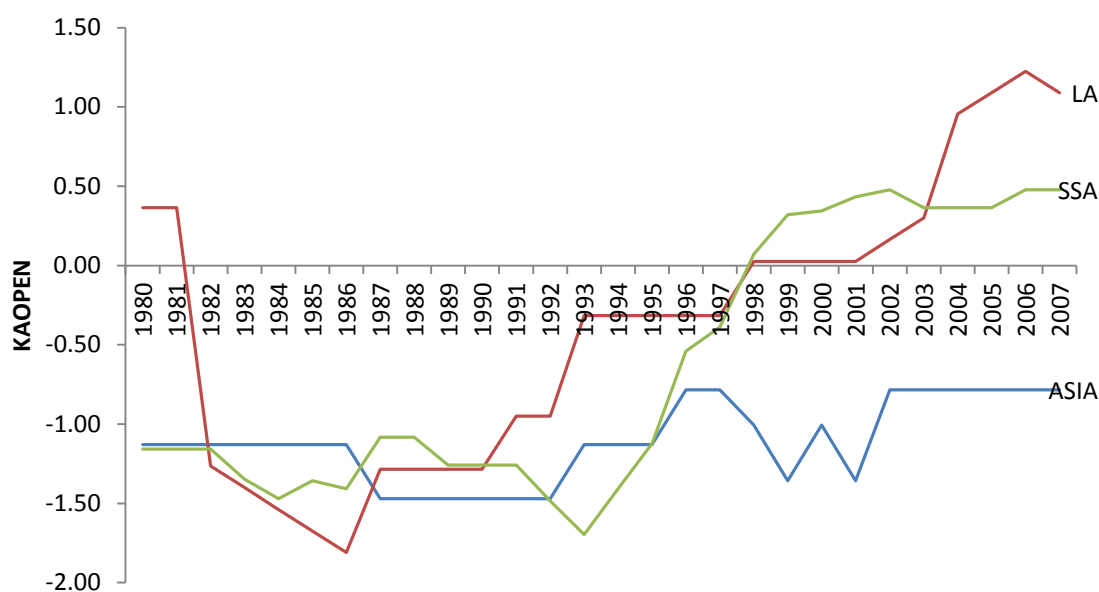


*Note:* KAOPEN is an index of capital account openness. The data was extracted from the updated version of the Chinn and Ito (2008) dataset.

Despite the striking growth of capital account freedom in the developing world, notable differences persist in terms of the level of openness and the pace and pattern of opening between developing countries (see Figure 3-7 below).



Figure 3.7: Capital account openness by regional classification



Note: KAOPEN is an index of capital account openness. The data was extracted from the updated version of the Chinn and Ito (2008) dataset. I have included Russia to the Asian group of countries.

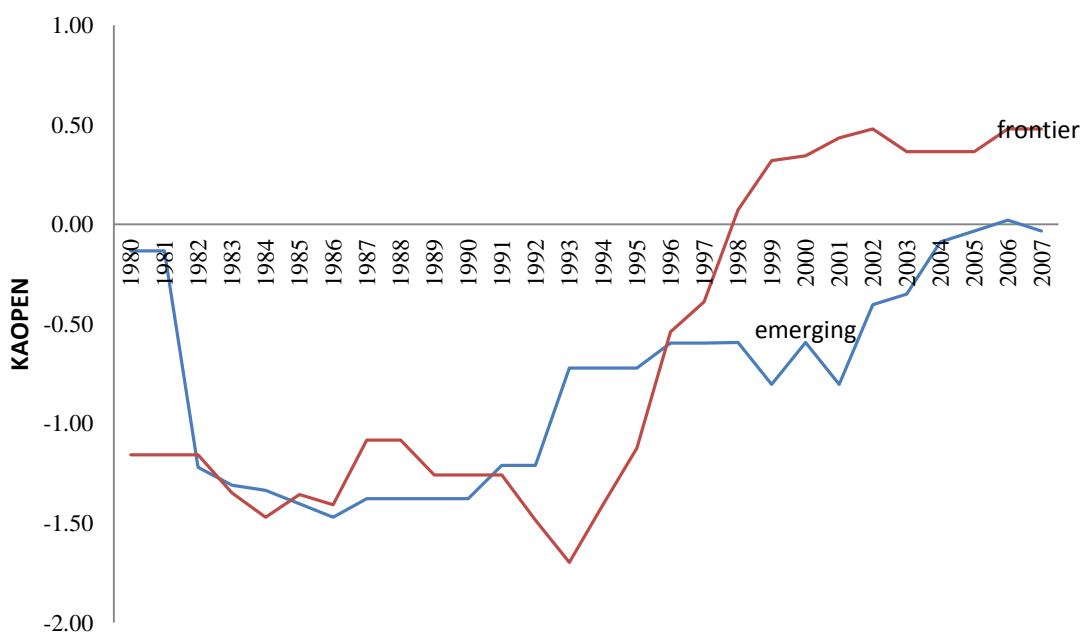
The capital account indicator as reflected by KAOPEN index shows that the Asian countries (China, India and Russia) were mostly closed to capital account transactions during the period under study. Although many Asian countries liberalised their capital account rapidly in the 1980s, but due to the Asian financial crisis, most countries restricted their capital account including those in our sample. According to the figure, Latin American countries and SSA countries seem to have relaxed the restrictions placed on capital account transactions towards the late 1990s; however, investment did not flow as freely to the developing countries as it did in the 1970s. In Latin American countries for example, the new democratic governments were reluctant to relive the crises and volatility of the period decade. Yet still, to gain access to international credit, developing country governments had to prove their credibility by committing to stable and sound economic policies. The liberalisation of the capital account provided credibility to the international market, that the governments of these countries can subject their economies to the discipline of international market forces and thus attract much needed financing for development (Brooks, 2004).

I further compare how capital account freedom has fared in the different types of financial market (see figure 3-8 below) and noticed that liberalisation in the form of

degree of financial openness captured by KAOPEN index of Chinn and Ito (2006, 2008) has not really made much impact in both the emerging and frontier markets as demonstrated by figure 3-8. Here, the figure shows that emerging countries had a restrictive control on capital accounts during the period 1980-2007. The controls on capital account transactions were an attempt by these countries to shield themselves from the risks associated with fluctuations in international capital flows. Unfortunately, capital account liberalisation posed significant risks in the financial system due to structural weaknesses in the banking sector, corporate sector, supervisory and regulatory framework leaving all the countries in the emerging group affected by financial crisis during the 1990s.

Similarly, for most part of the 1980s and early to mid 1990s, the intensity of the capital control placed in the frontier markets was rather high as indicated by the lower value of the KAOPEN index. Notice that towards the end of the 1990s, the frontier market as a group moved from a period of full capital control to a more relaxed restrictions on the capital account transactions.

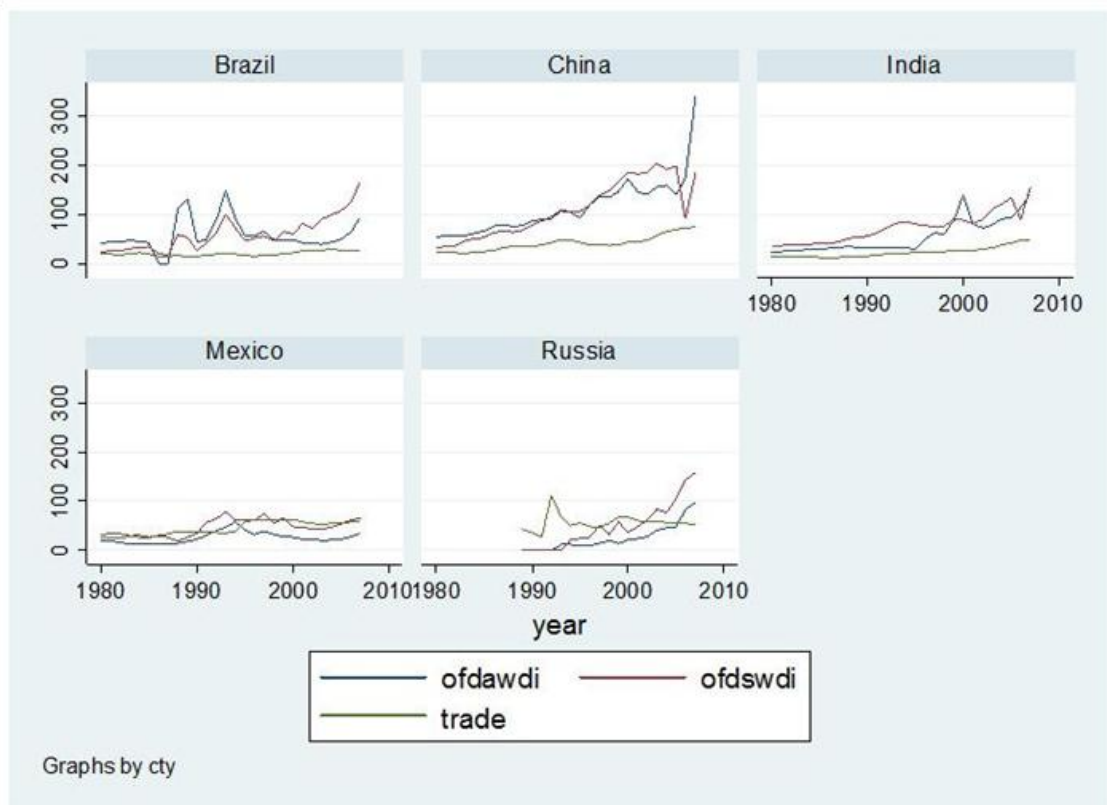
**Figure 3.8: Capital account openness by market classification**



*Note:* KAOPEN is an index of capital account openness. The data was extracted from the updated version of the Chinn and Ito (2008) dataset. I have included Russia to the Asian group of countries.

In Figures 3-9 and 3-10, I compare overall financial development<sup>32</sup> (activity and size) and trade in emerging and frontier countries. Figure 3-9 indicates that among the emerging markets, China's financial sector has improved considerably since 2000. According to the figure, I observe that China's financial sector has remained stable since the early 2000s. The data indicates that overall development in the activity of both the banking sector and stock market increased by 95.6 percent between 2006 and 2007. The stability and performance of the financial sector has been linked to success of the financial reforms and opening up of the economy to external finance. Furthermore, according to a report on China's financial stability by the People's Bank of China (PBC, 2007), the overall strength and stability of China's financial sector and its robustness to external shocks has been enhanced by favourable macroeconomic environment.

**Figure 3.9: Overall financial development and trade for emerging countries**



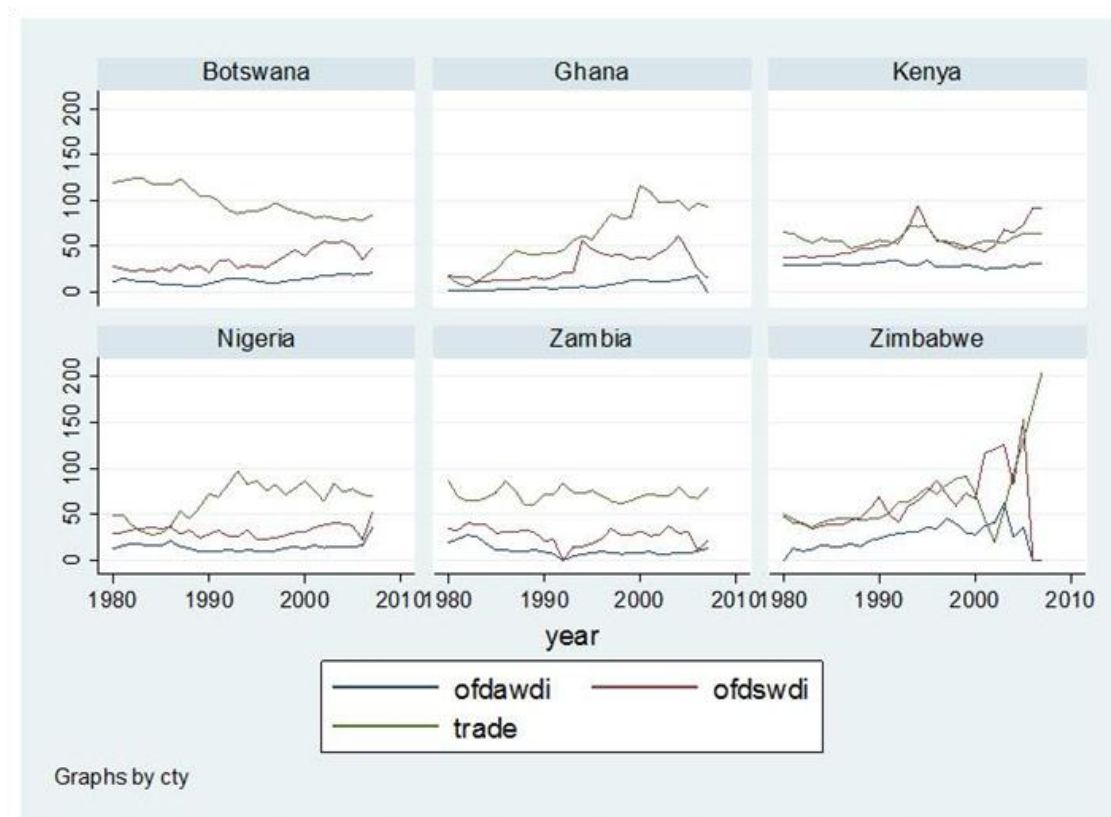
In terms of overall development, I noticed that the banking sector performed better than the stock market. This performance according to PBC (2007) is as a result of better corporate governance, improved risk-resistance capabilities and strengthened capital requirement. Major financial changes did not occur in Russia's banking sector and stock market in the 1980s. However, our figure shows that both the banking sector and stock market development have taken place since then. In fact, a closer look shows that the

<sup>32</sup> This refers to the aggregate of the measures of the size and activity of the Banking sector and the Stock market.

majority of this development started after the ruble crisis of 1998. Nevertheless, the banking sector and stock market picked up after the successful improvements in transparency and corporate governance standards, which allowed Russian banks to have access to external finance.

Turning to the frontier markets, I notice that total trade seems to perform better than both the development of the banking sector and the stock market. Figure 3-10 shows us that total trade increased in Ghana, Nigeria, Zambia and Zimbabwe in the 1990s. In Zimbabwe, total trade increased by 36.56 percent between 2004 and 2005 with a further increase in 2007. The overall development of both banking sector and stock market is generally poor in frontier markets.

**Figure 3.10: Overall financial development and trade for frontier countries**



### 3.3 Empirical framework and data

The empirical framework draws from the theoretical hypothesis and the recent literature on financial development and financial liberalisation including Ito, (2005); Ang and McKibbin, (2007) and Baltagi et al. (2008), where FD is regressed on real GDP per capita and other control variables and it takes the form:

$$FD = f(\text{FINLIB}, Y) \quad (3.1)$$

where FD refers to the financial development indicator, FINLIB is a measure of financial liberalisation, Y measures the level of economic development.<sup>33</sup>

Recent studies have identified trade openness, institutional quality, financial openness and geographical endowment as significant in determining FD. In addition, macroeconomic factors such as inflation and savings rates are important in determining the cross-country variation in financial development. The argument is that maintaining a low rate of inflation is conducive for financial development. However, a high rate of inflation may distort the decision rate and discourage financial intermediation. Thus, following other literature such as Rajan and Zingales (2003), Huang. W. (2005), Baltagi et al., (2008) and Law and Habibullah, (2009), I include economic and policy related variables. In particular, the control variables are trade openness, capital flows,<sup>34</sup> inflation and institutional quality. Based on these, I can re-write equation (3.1) as follows:

$$FD = f(\text{FINLIB}, Y, \text{TLIB}, \text{ECF}, \text{INF}, \text{INS}) \quad (3.2)$$

where TLIB is a measure of trade openness or globalisation; ECF is external capital flows, INF is inflation and INS is institutional quality. Apart from measuring macroeconomic stability, inflation is included because of its relationship to savings, which financial development is based upon. I expect a negative impact on financial development. Equation (3.2) provides the basis for the empirical model that is estimated in this chapter.

In examining the cross-sectional variation and time series variations of the relationship between financial liberalisation and financial development, I employ panel data estimation techniques which capture both the cross-section and time series dimension of our data. Thus, following recent research, such as Ito, (2005); Fowowe, (2008); Hermes and Lensik (2005) and Baltagi et al., (2008) our estimation takes the form:

$$FD_{it} = \alpha_0 + \alpha_1 \text{FINLIB}_{it} + \alpha_3 Y_{it} + \alpha_4 X_{it} + \mu_{it} \quad (3.3)$$

where FD is a measure of financial development, and FINLIB is financial liberalisation covering three measures, which will be included separately in the financial development

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<sup>33</sup> Y is measured by GDP per capita. To check the robustness of our data to changes in variables, we use the annual growth of GDP per capita as a proxy of the level of economic development.

<sup>34</sup> In the form of FDI net inflows, as a percent of GDP.

equations, to measure the impact of financial liberalisation on financial depth. These are a dummy representing financial liberalisation dates (LIBDATE) and two financial liberalisation indices (referred to as FINDEX and KAOPEN). From the financial liberalisation theory, it is expected that these variables will exert a positive impact on financial development.  $Y_{it}$  measures the level of economic development and it is proxied by real GDP per capita.

$X_{it}$  is the control variable and it includes; TO, our measure of trade liberalisation and it is either of OPENK, TRADE or TINDEX.<sup>35</sup> Our model extends the Baltagi et al. (2008) model to include external finance and inflation. Thus, I will estimate a set of equations to investigate the relationship between financial liberalisation and financial development. The econometric specification I use in this thesis can be described as:

$$FD_{it} = \alpha_1 + \alpha_2 BHL_{it} + \alpha_3 Y_{it} + \alpha_4 TO_{it} + \alpha_5 ECF_{it} + \alpha_6 INF_{it} + \alpha_7 INS_{it} + \mu_{it} \quad (3.4)$$

$$FD_{it} = \beta_1 + \beta_2 FINDEX_{it} + \beta_3 Y_{it} + \beta_4 TO_{it} + \beta_5 ECF_{it} + \beta_6 INF_{it} + \beta_7 INS_{it} + \mu_{it} \quad (3.5)$$

$$FD_{it} = \gamma_1 + \gamma_2 KAOPEN_{it} + \gamma_3 Y_{it} + \gamma_4 TO_{it} + \gamma_5 ECF_{it} + \gamma_6 INF_{it} + \gamma_7 INS_{it} + \mu_{it} \quad (3.6)$$

where FD is a measure of financial development, BHL is a dummy variable which captures the starting date of financial liberalisation in the countries and takes the value of 0 before liberalisation and 1 after liberalisation,  $Y$  is a measure of the level of economic growth, INF is inflation, which measures macroeconomic uncertainty, TO is a measure of trade liberalisation, (OPEN, TRADE, TINDEX),  $ECF$ <sup>36</sup> is external capital flows and INS is institutional quality.  $i$  refers to the group or unit (or in our case, country) and  $t$  refers to the individual observation (year) within the group.

### 3.3.1 Data sources and issues

The objective of this chapter is to examine whether there is a change in the financial development indicators in developing countries, following financial liberalisation. Hence, this research uses an unbalanced panel of eleven countries for the period 1980-2007. The dataset consists of eleven emerging markets, five of which are from around the two main regions; Asia and Latin America and the Caribbean and six from SSA regions to represent the three continents of the world, which are of economic

<sup>35</sup> TINDEX is an index constructed by the Heritage Foundation Index of Economic Freedom and it is used to measure how open or repressed a country is to the rest of the world.

<sup>36</sup> ECF and FDI are used interchangeably in this chapter.

significance in globalisation. All of the selected countries completed the liberalisation of their financial sector in the last two decades. Given the diverse nature of the sample countries, I note that the level of financial development may differ across the countries with varying levels of economic development, therefore, the sample countries are further divided into two groups, namely emerging and frontier economies. I compile up-to-date and consistent data using various sources of information such as (Beck et al., 2000 (revised 2009); *World Development Indicators*, World Bank, 2009; Heritage Foundation, 2009 and *International Financial Statistics*, IMF, 2009).

It has been argued that market-based financial systems are better than bank-based financial systems because market-based systems respond faster to shocks, and are more effective at identifying and isolating truly distressed firms, in order to mitigate their negative impacts on the economy, than bank-based systems (Rajan and Zingales, 2001). In the context of Africa where stock markets are underdeveloped, illiquid and inefficient banks hold the vast majority of the financial systems assets, making them strongly bank-based (an exception is South Africa, see Appendix III-I). Furthermore, Gerschenkron (1962) notes that banks effectively promote finance development more than capital markets in developing countries. In addition, Andrianova et al. (2008) observed that state owned banks can effectively overcome market failures by allocating savings in those countries in an early stage of economic development and those with weak institutions, such as the majority of the countries in our frontier market group. For this reason, both banking and stock market development indicators are used.

The sample countries are classified into two categories of financial structure (bank-based and market-based economies)<sup>37</sup> based on a similar methodology to Demirguc-Kunt and Levine (1999) and Ndikumana (2003). A country is classified as bank-based if its stock market size (measured by market capitalisation as a percentage of GDP) and its market efficiency/liquidity (total value of stocks traded as a percent of GDP) are below the sample averages and vice-versa. While this chapter concentrates on emerging and frontier markets, the impact of financial liberalisation on financial structures are noteworthy because the structure of the financial system change and financial systems become more market-based as countries develop.<sup>38</sup> The study finally examines the RZ hypothesis in order to investigate whether trade openness is a precondition for financial openness in the sample countries.

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<sup>37</sup> See Demirguc-Kunt and Levine (1999) for the full details on how financial structure classification is obtained.

<sup>38</sup> Based on our analysis, we observe that those countries classified as emerging markets are also market-based and vice-versa. As such we only report results for emerging and frontier markets.

### 3.3.2 Economic Assumptions Underlying the Model and Testable hypothesis

To achieve the objectives set out in section (3.1) and in order to draw valid conclusions from the model, some assumptions need to be made. I initially examine the hypothesis regarding the expected behaviour of the model's independent variables. With regard to financial liberalisation, it is widely acknowledged that financial freedom would encourage the development of the financial sector. The aim of various deregulation and liberalisation measures in the financial system is to enhance those competitive mechanisms that would eventually make the economy more efficient; however, results from developing countries have so far been less than encouraging. Many argue that the major problem is with the structure of the financial system and the presence of sound and stable macroeconomic policies and quality institutions (see for example Gelbard and Leite,1999). It means that a country with sound macroeconomic policies and a sound institutional capacity can benefit from opening their financial system to the rest of the world. So, as in other studies, the correlation is expected to be positive. It is reasonable to postulate the following hypothesis:

H1: Countries with stable macroeconomic policies and better institutional qualities tend to have better financial system after financial liberalisation compared to others.

There is a strong empirical evidence of the positive relation between financial development and the level of economic development, which is measured here by GDP per capita. It is believed that a highly developed country tend to have a significantly developed financial system. The level of trade openness must also be positively related to financial development, since openness to trade is in itself a matter of policy choice and its association with increasingly intense financial transactions also reflects other policy choices. This implies that easier trade opportunities would have different implication for different countries in terms of shaping financial development.

In terms of the RZ hypothesis, studies show that opening both the trade and financial sector would lead to a more developed financial sector. This implies that a country that opens the trade sector but restricts it financial sector is unlikely to be financially developed. So, it is reasonable to postulate the following hypothesis:

H2: Countries that open both the trade and financial sector are more financially developed compared to others.



### 3.3.3 Measures of financial sector development

The financial development report (2011:3) defines financial development as ‘*the policies, factors, and the institutions that lead to effective financial intermediation and effective financial markets, as well as deep and broad access to capital and financial services.*’ Calderon and Liu (2003: 326) also define financial development as “the improvement in quantity, quality and efficiency of financial intermediary service”. The literature identified a number of factors which can be used to measure financial development and they include; the depth, size, access, and soundness of financial system. These factors are used to examine the performance and activities of the financial markets, banks, bond markets and other financial institutions.

To assess the effect of the financial liberalisation process, it is important to address the issue of how to measure financial development. In choosing an appropriate indicator of financial development, Lawrence and Longjam (2003) note that, it is important to choose measures that can be used for effective policy formulation, implementation and evaluation. Consequently, many studies have chosen a number of proxies since financial development is not easily measureable and subsequently have come up with different results. Following Levine and Zervous (1998); Beck et al., (2001) and Beck and Demirguc-Kunt (2009) this chapter will employ four proxies for financial development. The first proxy is the ratios of liquid liabilities to GDP, private credit, stock market capitalisation and the value of stocks traded. These indicators measure the size, activity and efficiency of direct, as well as, indirect finance. To capture overall FD, I follow Kemal et al. (2007) and combine the size and activity measures of FD indicators. These measures are defined below:

- *Liquid liabilities*: This measure represents the overall size of the financial intermediary and is referred to as the financial deepening measure in the literature. It is calculated as currency plus demand and interest bearing liabilities of banks and other financial intermediaries, divided by GDP. According to Beck et al. (2009), liquid liabilities are a traditional indicator of the depth of the financial sector and it is the broadest available indicator of financial intermediaries. LLY represents the overall size of the financial sector without distinguishing between central bank, deposit money banks, and other financial institutions. I denote it by M3.

- *Private credit*: This measures the activity of the financial intermediaries and it equals the value of domestic credit to private sector divided by GDP, it is denoted by PC. This measure includes domestic credit provided by the banking sector and other financial intermediaries and is a broader measure of financial intermediation. It also measures the relative degree to which the financial system allocates credit for productive activities. It isolates credit issued to the private sector as opposed to credit issued to government, government agencies and public enterprises (Ahmad and Malik, 2009). Pill and Pradhan (1995) note that in countries where financial liberalisation has created a well behaved commercial banking sector, private credit is the preferred measure of financial development. In addition, Rajan and Zingales (2003) found private credit provides an ease for entrepreneurs or companies to obtain finance to fund productive projects, as such I cannot ignore its significance because it provides a measure of the opportunities available for new firms to obtain finance.
- *Stock market capitalisation*: This measures the size of the stock market and is defined as the value of listed shares divided by GDP. This is denoted by MCAP.
- *Total value of stock traded*: This measures the activity of the stock market and is defined as the total value of the shares traded to GDP ratio. Baltagi et al. (2007) notes that since the value of stocks traded varies with stock prices and the number of shares traded, this may capture the willingness of an investor to participate in the stock market. It is denoted by TVALUE.
- *Overall financial development*: Following Kemal et al. (2007), the overall size of the financial sector is measured by combining the size and activity of the financial intermediaries.<sup>39</sup> Combining the two size measures gives the overall size of the financial sector, and is denoted by OFDS. Combining the two activity measures gives the overall activity of the financial sector, and is denoted by OFDA.

The sources are the ESDS, *World Development Indicators* (2010) and Beck et al. (2000) financial structure database, updated in April 2010.

### **3.3.4 Measuring financial liberalisation**

Broadly speaking, financial liberalisation involves the deregulation of domestic financial markets and capital account liberalisation. By referring to this argument, I focus on both the *de jure* measure and *de facto* measure of financial liberalisation. The

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<sup>39</sup> This is done by summing the measures of the size and activity of the financial sector.

*de jure* measure of financial liberalisation is based on regulation restrictions and control over capital account ownership while the *de facto* measure of financial liberalisation is based on the measurement of the intensity of capital flows and correlation. Thus, to assess whether financial liberalisation promotes financial development or whether financial liberalisation makes a country more financially open, I consider the use of three *de jure* and *de facto* measures of financial liberalisation indicators.

First I use BHL; this is the official liberalisation date as indicated by Bekaert et al. (2005). I include the dates of financial liberalisation as a measure of financial liberalisation because it indicates the start of the liberalisation process. Several studies, such as Bandiera et al. (2000) and Hermes and Lensik (2005), have criticised the use of liberalisation dates arguing that financial liberalisation is a process rather than an event. However, because financial liberalisation involves the change from a repressed financial economy to a free one, this suggests that financial liberalisation is a modification factor in the financial sector. In addition, I am concerned with the period of opening and subsequent openness, thus, the use of liberalisation dates can be justified because it captures this change.

I use official liberalisation dates from Bekaert et al. (2005).<sup>40</sup> These dates generally coincide with regulatory reform dates and liberalisation dates provided by the international financial corporation (IFC). The data is available for 62 countries, with 52 of these countries liberalising their stock markets between 1980 and 1999. The authors provide a detailed chronology of important financial, economic and political events in emerging markets in the 1980s and early 2000s.<sup>41</sup> Based on the chronologies presented in Bekaert and Harvey (2000), Table 3-5 appendix III.I provides the official liberalisation dates for the countries in the sample. According to the table, the countries used in this study liberalised their financial sector between 1985 and 1995. Thus, to capture the effect of liberalisation, I assigned a value of 1 for each year beginning from the year in which financial liberalisation is said to have occurred and 0 in the years prior to the liberalisation dates. I augment the BHL dates for Russia using available information from Buiters and Taci (2003).

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<sup>40</sup> This coincides with the equity liberalisation date. Since it is difficult to establish the liberalisation dates in the banking sector due to the fact that countries might choose to lift different regulations at different times, the official liberalisation date provided by BHL therefore includes the dates of removal of credit controls, liberalisation of interest rate, exchange rate, first American Depository Receipt (ADR) dates and liberalisation of FDI.

<sup>41</sup> For more information, see <<http://www.duke.edu/~charvey/chronology.htm>>.

The second indicator is the KAOPEN index<sup>42</sup> is a de facto measure of financial liberalisation and it measures a country's degree of capital account openness. This is constructed by Chinn and Ito (2006) and was updated in 2009. The KAOPEN index is a binary dummy variable and takes into account four different restrictions on cross border financial transactions, reported in the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER)* for a set of 182 countries during the period 1970-2007. The variables considered include:

- Variable indicating the presence of multiple exchange rates (*k1*),
- Variable indicating restrictions on current account transactions (*k2*),
- Variable indicating restrictions on capital account transactions (*k3*), and
- Variable indicating the requirement of the surrender of export proceeds (*k4*).

The KAOPEN index has a mean of zero and ranges in value from -2.66 (full capital controls) to 2.66 (complete liberalisation). The index has a wide coverage, as it is available for more than 100 countries and for a long time period (1970 through 2005). An advantage of using this index according to Ito (2005) is that 'it attempts to measure the intensity of capital controls, insofar as the intensity is correlated with the existence of other restrictions on international transaction.'

Kaminsky and Scmukler (2003) define financial liberalisation to consist of "the deregulation of the foreign sector capital account and the domestic financial sector with the stock market sector viewed separately from the domestic financial sector". However, because the present chapter seeks to examine the role of financial liberalisation on the development of the financial system, the third indicator is the financial freedom index which is obtained from the Heritage Foundation Index of Economic Freedom Database (2010).<sup>43</sup> The index captures the direct effect of financial liberalisation (i.e. openness of the banking and financial system) and the independence

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<sup>42</sup> More information on the index and how it is constructed can be found in Chinn and Ito, (2008), "A new measure of financial openness", *Journal of comparative policy analysis*, 10(3), p.309-322 or a later version in Chinn and Ito (2009), "Notes on the Chinn and Ito Financial Openness Index updated 2009,," <[http://web.pdx.edu/~ito/Readme\\_kaopen2009.pdf](http://web.pdx.edu/~ito/Readme_kaopen2009.pdf)>

<sup>43</sup> According to the Heritage Foundation, the financial freedom index measures the relative openness of each country's banking and financial system by determining: the extent of government regulation of financial services, the extent of state intervention in banks and other financial services, the difficulty of opening and operating financial services firms (for both domestic and foreign individuals), and government influence on the allocation of credit. The country's financial climate is measured as an overall score between 0 and 100, where 100 represent the maximum degree of financial freedom. For more information, see <<http://www.heritage.org/index/Financial-Freedom.aspx>>.

of the financial sector from government control. According to the Heritage Foundation Index of Economic Freedom, a country is classified as free or repressed using a scale of 0 to 100. For the purpose of this study and to ease interpretation, I rescaled the index range from 1 to 5, with 5 representing the freest country and 1 reflecting financial repression.

The indicators of financial liberalisation used in this study addresses issues relating to the domestic financial market, stock market and capital account liberalisation. In theory, I expect the financial liberalisation variable to positively impact financial development.

### **3.3.5 Other reforms, policies and control variables**

For the analysis, I consider the role of other reforms, macroeconomic fundamentals and additional variables correlated with both financial liberalisation and financial development. This is because there may be other reforms that have a similar effect on financial development. For example, Ucer (1998) notes that real interest rate liberalisation is supposed to lead to financial development as demand for money and term deposits, as well as checking accounts and currency, increases as a ratio of national income, which in turn is thought to promote economic growth. Thus, to avoid specification bias, I included control variables ( $X$ ) in the model. They include trade liberalisation, external capital flows (ECF), inflation and institutional quality. The description, sources of data and expected signs can be found in Table 3-6 (Following Ito (2005), I exclude inflation rates in excess of 100 percent from the sample.

### **3.3.6 Estimation techniques**

The study estimates equation (3.3) with panel data from 11 developing countries during the period 1980-2007. It has been shown that pooled ordinary least squares (OLS) methods can lead to biased results because it ignores unobserved cross-country heterogeneity. For example, there are good reasons to believe that unobserved individual factors such as differences in terms of financial institutions and legal and colonial history are difficult to observe, and they most likely affect financial development in the sample countries. However, using the panel data approach has a lot of advantages over the conventional OLS method, because it is able to identify such country-specific effects which time series or cross-section methods are unlikely to detect.

Panel data techniques can be performed by both fixed and random effects models as described by Baltagi (2007). Fixed effects (FE) models assume that the intercept is a fixed parameter to estimate and that the intercept is cross-section specific (in this case it differs from country to country), although it may not differ over time. The FE method is appropriate in the presence of cross-country heterogeneity because it allows for unobserved factors that explain financial development between two countries and, therefore, leads to unbiased and efficient results. A short coming of the FE model, however, is that it is unable to compute for the coefficient of time-invariant variables, such as country dummy, because these variables are dropped within transformation. Another short coming is that it may include too many dummy variables, therefore, costing us a lot of degrees of freedom.

This is in contrast to the Random effects (RE) model which assumes that the intercept is a random parameter to estimate. The RE model is similar to the FE model, in that it postulates a different intercept for each individual, but it interprets these differing intercepts in a new way (Kennedy, 2008). The RE model allows the parameters to vary over the cross-section (i.e. country). This model is more suitable when I have the individual (country) dimension  $N$  relative to the time dimension  $T$ , because the random effects will be more efficient than fixed effects. However, Egger and Pfaffermayr (2004) note that the RE estimates are inconsistent when the regressors are correlated with the error term. Hsiao (2003) suggests that random effects (RE) models are appropriate whenever I consider the differences I observe in a group of countries to be representative of the total population dataset constituting all countries in the world.

To choose between the two methods I performed a Hausman test.<sup>44</sup> The Hausman test checks a more efficient model against a less efficient, but consistent model, to make sure that the more efficient model also gives consistent results. The Hausman test, tests the null hypothesis that the coefficients estimated by the RE estimator are the same as the ones estimated using the FE estimator. If the null hypothesis is not rejected (i.e. the p-value is insignificant), then the RE method is used. If the null hypothesis is rejected (p-value is significant), the FE estimator is used (see Kennedy, 2008: 286 and Data and Statistical Services, 2007).

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<sup>44</sup> We obtain a  $\chi^2(6) = 16.18$  with a p-value of 0.0128. The significant p-value indicates the appropriate use of the FE estimator.

### **3.4 Empirical results**

#### **3.4.1 Summary statistics**

The descriptive statistics are presented in Table 3-2a and b. Specific items in the table and their interpretations are discussed. From Table 3-2a, I notice that there is substantial variation in FD indicators across the sample. The ratio of liquid liability has a mean of approximately 38.10 percent and a standard deviation of 25.08 percent, with a minimum value of 11.04 percent (Mexico) and a maximum of 162.97 percent (China). I observe a similar difference for private credit. Whilst Ghana has the minimum private credit ratio (1.54 percent) amongst the countries during 1980-2007, Brazil has the highest (134.64 percent). Stock market capitalisation has a standard deviation of 0.19 percent and a mean of approximately 0.20 percent. The within country variation adds another 0.18 percent standard deviation for market capitalisation and 0.12 percent for total value of stocks traded. The total value of stocks traded has a mean of approximately 0.08 percent.

In terms of the total value of stocks traded, notice that there are substantial variation across the countries in the sample, with a minimum of 0 (all the SSA countries and Mexico, at one period or the other) and maximum of approximately 1.11 percent for India. The overall size of the financial sector (measured by the sum of the liquid liabilities ratio and stock market capitalisation) has a mean of 34.66 and approximately 26 percent standard deviation. The overall activity of the financial sector (measured by the sum of private credit and the total value of stocks traded) has a mean of approximately 27 percent and a standard deviation of approximately 27 percent.

As a measure of capital controls, the KAOPEN index has a mean of -0.68 and range in value from -1.81 (Brazil, full capital control) to 2.54 (Mexico, complete liberalisation). The lower score on the Chinn-Ito index does not indicate more complete closure on cross border financial transactions since the index's components are calculated from dummy variables simply indicating the presence or absence of the four types of restrictions outlined above.

**Table 3-2: Summary of data set used**

## a. Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
<i>Banking sector</i>				
M3	38.10	25.08	11.04	162.97
PC	28.33	26.48	1.54	134.64
<i>Stock market</i>				
MCAP	0.20	0.19	0.00	1.41
TVALUE	0.08	0.16	0.00	1.11
<i>Overall financial development</i>				
OFDSS	34.66	26.39	0.00	163.29
OFDA	26.55	26.59	0.00	134.77
<i>Financial liberalisation indicator</i>				
BHL	0.56	0.50	0.00	1.00
FINDEX	2.05	1.11	1.00	4.00
KAOPEN	-0.68	1.21	-1.81	2.54
<i>Economic and policy related variables</i>				
Y	1410.06	1320.76	169.65	4530.81
TRADE	55.10	29.41	6.32	204.72
OPENK	51.54	32.09	10.32	153.97
TINDEX	2.27	1.04	1.00	5.00
FDI	1.83	2.07	-6.90	10.51
INF	15.21	16.57	-2.07	97.64
INS	0.49	0.13	0.14	0.81

Notes: Data for the banking sector is retrieved from World Bank's World Development Indicator, (2010), Stock market indicators are retrieved from Beck et al.'s financial structure (2010). Overall financial development indicator (Size: refers to the aggregate of the measures of the size of both the bank and the stock market; Activity: refers to the aggregate of the measures of the activity of the bank and stock market). OPENK is retrieved from Penn World Table, Version 6.3, (2009).



b. Correlation matrix

	Variable	1	2	3	4	5	6	7	8
1	<i>liquid liabilities</i>	1							
2	<i>private credit</i>	0.8465*	1						
3	<i>stock market capitalisation</i>	0.2681*	0.1944*	1					
4	<i>value of stocks traded</i>	0.5168*	0.4019*	0.5883*	1				
5	<i>overall financial development (size)</i>	0.8446*	1.0000*	0.2039*	0.4073*	1			
6	<i>overall financial development (activity)</i>	1.0000*	0.7549*	0.2019*	0.4049*	0.7699*	1		
7	<i>official liberalisation date</i>	0.2002*	0.1455*	0.4407*	0.2502*	0.1940*	0.1984*	1	
8	<i>financial freedom index</i>	-0.2935*	-0.2799*	-0.3365*	-0.3967*	-0.2622*	-0.2315*	-0.1481	1
9	<i>capital account liberalisation</i>	-0.1356*	-0.2086*	0.0819	-0.1198	-0.1855*	-0.1499*	0.4151*	0.4542*
10	<i>real GDP per capita</i>	-0.1428*	0.0382	0.1722*	0.016	0.0203	-0.1431*	0.2089*	0.2846*
11	<i>trade</i>	-0.1756*	-0.3139*	0.0174	-0.2664*	-0.3092*	-0.2339*	0.2188*	0.0995
12	<i>openness (constant term)</i>	-0.108	-0.2543*	0.2666*	-0.1614*	-0.2425*	-0.1375*	0.2531*	-0.023
13	<i>trade freedom index</i>	-0.2862*	-0.2441*	0.0014	-0.3309*	-0.2353*	-0.2898*	-0.0593	0.4031*
14	<i>foreign direct investment (net inflow)</i>	0.0581	0.0125	0.0507	0.038	0.0106	-0.0112	0.2243*	0.0557
15	<i>inflation</i>	-0.2896*	-0.3028*	-0.0904	-0.2576*	-0.2653*	-0.2048*	-0.0833	0.1086
16	<i>institutional quality</i>	0.1913*	0.2962*	-0.1264	0.2039*	0.2860*	0.1882*	0.0349	0.2180*
	<i>Variable (contd)</i>	9	10	11	12	13	14	15	16
9	<i>capital account liberalisation</i>	1							
10	<i>logarithm of GDP per capita</i>	0.3233*	1						
11	<i>trade</i>	0.1674*	-0.0881	1					
12	<i>openness (constant term)</i>	0.0367	-0.1125	0.6850*	1				
13	<i>trade freedom index</i>	0.5933*	0.4180*	0.0986	0.0163	1			
14	<i>foreign direct investment (net inflow)</i>	0.2725*	0.0361	0.3844*	0.108	0.1951*	1		
15	<i>inflation</i>	-0.2260*	-0.2250*	0.1646*	0.0909	-0.1806*	0.0574	1	
16	<i>institutional quality</i>	-0.0338	0.2348*	-0.1115	-0.0843	-0.0394	-0.1157	-0.2455*	1

Please see Table 3-2(a) for information.

Table 3-2b displays the correlation coefficient of the dependent and independent variables in the regression. Here, the dependent variable is a measure of financial development (either of banking, stock market or overall financial development). According to the table, most of the financial development indicators are highly correlated with each other. Furthermore, I notice that most of the financial development indicators are negatively correlated with the financial liberalisation indicators, and most of the coefficients are statistically significant at the 5 percent level. The low value of the correlation coefficient is not sufficient to conclude about the lack of a strong relationship between the variables under consideration. Therefore, I present some regression specification to confirm the link between financial liberalisation and financial development.

The empirical estimation is done following several additive steps: (1) the baseline model is estimated with the FD indicators as the dependent variables and each of the liberalisation indicators and real GDP per capita as independent variables<sup>45</sup> and (2) I see how macroeconomic policies affect FD by including related variables to the previous step. I replicate the results using FINDEX and KAOPEN and this is discussed below. The results for the banking sector and stock market development indicators are reported in Tables 3-3 - 3-8.

### **3.5 Banking development indicators**

I examine the effect of financial liberalisation on the financial development in eleven emerging markets. I present the regression results from the FE method, reported in Table 3-3a and b. I use four different financial indicators to capture development in both the banking sector and the stock market. To measure the overall development of the financial sector, I sum indicators of the size and activity of the financial sector.

#### **3.5.1 Liquid liabilities**

In Table 3-3a, liquid liabilities is used to proxy financial development.<sup>46</sup> The results from Table 3-3a show that in most regressions, the overall banking development coefficient is positive as a country becomes more open. Here, the move to liberalisation as indicated by BHL enters with a positive, but insignificant coefficient when banking sector development is proxied by M3. The positive sign of the coefficient is consistent

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<sup>45</sup> To conserve space, we report only Step 2.

<sup>46</sup> Models 1 and 2 represent banking sector development, Models 3 and 4 refer to stock market development and Models 5 and 6 represent the overall development of the financial sector.

with our expectation, however, the non-significant coefficient might be that financial liberalisation in the countries in our sample has not improved the efficiency of the banking sector. In specification 1b and c, both the financial freedom index and the capital account liberalisation index enter with a negative sign. The coefficient, however, is statistically significant.

Economic growth is correctly signed in models 1a and c with a highly significant coefficient. The positive sign of GDP per capita is consistent with the theory. Our result is consistent with previous literature such as Baltagi et al. (2008), who found a positive relationship between the logarithm of GDP per capita and financial development, and Kiran et al. (2009), who also found a positive relationship for China's provinces. However, these findings are in contrary to DeGregorio and Guidotti (1995) who found a negative impact of banking sector development on economic growth in Latin America between the 1970s and 1980s.

Trade has a positive relationship with financial development across the model. Inflation also enters with the right sign; however, the coefficient is only significant in Model 1b. FDI enters with a mixed sign and the coefficient is statistically insignificant. Yartey and Adjasi (2007) note that institutional quality is important for financial market development, because efficient and accountable institutions tend to broaden the confidence level of investors. In the analysis, I find institutional quality has a negative effect on financial development with a statistically significant coefficient. I observe that institutional quality, such as level of corruption, rule of law and bureaucratic quality, all pertaining to the core areas of governance, are weak and as such do not promote financial development in the countries in our sample. The result is contrary to Yartey (2007a) who found that good quality institutions such as law and order, bureaucratic quality and democratic accountability are important determinants of stock market development, because they reduce political risk and enhance viability of external finance. I note that overall, the performance of our model is satisfactory.

**Table 3-3: Impact of financial liberalisation on financial development in developing countries (Annual data 1980-2007)**

a. Financial development indicator

FD proxied by	Model 1			Model 2			Model 3		
	M3			PC			MCAP		
	1a	1b	1c	2a	2b	2c	3a	3b	3c
BHL	0.2369 (0.13)	-	-	2.1078 (2.06)**	-	-	0.1752 (5.02)***	-	-
FINDEX	-	-1.5912 (-1.78)*	-	-	-1.1603 (-1.96)*	-	-	-0.0382 (-2.93)***	-
KAOPEN	-	-	-2.1924 (-2.64)***	-	-	-1.3467 (-3.15)***	-	-	0.0048 (0.31)
Economic and Other policy Variables									
Y	0.0155 (4.39)***	0.0133 (5.19)***	0.0174 (4.75)***	0.0102 (6.98)***	0.0099 (5.90)***	0.0120 (8.43)***	0.0002 (5.93)***	0.0003 (5.43)***	0.0003 (5.26)***
TO	0.3068 (4.22)***	0.3280 (5.38)***	0.3116 (4.78)***	0.1177 (3.81)***	0.0660 (1.40)	0.1385 (4.81)***	0.0011 (1.12)	0.0004 (0.28)	0.0032 (3.61)***
ECF	0.2681 (0.55)	-1.4734 (-2.71)***	0.6180 (1.13)	0.1024 (0.40)	-0.1721 (-0.48)	0.3746 (1.33)	0.0011 (0.22)	-0.0004 (-0.05)	0.0004 (0.08)
INF	-0.1228 (-2.77)***	-0.1077 (-1.71)*	-0.1614 (-3.29)***	-0.0345 (-1.18)	-0.0483 (-0.89)	-0.0646 (-2.11)**	0.0008 (0.99)	0.0004 (0.41)	0.0009 (1.04)
INS	-20.1728 (-2.98)***	-30.7496 (-2.95)***	-22.5607 (-3.27)***	-4.2113 (-0.93)	-1.7219 (-0.23)	-5.6235 (-1.20)	-0.5864 (-2.71)***	-0.6462 (-2.71)***	-0.5993 (-2.30)**
Constant	12.2734 (1.68)*	23.1539 (2.64)***	9.4788 (1.27)	7.9793 (2.16)**	13.7251 (2.44)**	5.6244 (1.47)	-0.0711 (-0.51)	0.2046 (0.89)	-0.0605 (-0.40)
R <sup>2</sup>									
within	0.2992	0.4733	0.3162	0.3487	0.3133	0.3576	0.4523	0.3743	0.3602
between	0.1399	0.1416	0.1161	0.0253	0.0071	0.0194	0.1753	0.0484	0.1221
overall	0.0509	0.0714	0.0408	0.0121	0.0024	0.0097	0.1032	0.0704	0.0617
Obs	222	128	222	233	139	233	195	136	195

Please see Table 3-3(a) for information.

Notes: M3 and PC are obtained from *World Development Indicators*, World Bank (2009). MCAP and TVALUE are obtained from Beck et al. (2000) financial structure database updated in 2010. BHL is obtained from Bekaert et al. (2005), FINDEX is obtained from Index of Economic Freedom, Heritage Foundation (2010), KAOPEN is obtained from Chinn and Ito (2005), updated in 2009. Y is real GDP per capita and INS (institutional quality) and is obtained from Quality of Government database (2010). Unless otherwise stated, all other data are obtained from ESDS, *World Development Indicators*, World Bank (2009). The estimation is done by controlling for fixed effects. South Africa has been excluded from the results as it has been found to be an outlier.

\*\*\*, \*\* and \* represents 1%, 5% and 10% significance level respectively. The t statistics is in parenthesis.

### **3.5.2 Private credit**

When financial development is proxied by private credit as in specification 2a-c, the results indicate that while both liberalisation date and capital account liberalisation have a positive effect on financial development, only liberalisation date is statistically significant. The positive impact of capital account liberalisation on private credit indicates that financial liberalisation improves the efficiency of the banking sector in our sample. This result provides support for the McKinnon (1973) and Shaw (1973) hypothesis.

Turning to the macroeconomic conditions and policies, the results show that the coefficient of economic growth is positive and highly significant. The positive impact of the economic growth variable provides support for the finance-growth thesis in developing countries such as Brazil, China, Mexico, Ghana, Nigeria and Zimbabwe. Though it has been suggested that liquid liability may not be a reliable indicator of financial development, Kevin and Levine (1993) using a similar indicator for financial development, find a positive relationship between economic growth and liquid liability.

Although trade enters with a mixed sign, the positive and significant coefficient indicates that an open economy promotes development of the financial sector. The result is similar to Do and Levchenko (2004) who examined the role of trade in the financial development of 77 developed and developing countries. Although financial development was reported to be slower when compared with developed countries, the coefficient of trade was positive and statistically significantly in their analysis.

A surprising result from the estimation coefficient is the positive sign of inflation, though this is insignificant. The coefficient of ECF is insignificant in specification 2. Institutional quality is negative and significant when banking sector development was proxied by private credit.

## **3.6 Stock market development indicators**

### **3.6.1 Stock market capitalisation**

The results for the estimation of equation (3.3) are reported in Table (3.3) when financial development is proxied by stock market capitalisation. Overall, the results from specifications 3a-c are mixed. While liberalisation date and capital account openness have a positive impact on financial development, the coefficient of liberalisation date is highly significant. The financial freedom index has a negative and

significant relationship with market capitalisation in the sample of countries. The negative impact of financial freedom index suggests that the countries in our sample were mostly repressed during the period of study, thus preventing development in the stock market.

Economic growth enters with both a negative and positive coefficient that is statistically significant. In an earlier research, Loayza & Rancière (2004) found evidence of a negative relationship between short-term changes in bank credit and growth in those countries that present high levels of financial fragility (proxied by credit volatility and frequency of banking crises). The coefficient of trade is insignificant, while ECF enters with a negative coefficient and this is significant in specifications 3a and 3c. Institutional quality also enters with a negative coefficient and it is significant at 1 percent in Specification 3b.

### **3.6.2 Value of the stocks traded**

Table 3-3b presents the results for the relationship between the value of stock traded and financial liberalisation. The result indicates that there is a positive and significant relationship between stocks traded and the date of liberalisation. Using financial freedom to proxy liberalisation, notice that the coefficient is negative and statistically significant. The negative relationship implies that financial liberalisation does not lead to a development in the activity of the stock market; rather it distorts stock market development in this sample.

Specification 4c shows that capital account openness is positive, however, the coefficient is insignificant. Economic growth enters with a mixed sign and the coefficients are statistically significant in all specifications. In this model, trade has an insignificant relationship with financial development. Inflation is correctly signed and the coefficient is significant in specification 4b. In this specification, the sign of the coefficient of ECF is mixed. Specifications 4a and c suggests that ECF does not promote financial development in this sample. Finally, institutional quality enters with a positive sign; however, its coefficient is insignificant. For a significant contribution of institutional quality, policy makers need to concentrate on improving the quality of the institutional environment, in particular, economic institutions in the developing countries in our sample.

b. Financial development contd

FD proxied by	Model 4 TVALUE			Model 5 OFDA			Model 6 OFDS		
	4a	4b	4c	5a	5b	5c	6a	6b	6c
BHL	0.1056 (3.42)***	-	-	2.8205 (1.11)	-	-	4.2271 (0.74)	-	-
FINDEX	-	-0.0132 (-2.08)**	-	-	-1.4200 (-1.27)	-	-	-1.6138 (-1.52)	-
KAOPEN	-	-	-0.0172 (-2.11)**	-	-	-1.1994 (-1.25)	-	-	-0.9206 (-0.52)
Economic and Other policy Variables									
Y	0.0001 (3.22)***	0.0001 (2.38)**	0.0001 (3.81)***	0.0105 (2.17)**	0.0107 (3.62)***	0.0126 (2.54)***	0.0010 (0.18)	-0.0074 (-0.70)	0.0033 (0.69)
TO	0.0005 (0.87)	0.0002 (0.27)	0.0017 (2.86)***	0.0478 (0.56)	-0.0519 (-0.58)	0.0723 (1.06)	-0.0160 (-0.15)	-0.2552 (-1.41)	0.0227 (0.29)
ECF	0.0009 (0.24)	0.0014 (0.35)	0.0014 (0.42)	0.0491 (0.17)	-0.4129 (-0.72)	0.3094 (0.75)	0.1187 (0.10)	-1.5724 (-1.28)	0.3719 (0.26)
INF	-0.0010 (-2.70)***	-0.0008 (-2.11)**	-0.0011 (-2.61)***	-0.0256 (-0.60)	-0.0386 (-0.71)	-0.0545 (-0.95)	-0.0428 (-0.60)	-0.1861 (-1.37)	-0.0707 (-1.05)
INS	0.0313 (0.35)	-0.1040 (-1.37)	-0.0001 (-0.00)	0.7314 (0.11)	2.1189 (0.21)	-0.2553 (-0.05)	-11.5089 (-0.97)	-21.0816 (-1.00)	-12.2192 (-1.13)
Constant	-0.1898 (-2.38)**	0.0315 (0.36)	-0.2141 (-2.36)**	8.4099 (1.13)	18.7544 (2.87)***	5.9994 (0.78)	40.1885 (4.49)***	85.9621 (2.67)***	37.6271 (4.60)***
R <sup>2</sup>									
within	0.2039	0.1299	0.1519	0.2982	0.2767	0.2954	0.0189	0.0781	0.0125
between	0.001	0.0055	0.0005	0.0096	0.0000	0.0084	0.0153	0.1178	0.0445
overall	0.0064	0.0005	0.0000	0.0037	0.0009	0.0039	0.0000	0.1022	0.0177
Obs	192	133	192	235	141	235	235	141	235

Please see Table 3-3(a) for information.

### **3.7 Overall financial development indicators**

#### **3.7.1 Activity of the financial system**

I use the sum of the activity indicators of both the banking sector and the stock market to capture the activity of the overall development of the financial sector (OFDA). According to this table 3-3b, none of the financial liberalisation indicators promote financial development. Economic growth is positively related to financial development. Trade and external capital flows both enter with a mixed sign and their coefficient is insignificant across all specifications. Inflation has the right sign; but the coefficient is insignificant in specifications 5a-c. The relationship between institutional quality and the activity of overall financial development is positive in specifications 5a-b, however the coefficient is insignificant.

#### **3.7.2 Size of the financial system**

To capture the size of the overall development of the financial sector, I sum the size indicators of both the banking sector and the stock market. According to table 3-3b, all the measures of financial liberalisation have no impact on financial development; however, the date of liberalisation has a positive impact. Economic growth enters with mixed signs, and where it is positive, the coefficient is insignificant, specifications 6a and c. Trade and external capital flows also enter with mixed signs and their coefficients are insignificant across all specifications. Inflation has the right sign; but the coefficient is insignificant in specifications 6a-c. The relationship between institutional quality and the size of overall financial development is positive in specifications 6a-b and the coefficient is insignificant.

### **3.8 Impact of financial liberalisation on financial development in sub-sample**

In order to have a better picture of the effect of FL on FD, I further split our sample of countries into two sub-samples, following MSCI and FTSE market classification. I created a sub-sample of countries for which I have firm knowledge of the date of the establishment of stock markets. Therefore, I report the results of the regression of equation (3) for this sub group of countries.



### 3.8.1 Market classification sub-sample<sup>47</sup>

This sub-sample consists of both emerging and frontier markets in accordance to MSCI and FTSE market classification. The results of the estimation of equation (3) for market classification are reported in Table 3-4 and Table 3-5. I only provide explanation for the relationship between financial liberalisation and FD in the BRIMC and SSA countries.<sup>48</sup>

Table 3-4a and b show the results of the analysis of the impact of financial liberalisation on financial development in the BRIMC (emerging) countries. According to specification 1a and Table 3-4a, financial liberalisation has a positive impact on liquid liabilities in the emerging countries in our study. The result indicates that the coefficient is statistically significant. Turning to the economic and policy variables, I notice that all the variables enter with the correct sign, however, only economic growth and quality of government is statistically significant. This result indicates that the quality of the government is poor in the BRIMC countries.

Specification 1b shows that our measure of financial liberalisation (FINDEX) has a negative coefficient and an insignificant impact on liquid liabilities. While trade has a positive and significant impact on financial development, FDI inflow has a negative impact, however, the coefficient is significant. I find a similar result for KAOPEN in specification 1c.

Turning to specification 2a, when private credit is used to proxy financial development; the impact of financial liberalisation (BHL) on financial development is relatively positive and the coefficient is statistically significant. This implies that the move towards opening the banking sector has improved financial activities in the BRIMC countries. However, using financial freedom and capital account openness to measure financial liberalisation, specification 2b and c reports that the move towards financial openness had reduced the activity of the banking sector in the BRIMC countries. The coefficients in both models are statistically significant. The result obtained is similar to that of Chinn and Ito (2005) who concludes that opening the capital account may be helpful to the development of Asian equity market.

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<sup>47</sup> The frontier market consists of all SSA countries in our sample, excluding South Africa.

<sup>48</sup> These are also referred to as emerging and frontier markets.

**Table 3-4: Impact of financial liberalisation in emerging markets (Annual data 1980-2007)**

a. Financial development indicator

FD proxied by	M3			PC			MCAP		
	1a	1b	1c	2a	2b	2c	3a	3b	3c
BHL	17.0529*** (3.04)	-	-	9.6802*** (2.95)	-	-	0.1754*** (2.91)	-	-
FINDEX	-	-1.3659 (-1.17)	-	-	-2.4849** (-2.32)	-	-	-0.0100 (-0.48)	-
KAOPEN	-	-	-3.3909 (-1.38)	-	-	-2.3239* (-1.65)	-	-	0.0110 (0.46)
Economic and other policy variables									
Y	0.0185 *** (3.25)	0.0137 *** (4.26)	0.0206 *** (3.40)	0.0150 *** (4.53)	0.0117*** (3.94)	0.0160*** (4.59)	0.0002 *** (5.46)	0.0003*** (5.36)	0.0003 *** (5.07)
TO	0.3225 (1.49)	0.7255 *** (4.12)	0.7580 *** (3.77)	-0.0220 (-0.17)	0.1068 (0.83)	0.1917* (1.78)	0.0020 (1.01)	0.0065** (2.30)	0.0049 *** (2.57)
ECF	1.4201 (0.94)	-3.6042 *** (-3.16)	2.0976 (1.35)	0.5584 (0.63)	-1.4055 (-1.38)	1.0463 (1.16)	0.0090 (0.54)	0.0355* (1.76)*	0.0096 (0.55)
INF	-0.0654 (-0.40)	-0.1415 (-1.46)	-0.1783 (-1.05)	0.0602 (0.62)	0.0447 (0.49)	-0.0092 (-0.09)	-0.0014 (-0.87)	-0.0003 (-0.17)	-0.0017 (-1.03)
INS	-103.7873 *** (-3.60)	-56.3692 *** (-2.71)	-63.3277 *** (-2.37)	-42.8268 *** (-2.51)	-13.3411 (-0.71)	-19.8999 (-1.26)	-0.2431 (-0.87)	-0.1241 (-0.33)	0.1435 (0.55)
Constant	40.4341** (2.31)	31.7544* (1.90)	10.2787 (0.58)	26.7452 *** (2.67)	25.4753* (1.93)	10.7885 (1.07)	-0.4622 *** (-2.73)	-0.6784** (-2.41)	-0.6128 *** (-3.44)
R <sup>2</sup>									
Within	0.5539	0.7139	0.515	0.4893	0.4290	0.4550	0.5953	0.5766	0.5516
Between	0.4638	0.4301	0.4018	0.3116	0.3769	0.2699	0.1374	0.1152	0.0857
Overall	0.1374	0.2393	0.1163	0.1758	0.2587	0.1412	0.0767	0.0064	0.0573
Obs	93	128	93	97	64	97	87	62	87

Please see Table 3-3(a) for information.

b. Financial development contd

FD proxied by	TVALUE			OFDA			OFDS		
	4a	4b	4c	5a	5b	5c	6a	6b	6c
BHL	0.1537** (2.06)	-	-	9.8417*** (2.98)	-	-	32.5250*** (3.46)	-	-
FINDEX	-	-0.0050 (-0.21)	-	-	-2.4892** (-2.30)	-	-	-5.4799 (-1.38)	-
KAOPEN	-	-	-0.0577* (-1.98)	-	-	-2.3601* (-1.67)	-	-	5.1365 (1.25)
Economic and other policy variables									
Y	0.0001* (1.93)	0.0002** (2.22)	0.0002** (2.38)	0.0151*** (4.51)	0.0118*** (3.92)	0.0161*** (4.58)	0.0072 (0.76)	0.0036 (0.32)	0.0050 (0.48)
TO	0.0018 (0.73)	0.0025 (0.78)	0.0059*** (2.61)	-0.0195 (-0.11)	0.1054 (0.81)	0.1956* (1.81)	-0.8271** (-2.47)	-1.7098*** (-3.58)	-0.3401 (-1.08)
ECF	0.0098 (0.49)	0.0237 (1.04)	0.0126 (0.64)	0.5731 (0.64)	-1.3820 (-1.34)	1.0692 (1.17)	3.4692 (1.36)	-5.4699 (-1.44)	4.9754* (1.87)
INF	-0.0030 (-1.52)	-0.0014 (-0.68)	-0.0040* (-2.05)	0.0573 (0.59)	0.4320 (0.47)	-0.0133 (-0.13)	-0.0444 (-0.16)	-0.0433 (-0.13)	-0.1203 (-0.41)
INS	0.1800 (0.51)	0.0804 (0.19)	0.5387* (1.75)	-42.6114* (-2.48)	-13.4717 (-0.71)	-19.3021 (-1.21)	-133.0738*** (-2.72)	-182.9587*** (-2.62)	-58.3611 (-1.26)
Constant	-0.3829 (-1.80)*	-0.2977 (-0.93)	-0.6993 *** (-3.27)	26.5385*** (2.64)	25.6546* (1.92)	10.3200 (1.02)	104.0456*** (3.63)	234.5841*** (4.77)	78.5105*** (2.65)
R^2									
Within	0.3324	0.2234	0.3297	0.4918	0.4258	0.4569	0.2028	0.2664	0.1079
Between	0.9324	0.9341	0.9641	0.3131	0.3797	0.2708	0.2889	0.1673	0.2564
Overall	0.0210	0.3359	0.0312	0.1752	0.2608	0.1405	0.0473	0.0201	0.0473
Obs	86	60	86	97	64	97	97	64	97

Please see Table 3-3(a) for information.

In terms of the stock market, I find that in specification 3a and c, the impact of financial liberalisation is positive, however, specification 3a has a statistically significant coefficient. In specification 3b, FINDEX has a negative and insignificant impact on market capitalisation. specification 3c indicates that the impact of capital account openness index on emerging countries stock market, though positive, the coefficient is insignificant. According to the results of specification 4a, FL has a positive and significant impact on the volume of stocks traded, whereas, specification 4b and c report a negative impact, but the coefficient in specification 4c is significant.

Turning to the overall development of the activity of the financial sector in specification 5a-c, I observe that financial liberalisation enters with both positive and negative signs with a significant coefficient. Finally, specification 6a-c shows that financial liberalisation has a positive and significant effect on overall development of the size of the financial sector. In specification 6a and c, however, the impact is negative and insignificant when FINDEX is used to proxy financial liberalisation. Overall, the move towards financial openness has predominantly led to a positive and significant improvement in BRIMC's financial system.

The results for the impact of financial liberalisation on financial development in the SSA (frontier) countries are presented in Table 3-5a and b. In terms of banking sector development, as measured by the rate of liquidity, the coefficients on all financial liberalisation proxies are significantly negative; indicating that openness in the financial sector has led to a reduction in liquid liabilities in the SSA countries in the sample. Specification 2a and b both enter with a positive sign; however, only specification 2b has a significant coefficient. In the same vein, specification 2c enters with a negative sign and the coefficient is insignificant. Using market capitalisation to proxy for financial development, our indicators of financial liberalisation also enter with a mixed sign in specification 3a-c. I observe that whilst specification 3a indicates a positive and highly significant impact of BHL on market capitalisation, specification 3b-c show a negative impact with FINDEX having a significant relationship on market capitalisation in our SSA sample. The positive and significant impact of BHL on market capitalisation indicates that SSA countries have been able to increase their market capitalisation share by moving towards a more open financial sector.

In specification 4, I observe that the financial liberalisation indicators also enter with a mixed sign. In specification 4a and c, the measures of financial liberalisation enter with

a positive sign, but Model 4a has a significant coefficient. Specification 4b shows that FINDEX enters with a negative sign and the coefficient is statistically significant.

Our indicators of FL in specification 5a-b both have positive signs, but specification 5a has a significant coefficient. In specification 5c, the sign of the coefficient of KAOPEN is negative and statistically insignificant. Finally, I note that for the overall development of the size of the financial sector, all our indicators of financial liberalisation are statistically insignificant with a negative coefficient.

From Table 3-5a and b, I notice that of all the indicators of financial liberalisation, BHL has a positive and statistically significant effect on stock market development than banking sector. This suggests that financial openness has improved the stock markets in the SSA countries in our sample.

**Table 3-5: Impact of financial liberalisation in frontier markets (Annual data 1980-2007)**

a. Financial development indicator

FD proxied by	M3			PC			MCAP		
	1a	1b	1c	2a	2b	2c	3a	3b	3c
BHL	-2.2659 (-1.68)*	-	-	1.4094 (1.60)	-	-	0.1248 (3.24)***	-	-
FINDEX	-	-0.5220 (-4.05)***	-	-	1.0908 (1.76)*	-	-	-0.0455 (-1.84)*	-
KAOPEN	-	-	-1.3748 (-2.23)**	-	-	-0.6012 (-1.47)	-	-	-0.0025 (-0.13)
Economic and other policy variables									
Y	0.0033 (1.52)	0.0048 (1.26)	0.0034 (1.62)	0.0055 (4.56)***	0.0057 (3.52)***	0.0069 (5.59)***	0.0001 (1.81)*	0.0001 (1.93)*	0.0001 (1.67)*
TO	0.1759 (4.68)***	0.1617 (2.98)***	0.1469 (4.38)***	0.0706 (2.88)***	-0.0029 (-0.09)	0.0865 (3.90)***	0.0005 (0.52)	-0.0008 (-0.66)	0.0018 (2.19)**
ECF	-0.2801 (-0.85)	-0.1717 (-0.32)	-0.0347 (-0.10)	-0.0516 (-0.25)	0.3722 (1.41)	0.0889 (0.40)	0.0022 (0.31)	-0.0040 (-0.400)	0.0010 (0.14)
INF	-0.0521 (-1.40)	-0.1570 (-2.37)**	-0.0728 (-1.88)*	-0.0180 (-0.75)	-0.1465 (-4.09)***	-0.0381 (-1.51)	0.0023 (2.49)**	0.0011 (0.75)	0.0025 (2.54)**
INS	-14.7159 (-2.96)***	-15.9851 (-2.04)**	-15.3221 (-3.10)***	-2.1968 (-0.67)	1.6410 (0.37)	-3.4349 (-1.05)	-0.7520 (-6.00)***	-0.6568 (-3.88)***	-0.8639 (-6.20)***
Constant	24.8056 (6.33)***	24.9992 (3.87)***	24.7987 (6.42)***	7.1103 (2.87)***	10.3611 (3.03)***	6.0682 (2.44)**	0.2491 (2.70)***	0.5337 (4.01)***	0.2878 (2.97)***
R <sup>2</sup>									
Within	0.1906	0.3019	0.2049	0.2635	0.3927	0.2613	0.4302	0.3020	0.3.681
Between	0.1111	0.0307	0.0829	0.0219	0.0171	0.0243	0.0853	0.0527	0.0364
Overall	0.0080	0.0001	0.0020	0.0016	0.0006	0.0045	0.1258	0.1407	0.0775
Obs	129	68	129	136	75	136	108	74	108

Please see Table 3-3(a) for information.

b. Financial development contd

FD proxied by	TVALUE			OFDA			OFDS		
	4a	4b	4c	5a	5b	5c	6a	6b	6c
BHL	0.0285 (4.76)***	-	-	2.3514 (2.29)**	-	-	-0.5117 (-0.26)	-	-
FINDEX	-	-0.0060 (-1.73)*	-	-	0.8741 (1.02)	-	-	-0.3133 (-0.16)	-
KAOPEN	-	-	0.0018 (0.61)	-	-	-0.4033 (-0.83)	-	-	-1.2245 (-1.37)
Economic and other policy variables									
Y	0.0000 (-1.33)	0.0107 (5.83)***	0.0000 (-1.15)	0.0050 (3.41)***	0.0056 (2.48)**	0.0064 (4.37)***	-0.0042 (-1.58)	-0.0079 (-1.50)	-0.0031 (-1.15)
TO	-0.0001 (-1.03)	-0.0519 (-1.30)	0.0001 (1.12)	-0.0089 (-0.35)	-0.1212 (-3.62)***	0.0142 (0.60)	0.0087 (0.18)	-0.0950 (-1.21)	0.0003 (0.01)
ECF	0.0010 (0.90)	-0.4129 (-1.00)	0.0006 (0.53)	-0.0932 (-0.39)	0.0799 (0.23)	0.0208 (0.08)	-0.7582 (-1.68)*	-1.1127 (-1.35)	-0.5379 (-1.12)
INF	0.0003 (2.53)***	-0.0386 (-0.78)	0.0004 (2.56)***	-0.0030 (-0.11)	-0.1370 (-2.76)***	-0.0223 (-0.75)	0.0440 (0.83)	-0.0252 (-0.22)	0.0196 (0.36)
INS	-0.1207 (-6.46)***	2.1189 (0.30)	-0.1352 (-6.29)***	3.0165 (0.80)	7.7561 (1.29)	1.8723 (0.49)	-6.7603 (-0.95)	-6.6296 (-0.47)	-7.7122 (-1.09)
Constant	0.5568 (3.96)***	18.7543 (3.58)***	0.0662 (4.24)***	9.8642 (3.43)***	17.6728 (3.91)***	8.8131 (3.00)***	35.6268 (6.57)***	49.0662 (4.64)***	34.7368 (6.42)***
R <sup>2</sup>									
Within	0.4747	0.4232	0.3507	0.1699	0.3495	0.1401	0.0668	0.1039	0.0800
Between	0.0524	0.0523	0.0291	0.0025	0.0001	0.0077	0.0425	0.0983	0.0471
Overall	0.0858	0.1447	0.0378	0.0015	0.0145	0.0006	0.0466	0.0801	0.0531
Obs	106	73	106	138	77	138	138	77	138

Please see Table 3-8(a) for information.

### 3.8.2 Financial structure

Following Demirguc-Kunt and Levine (1999) and Ndikumana (2003), countries are classified into two categories of financial structure: bank-based and market-based economies. This allows us to investigate whether the structure of the financial system is important for financial liberalisation. The result suggests that 9 out of the 11 countries are bank-based.

### 3.9 Simultaneous opening of trade and financial sector

In this section, I address the question: *is trade liberalisation significant for financial liberalisation in emerging countries? In particular, is trade liberalisation and financial liberalisation complementary, or substitutes for each other?* It is widely acknowledged that financial liberalisation should be the last step of economic reform and should be implemented only when trade openness has been achieved. As such, several empirical analyses have been conducted and the resulting evidence is mixed. For example, Law (2008) did not find any evidence for the influence of trade liberalisation on financial liberalisation in Malaysia, whereas Tornell et al. (2004) showed that trade liberalisation was a precondition for financial liberalisation. This result was also supported by Ito (2005), who found evidence for the influence of trade openness on capital account liberalisation in 87 developed countries over the period 1980 to 2000. Using our own data, I test the RZ hypothesis and I estimate the following model:

$$FD_{it} = \alpha_1 + \alpha_2 FINLIB_{it} + \alpha_3 Y_{it} + \alpha_4 TLIB_{it} + \alpha_5 ECF_{it} + \alpha_6 INF_{it} + \alpha_7 INS_{it} + \alpha_8 (FINLIB * TLIB)_{it} + \mu_{it} \quad (3.7)$$

where FD is a measure of banking sector or stock market development, FINLIB is a measure of financial liberalisation, Y is a measure of the level of economic development, TLIB is a measure of trade openness, ECF is external capital flow, INF is the measure of macroeconomic stability, and INS is a measure of institutional quality. In testing the RZ openness hypothesis, I included the interaction term between financial liberalisation and trade liberalisation in the equation. This is because, according to the hypothesis, opening both the trade and capital market is important for successful FD. Thus, by including the interaction between financial liberalisation and trade liberalisation, I was able to test whether the beneficial effect of financial liberalisation only occurs after a country reaches a certain level of trade liberalisation.



**Table 3-6: Does the simultaneous opening of trade and financial sector lead to financial development? (Annual data 1980-2007)**

a. Financial development indicator

FD proxied by	Model 1 M3			Model 2 PC			Model 3 MCAP		
	1a	1b	1c	2a	2b	2c	3a	3b	3c
BHL	17.3732 (3.76)***	-	-	8.3618 (3.18)***	-	-	0.3655 (5.57)***	-	-
FINDEX	-	-2.9612 (-0.81)	-	-	-5.1511 (-1.96)*	-	-	-0.0186 (-0.28)	-
KAOPEN	-	-	6.2437 (2.10)**	-	-	0.7419 (0.44)	-	-	0.1109 (2.86)***
Economic and Other policy variables									
Y	0.0174 (6.33)***	0.0131 (5.08)***	0.0174 (6.43)***	0.0108 (7.82)***	0.0097 (5.90)***	0.0121 (8.77)***	0.0002 (6.61)***	0.0003 (6.09)***	0.0003 (6.51)***
TO	0.4871 (6.63)***	0.2911 (2.56)***	0.1151 (1.35)	0.1827 (4.49)***	-0.0389 (-0.49)	0.0900 (1.89)*	0.0047 (3.43)***	0.0009 (0.46)	0.0006 (0.52)
ECF	-0.1307 (-0.24)	-1.4629 (-2.55)***	0.8346 (1.49)	-0.0177 (-0.06)	-0.1471 (-0.39)	0.4288 (1.39)	-0.0016 (-0.24)	-0.0004 (-0.05)	0.0032 (0.43)
INF	-0.1374 (-2.36)**	-0.1131 (-1.78)*	-0.1723 (-2.83)***	-0.0418 (-1.28)	-0.0612 (-1.36)	-0.0675 (-1.99)*	0.0006 (0.70)	0.0004 (0.37)	0.0008 (0.93)
INS	-27.0575 (-3.25)***	-30.6586 (-3.53)***	-20.1449 (-2.43)**	-6.7142 (-1.42)	-1.4162 (-0.22)	-4.9389 (-1.05)	-0.7169 (-5.99)***	-0.6476 (-4.08)***	-0.5905 (-4.63)***
TO*LIBDATE	-0.3066 (-4.13)***	0.0235 (0.39)	-0.1369 (-3.00)***	-0.1116 (-2.65)***	0.0680 (1.57)	-0.0336 (-1.32)	-0.0043 (-3.30)***	-0.0003 (-0.30)	-0.0018 (-2.97)***
Constant	4.5975 (0.72)	25.3874 (2.78)***	20.2566 (2.82)***	5.2984 (1.53)	19.7141 (3.22)***	8.1418 (2.11)**	-0.1388 (-1.68)*	0.1747 (1.10)	0.0470 (0.49)
R <sup>2</sup>									
within	0.3532	0.4740	0.3451	0.3692	0.3270	0.3628	0.4840	0.3748	0.3907
between	0.1226	0.1438	0.0935	0.0215	0.0111	0.0152	0.1756	0.0502	0.1786
overall	0.0421	0.0726	0.0278	0.0103	0.0046	0.0072	0.1110	0.0716	0.078
Obs	222	128	222	233	139	233	195	136	195

Please see Table 3-3(a) for information.

b. Financial development indicator

FD proxied by	Model 4			Model 5					
	TVALUE			OFDA			OFDS		
	4a	4b	4c	5a	5b	5c	6a	6b	6c
BHL	0.3196 (5.63)***	-	-	11.6388 (4.36)***	-	-	25.3976 (3.69)***	-	-
FINDEX	-	-0.0097 (-0.18)	-	-	-8.8639 (-3.33)***	-	-	-15.2872 (-1.71)*	-
KAOPEN	-	-	0.0357 (1.04)	-	-	-0.3213 (-0.18)	-	-	8.8427 (1.94)*
Economic and Other policy variables									
Y	0.0001 (3.24)***	0.0001 (3.03)***	0.0002 (4.22)***	0.0114 (7.87)***	0.0102 (5.72)***	0.0126 (8.46)***	0.0029 (0.79)	-0.0082 (-1.37)	0.0038 (1.01)
TO	0.0047 (3.91)***	0.0003 (0.17)	0.0004 (0.44)	0.1522 (3.63)***	-0.2225 (-3.16)***	0.0510 (1.01)	0.2348 (2.17)**	-0.5685 (-2.41)**	-0.2140 (-1.66)*
ECF	-0.0023 (-0.39)	0.0014 (0.20)	0.0025 (0.40)	-0.1219 (-0.40)	-0.3738 (-0.93)	0.3320 (1.01)	-0.2919 (-0.37)	-1.5005 (-1.12)	0.6232 (0.75)
INF	-0.0013 (-1.85)*	-0.0008 (-0.93)	-0.0012 (-1.57)	-0.0372 (-1.09)	-0.0636 (-1.30)	-0.0556 (-1.53)	-0.0706 (-0.80)	-0.2321 (-1.42)	-0.0827 (-0.89)
INS	-0.1083 (-1.04)	-0.1041 (-0.86)	0.0083 (0.08)	-3.6319 (-0.74)	1.9982 (0.29)	0.1021 (0.02)	-21.9841 (-1.73)*	-21.3033 (-0.93)	-8.2453 (-0.65)
TO*LIBDATE	-0.0049 (-4.32)***	-0.0001 (-0.07)	-0.0009 (-1.67)*	-0.1592 (-3.69)***	0.1274 (2.90)***	-0.0141 (-0.52)	-0.3822 (-3.44)***	0.2340 (1.59)	-0.1568 (-2.27)**
Constant	-0.2667 (-3.67)***	0.0263 (0.21)	-0.1624 (-1.93)*	4.4984 (1.24)	28.8992 (4.68)***	7.0639 (1.70)*	30.7981 (3.30)***	104.5970 (5.06)***	49.4637 (4.68)***
R^2									
within	0.2810	0.1299	0.1653	0.3396	0.3229	0.2963	0.0697	0.0967	0.0354
between	0.0000	0.0055	0.0010	0.0089	0.0029	0.0072	0.0219	0.0577	0.0003
overall	0.0101	0.0004	0.0006	0.0033	0.0002	0.0032	0.0000	0.066	0.041
Obs	192	133	192	235	141	235	235	141	235

Please see Table 3-3(a) for information.

Table 3-6a and b provide the results for the simultaneous opening of trade and financial markets in the sample of emerging countries. In specification 1a to c, all the financial liberalisation indicators are positively related to liquid liabilities. The coefficients of both financial freedom and capital account openness are statistically significant in the 5 percent and 1 percent level, respectively. Turning our attention to the stock market development indicators, I notice that financial liberalisation has a negative and insignificant relationship with FD. In specifications 5 and 6, I notice that all the measures of financial liberalisation entered with mixed signs; however, they were not statistically significant. From the table, I can conclude that financial liberalisation in the form of capital account openness, promotes banking sector development in this sample.

In specification 1a and specification 6 a and c, I observe that the contribution of financial policy is more than the trade policy to the development of the financial sector. The implication of this is that financial liberalisation, in the form of liberalisation dates and capital account openness, facilitates financial development. In addition, I notice that where the coefficients of the financial liberalisation indicators and trade policy are positive and significant at the 1 percent level, then the interaction between the two ( $\alpha_8$ ) is negative, as can be seen in specification 1a. The negative sign of the coefficient, thus, does not provide support for the RZ hypothesis. In addition, the evidence shows that trade and financial sector openness might be substitutes for each other, and not complementary to each other, as suggested by the openness hypothesis.

In specification 1 and 2, and Table 3-11, economic growth enters into the regression with a positive sign, consistent with the literature. The coefficient of economic growth is statistically significant at the 1 percent level in all the specifications except 1b. Using the stock market indicators, the sign of the coefficient is mixed and statistically significant. I observe the same effect when I use the overall FD indicator. All of the coefficients are significant as well. The positive and significant coefficient of economic growth is consistent with theory.

Trade appears with a mixed sign under the banking sector development. When liquid liabilities is used to proxy financial development, trade has a positive impact on financial development with an estimated coefficient of 0.4871. The coefficient for trade is also positive and significant when I consider private credit. Table 3-11a and specification 3 and 4 also indicate that trade openness has no significant relationship with development of the stock market. In specifications 5 and 6, trade openness also

enters with a mixed sign. Trade openness seems to promote the overall development of the size and activity of the financial sector in Model 5b and c and Model 6c.

I obtain similar results in the case of stock market development. Specification 3 and 4 show that both financial and trade openness have mixed impact on financial development. According to specification 3a, financial openness and trade enter with a positive and significant coefficient, whereas the interaction term ( $\alpha_8$ ) is negative and significant at the 1 percent level. The implication of this is that both the openness of the financial sector and trade openness are substitute, thus our findings does not provide support for the RZ hypothesis in the case of stock market development.

Turning to overall development of the financial sector, specification 5 and 6 in Table 3-6b reveal that the sign of the coefficient of the interaction term is mixed. Specification 5b shows that both financial openness and trade openness have a negative impact on financial development, and their coefficients are significant at 1 percent level. The interaction term is positive and significant with a coefficient of 0.1274. The negative sign of the coefficient of financial liberalisation would suggest that financial openness has negative effects on the overall development of the activity of the financial sector.

Inflation enters with a mixed sign across the model specification. However, when the coefficient is positive the relationship is insignificant. Turning to the measure of external finance, (FDI), I notice that the relationship with banking development is mixed and the coefficient is statistically significant in Specification 1b. The relationship between institutional quality and financial development is also mixed. Whilst institutional quality does not lead to the development of both the banking sector and the stock market, I find a positive and insignificant relationship with the value of stocks traded. For a significant contribution of institutional quality, there is a need for careful consideration and revitalisation of the different dimension of governance.

### **3.10 Robustness checks**

To check the robustness and the sensitivity of our results, I conduct a number of alternative changes to the model specification and employ other estimation techniques. First, I substitute the level of development of the economy, which I proxy using real GDP per capita for growth rate of GDP per capita, and the results of the estimations are presented in Table 3-7. I also change the trade policy variable from TRADE to openness

to trade in constant terms (OPENK) and trade freedom index (TINDEX).<sup>49</sup> The trade index policy is a score which is based on two inputs:

1. The trade-weighted average tariff rate, and
2. Non-tariff barriers (NTBs).

According to Ito (2005), the use of a *de jure* trade openness measure is more appropriate than using a *de facto* measure (TRADE: the sum of exports and imports as a ratio of GDP), for this reason, I check the robustness of our estimation results using TINDEX, trade freedom index. TINDEX is obtained from Heritage foundation.<sup>50</sup> In scoring the freedom index, each of the variables are weighted equally and turned into an index ranging from 0 to 100, where 100 is the maximum degree of trade freedom. The results are supportive of our earlier findings that financial liberalisation has had a significant positive effect on financial development.

A survey of the literature (such as Ozdemir and Erbil, 2008), reveals that *de facto* measures of financial liberalisation for developing countries present more sensible results, as the use of *de jure* measures may not effectively capture the effect of financial liberalisation. Hence, to check the robustness of our result, I substitute the FINLIB indicators using a *de facto* measure of liberalisation. This is measured as the sum of total capital inflow and outflows as a percent of GDP.<sup>51</sup> The result indicates that there is a positive relationship between capital flows and financial liberalisation, and the coefficient is significant.

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<sup>49</sup> Although TINDEX is a *de jure* measure of trade openness, it enters with a mixed sign and the coefficients are not significant in all the different model specifications, therefore, we do not report these results.

<sup>50</sup> According to the Heritage Foundation, the presence of NTBs in a country affects its trade freedom score by incurring a penalty of up to 20 percent. The trade freedom ranges from 0-100, where 100 is the maximum degree of trade freedom.

<sup>51</sup> Capital flows is the sum of FDI, portfolio investment and other investments. In this study, we restrict capital flows to be the natural logarithm of the sum of equity investment and FDI inflows.

**Table 3-7: Impact of financial liberalisation on financial development in developing countries: Annual data 1980-2007**

FD proxied by	M3		PC		MCAP		TVALUE	
	1a	1b	2a	2b	3a	3b	4a	4b
BHL	3.7775 (1.65)*	11.0655 (2.42)**	4.3925 (3.39)***	3.9135 (1.49)	0.1204 (3.40)***	0.2551 (3.84)***	0.0873 (2.77)***	0.2621 (4.63)***
Economic and other policy variables								
Y	-0.1083 (-0.45)	-0.1653 (-0.69)	-0.1546 (-1.13)	-0.1508 (-1.09)	0.0008 (0.26)	0.0012 (0.41)	-0.0001 (-0.04)	0.0005 (0.20)
TO	0.1877 (3.05)***	0.3108 (3.42)***	0.0819 (2.44)**	0.0739 (1.45)	0.0041 (5.20)***	0.0074 (4.70)***	0.0016 (2.39)**	0.0059 (4.41)***
ECF	1.0561 (1.80)*	0.8594 (1.45)	0.4862 (1.49)	0.4977 (1.50)	0.0096 (1.41)	0.0093 (1.37)	0.0058 (1.00)	0.0048 (0.86)
INF	-0.1433 (-2.19)**	-0.1213 (-1.83)*	-0.0571 (-1.56)	-0.0584 (-1.57)	-0.0009 (-1.09)	-0.0006 (-0.66)	-0.0018 (-2.39)**	-0.0013 (-1.81)*
INS	-17.1801 (-1.88)*	-22.6839 (-2.37)**	-5.8448 (-1.12)	-5.4768 (-1.00)	-0.3263 (-2.50)***	-0.4169 (-3.10)***	0.1162 (1.04)	0.0051 (0.05)
TO*LIBDATE	-	-0.1463 (-1.83)*	-	0.0096 (0.21)	-	-0.0033 (-2.39)**	-	-0.0043 (-3.67)***
Constant	35.7835 (6.57)***	32.7690 (5.79)***	23.2491 (7.60)***	23.4417 (7.33)***	0.0477 (0.61)	-0.0471 (-0.54)	-0.1105 (-1.66)*	-0.2360 (-3.23)***
R <sup>2</sup>								
within	0.1706	0.1841	0.1876	0.1878	0.3998	0.4185	0.1750	0.2342
between	0.1167	0.1699	0.1354	0.1284	0.0671	0.0671	0.1193	0.3768
overall	0.0012	0.0072	0.0037	0.0028	0.1012	0.086	0.0094	0.0000
Obs	222	222	233	233	195	195	192	192

Notes: M3 and PC are obtained from *World Development Indicators*, World Bank (2009). MCAP and TVALUE are obtained from Beck et al. (2000) financial structure database updated in 2010. BHL is obtained from Bekaert et al. (2005). Y is annual growth rate of real GDP per capita and INS (institutional quality) and is obtained from Quality of Government database (2010). TO is openness (constant) obtained from Penn World Tables 6.3. Unless otherwise stated, all other data are obtained from ESDS, *World Development Indicators*, World Bank (2009). The estimation is done using Panel Corrected Standard Errors estimation technique.

\*\*\*, \*\* and \* represents 1%, 5% and 10% significance level respectively. The t statistics is in parenthesis.

### 3.10.1 Alternative measure

Secondly, I assess the sensitivity of the results to the estimation technique employed. To do this, I test for heteroscedasticity using the modified Wald test for groupwise heteroscedasticity and the Breusch-Pagan LM test of independence. The results from both test indicates a rejection of the null hypothesis, therefore, revealing that the errors exhibit both group wise heteroscedasticity and contemporaneous correlation, suggesting the need to employ feasible generalised least squares (FGLS) in order to obtain consistent and efficient estimators. Beck and Katz (1995), cited in Turkcan and Ates

(2010), reportedly found that the test statistics based on FGLS is optimal only when the sample size is small and when there are substantially more time periods than cross-sectional units. The authors show that OLS with panel corrected errors provides more efficient estimation than FGLS (Greenberg, 2003 and Stata, 2003). Since our data consists of time periods (TPs) which are greater than the number of cross-sections (CSs) in our sample (with  $N = 11$  and  $T = 28$ ), I thus estimate equation (3.3) using panel corrected standard error (PCSE) estimation, proposed by Beck and Katz (1995).

Briefly, the PCSE estimation method proceeds as follows:

1. Pool the data from different countries into one dataset and apply OLS.
2. Adjust for autocorrelation by adding a lagged dependent variable to the model.
3. Calculate PCSEs.

The use of the PCSE method also allows us to take into consideration the problem of heteroscedasticity present in the sample, because the error variance differs across cross-sectional units due to characteristics unique to the countries. It is important to note that PCSEs are biased in the presence of autocorrelation, and since the direction of biasness is unknown, Wilson, 2004 and Goodrich 2006 advocate adding a lagged dependent variable to the model in order to adjust autocorrelation.

The regression results from the PCSE model are reported in Table 3-13 (below). The results generally support our main findings that financial liberalisation in the form of liberalisation dates has a positive and significant impact on the development of the financial sector in the sample of countries studied. I find that trade appears with a negative coefficient that is statistically significant in most of the specifications of the model. The coefficient of institutional quality is positive and significant; however, it is contrary to those reported in Table 3-8. Those results suggest that better institutional quality (in the form of corruption, law and order and bureaucracy quality) leads to a higher level of financial development in the countries studied.

**Table 3-8: Impact of financial liberalisation on financial development in developing countries: Annual data 1980-2007, panel corrected standard error estimation**

FD proxied by	M3			PC			MCAP			TVALUE		
	1a	1b	1c	2a	2b	2c	3a	3b	3c	4a	4b	4c
BHL	0.2369 (0.17)			2.1078*** (2.64)			0.1752*** (5.07)			0.1056*** (3.57)		
FINDEX		-1.5912*** (2.64)			-1.1603*** (2.61)			-0.0382*** (2.99)			-0.0132** (2.22)	
KAOPEN			-2.1924*** (2.58)			-1.3467*** (3.07)			0.0048 (0.41)			-0.0172** (2.42)
Economic and Other policy variables												
Y	0.1552*** (8.96)	0.0133*** (7.05)	0.0174*** (9.51)	0.0102*** (11.79)	0.0099*** (10.45)	0.1202*** (12.56)	0.0002*** (6.72)	0.0003*** (5.92)	0.0003*** (6.41)	0.0001*** (5.41)	0.0001*** (4.05)	0.0001*** (6.00)
TO	0.3068*** (5.88)	0.3280*** (4.20)	0.3116*** (6.68)	0.1177*** (4.40)	0.6601 (1.43)	0.1385*** (5.75)	0.0011 (1.19)	0.0004 (0.26)	0.0032*** (3.61)	0.0005 (0.79)	0.0002 (0.23)	0.0017*** (3.12)
ECF	0.2681 (0.48)	-1.4733*** (-2.71)	0.6180 (1.02)	0.1024 (0.37)	-0.1721 (0.51)	0.3746 (1.28)	0.0011 (0.21)	-0.0004 (0.05)	0.0004 (0.07)	0.0009 (0.28)	0.0014 (0.41)	0.0014 (0.44)
INF	-0.1228*** (3.72)	-0.1077*** (2.88)	-0.1614*** (3.80)	-0.0345 (1.64)	-0.0483 (1.26)	-0.0646*** (2.64)	0.0008 (0.90)	0.0004 (0.30)	0.0009 (1.01)	-0.0010** (2.60)	-0.0008* (1.66)	-0.0011*** (2.98)
INS	20.1728*** (3.37)	-30.7496** (2.21)	22.5607*** (3.67)	-4.2113 (1.23)	-1.7219 (0.26)	-5.6235 (1.44)	0.5864*** (4.23)	-0.6462*** (2.95)	-0.5993*** (3.69)	0.0313 (0.39)	-0.1040 (1.52)	-0.0014 (0.00)
Constant	35.5158*** (4.20)	-20.3955* (1.73)	39.3137*** (4.90)	27.6895*** (6.90)	-19.3316*** (3.06)	32.3517*** (7.82)	0.6050*** (3.71)	-0.2529 (0.93)	-0.6574 (3.83)	-0.5328*** (5.47)	-0.2542** (2.07)	-0.6178*** (5.49)
R <sup>2</sup>	0.83	0.95	0.83	0.94	0.97	0.94	0.58	0.62	0.51	0.55	0.75	0.52
Wald statistics chi <sup>2</sup> (6)	1410.05 (0.00)	3463.70 (0.00)	1254.08 (0.00)	19457.15 (0.00)	104035.33 (0.00)	13045.26 (0.00)	386.24 (0.00)	1068.41 (0.00)	1047.03 (0.00)	768.74 (0.00)	689.15 (0.00)	705.64 (0.00)
Obs	222	128	222	233	139	233	195	136	195	192	133	192

Notes: See Table 3-7. TO is total trade obtained from ESDS, *World Development Indicators*, World Bank, (2009). \*\*\*, \*\* and \* represents 1%, 5% and 10% significance level respectively. The t statistics is in parenthesis.



### 3.11 Conclusion and policy implications

This chapter has examined the impact of financial liberalisation on financial development using data from eleven emerging countries. Despite the theoretical evidence suggesting the role of financial liberalisation in promoting financial development, our findings and existing empirical evidence provide mixed results. Out of the three measures of financial liberalisation used, I note that the move towards financial integration (BHL) promotes development in the banking sector, stock market and overall activity/size of the financial sector in the sample countries. However, when I use the financial freedom index as a measure of financial liberalisation, I find a negative and significant correlation with financial development in the countries in our analysis. Our findings also show that the capital account index has a positive relationship with market capitalisation and overall size of the financial sector, however, our coefficient is insignificant.

To better understand the impact of financial liberalisation on financial development, our sample is further split into two sub groups consisting of emerging and frontier markets. I note that BHL has a significant and positive impact on all aspects of the financial sector in the emerging markets. It is also positive and significant in the development of the stock market and the overall development of the activity of the financial sector in the frontier markets. The positive effect of liberalisation date on stock market development in frontier markets may well be a plausible explanation for the consideration of the Ghanaian stock exchange as the world's best performing market in 2004.<sup>52</sup> In addition, the positive effect of liberalisation date might be an indication that financial markets in the SSA region have moved from being segmented markets to being integrated with the rest of the world.

I note that FINDEX has a negative and insignificant impact on FD in emerging countries and a positive impact on the development of private credit in frontier markets. When I use KAOPEN to proxy financial liberalisation, I observe that there is a positive relationship with stock market capitalisation and overall development of the size of the financial sector in both the emerging and frontier markets, although the coefficient is insignificant. I find that the intensity of capital controls affect the development of banks

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<sup>52</sup> According to Yartey and Adjasi, (2007), Egypt, Kenya, Mauritius, Nigeria and Ugandan stock markets were also recognised as the best performers in the same year.

in the full sample and frontier markets, while this affects stock market development in emerging markets.

Two policy implications can be drawn from these empirical findings. Firstly, the direct policy implication is that to ensure a positive benefit from financial liberalisation in frontier markets, banking sector reforms are crucial. This is an important perspective for making financial liberalisation policies because, according to the literature, banks are more capable of financing economic growth than stock markets in developing countries, particularly in the SSA countries. Besides, by developing the banking sector, this can help promote stock market development, and in turn, economic growth. For instance, the success of East Asian countries can be linked to the development of both the banking sector and the stock market.

Secondly, the result also reveals some key priorities of financial reforms. The priority of reforms comes down to policy makers in the emerging and frontier markets being faced with tackling the challenges of developing and implementing policies towards a more open capital account.

In addition, I examine the simultaneous openness hypothesis proposed by Rajan and Zingales (2003). The empirical analysis suggests that financial sector liberalisation is not important for trade openness to facilitate financial development in emerging and frontier markets, regardless of the stages of financial development. In particular, the result suggests that trade and financial openness, in the banking sector, might be substitutes for each other, rather than complementary, as suggested by Rajan and Zingales (2003). From the policy perspective, the empirical results obtained in this study have very important implications for developing countries, especially for the emerging and frontier economies. Therefore, countries in this region should re-consider the sequence of their trade and financial liberalisation policies. For example, these countries should formulate policies to strengthen the financial sector, such as maintaining good corporate governance.

### **Appendix III: Key liberalisation process of sample countries**

Financial liberalisation is a gradual process encompassing the elimination of financial repression by introducing financial liberalisation policies, these include: (i) interest rate liberalisation, (ii) abolition of directed credit schemes, (iii) bank denationalisation, (iv) liberalising entry into the banking sector, and (v) strengthening of prudential regulations.

Although, financial liberalisation does not only involve the domestic financial sector, but also includes insurance markets, securities market, capital account, and exchange rate, in this chapter, I focus on the bank and stock market only. Here, I list the financial liberalisation process which took place over the period 1980-2007 in the countries in this study.

#### **Botswana**

Bekaert et al. (2005) notes that financial liberalisation in Botswana began in 1990, however, in 1986, controls on maximum interest on lending and on deposits were removed and the commercial banks were allowed to set interest rates freely.

1. 1987: further reduction in lending rates,
2. 1989: announcement of various financial reform measures,
3. 1990: granting of bank license (Zimbank),
4. 1991: new bank opens, issuing of Bank of Botswana certificates,
5. 1992: two more banks opened,
6. 1994: reforming of Botswana savings bank (BSB),
7. 1995: new banking law, nonbank financial institutions (NBFIs)/bank supervision started.

#### **Brazil**

Financial sector reforms began in Brazil in 1991 and the process involved:

1. 1991: foreign investment law changes,
2. 2003: all sectors of the economy are opened to foreign investment.

#### **China**

Major financial sector reforms began in China in 1990 and the process involved:

1. 1990: development of bonds and two stock markets were established,

2. 1993: austerity plan measures allowed for interest rate adjustment, it also emphasised the importance of investments in infrastructure,
3. 1994: formation of three policy banks, whose purpose was to allow the rest of the state owned banks (SOBs) to concentrate on more commercial lending,
4. 1995: new commercial bank law, emphasis was placed on the need for financial institutions to incorporate commercial criteria into lending purpose.

## **Ghana**

Major financial sector reforms began in Ghana in 1987 with the partial liberalisation of the interest rates, but the process started in:

1. 1986: introduction of weekly foreign exchange auction,
2. 1987: liberalisation of maximum and minimum deposit rates, decontrolled all interest rates, and introduced weekly auctions of T-Bills,
3. 1988: removal of sectoral credit controls, except for agriculture and decontrol of minimum bank savings rate,
4. 1989: bank restructuring and revision of the banking law,
5. 1990: abolition of the requirement for lending to agricultural sector and replacement of non-performing bank claims on both public and private enterprises,
6. 1991: replacement of non-performing claims on the private sector.

## **India**

Major financial liberalisation in India began after 1990, and it involved:

1. 1991: granting of bank licenses, regulations on FDI were liberalised significantly, and non bank financial institutions interest rates deregulated,
2. 1992: decontrol of interest rates, substantial liberalisation of bank branch licensing, and capital market restrictions removed on pricing and issues of capital
3. 1993: further interest rate liberalisation, and entry restrictions for banks eased,
4. 1994: new banking legislation to increase prudential regulation,
5. 1995: bank closures,
6. 1996-7: selective credit controls on essential commodities lifted,
7. 1998-9: greater flexibility for banks in lending and deposit rates, banks can engage in interest rate swaps for own balance sheet management, and stock exchanges allowed to extend trading terminals,

8. 2000: further liberalisation of bank interest rate setting.

## **Kenya**

Financial sector reforms fully began in Kenya in 1991, but the process started earlier on and it involved:

1. 1985: implementation of the Banking Act,
2. 1986: establishment of deposit protection fund, and introduction of a cash ratio for commercial banks,
3. 1987: adoption of Building Societies Act,
4. 1988: start of major restructuring programme of financial sector,
5. 1989: revision of Banking Bill,
6. 1990: removal of fees and charges from interest rate ceilings,
7. 1991: removal of ceilings on bank lending rates,
8. 1994: offshore borrowing by domestic residents allowed,
9. 1995: restrictions on portfolio capital inflows lifted.

## **Mexico**

Major financial sector reforms began in Mexico in 1989, however the process started in:

1. 1982: banks are nationalised, credit to private sector falls sharply
2. 1988-89: interest rates are liberalised, reserve requirements are reduced, elimination of forced lending, and, during this period, measures have been taken to deregulate the securities market and promote its development,
3. 1989: restrictions on foreign direct investments are removed, and reserve requirements are reduced,
4. 1990: new legal framework for banks and non-banks financial intermediaries, the new law promotes competition and allows the introduction of new services and establishes prudential measures. It also favours the development of non-bank financial institutions,
5. 1991: elimination of the 'liquidity coefficient', requiring that 30 percent of deposits be invested in T-Bills,
6. 1992: Elimination of regulations requiring that banks hold long-term government bonds until maturity, and banks are privatised.

## **Nigeria**

Major financial sector reforms began in Nigeria in 1987 and it has focused mainly on institutional deregulation and interest rate deregulations:

1. 1985: elimination of minimum credit allocation requirement to indigenous borrowers, and the implementation of third phase of rural banking programmes,
2. 1986: modification of credit ceilings for merchant banks, gradual abolition of selective credit allocations, reform of foreign exchange market started with the dismantling of exchange controls, and the establishment of market-based autonomous foreign exchange market,
3. 1987: removal of controls on minimum and maximum interest rates,
4. 1988: adoption of new Securities and Exchange Commission decree, establishment of National Deposit and Insurance Corporation, and the introduction of significant institutional changes at the Central Bank,
5. 1989: adoption of privatisation and commercialisation programme, and the signing of accord between banks and the Central Bank to limit spreads between interest rates,
6. 1990: introduction of cash requirement for merchant banks, all banks to report on activities of their subsidiaries offering financial services, introduction of minimum capital requirement, and the introduction of new accounting guidelines for all financial institutions,
7. 1991: re-administration of interest rates, and no new bank license.

## **Russia**

Buiter and Taci (2003) note that capital account liberalisation in Russia started with FDI being under strict rules that were gradually eased. They also note that restrictions on non-resident portfolio investments started to ease in 1994 and after the country achieved current account convertibility in 1996, these restrictions were further relaxed and gradually phased out by early 1998. However, in August 1998, during the period of financial crisis, Russia reintroduced some capital controls. Other financial reforms include:

1. 1998: federal law 'On Mortgages',
2. 2003: 'fit and proper' standards for bank owners, and greater scrutiny of sources of bank capital, improved enforcement of banks' rights over pledged collateral, and limited reporting requirements based on international standards,

3. 2004: introduction of the deposit insurance system (admission of individual banks conditional on compliance with a set of 12 prudential standards), and minimum capital requirements for newly created banks (waived for existing banks until 2010),
4. 2005: law 'On Credit Histories', introduction of credit bureaux, and mortgage legislation, including on securitisation,
5. 2006: complete elimination of capital account controls.

### **Zambia**

According to Fowowe, (2008) financial reform began in 1991 when the government allowed free bank entry, other reform policies include;

1. 1991: granting of bank licenses,
2. 1992: decontrol of interest rates, further granting of bank licenses, and the government passed the privatisation acts which established the Zambian Privatisation Agency (ZPA),
3. 1993: further interest rate liberalisation,
4. 1994: new banking legislation to increase prudential regulation,
5. 1995: bank closures.

### **Zimbabwe**

The official date of financial liberalisation, as recorded in Bekaert et al. (2005), is 1990, other reform strategy includes:

1. 1991: restrictions on interest rates are eliminated, and reserve requirements are reduced,
2. 1993: the stock market is opened to foreign investors,
3. 1994: the current account and the foreign exchange are liberalised, although this started in 1991 with measures to reduce budget deficit, however, this was unsuccessful,
4. 1996: bank restructuring, strengthening of Central Bank, and further entry into financial sector.

*Sources:* Li (1995); Bandiera et al. (2000); Buiters and Taci (2003); Bekaert et al. (2005) Fowowe (2008) and Berglof and Lehmann (2009).

## Appendix III-I: Effects of financial liberalisation in emerging and frontier markets

**Table 3-9: Stock market development as of 2007**

Country	Year of establishment	Listed companies	Market capitalisation	Traded Value	Turnover Value
<i>Frontier</i>					
Botswana	1989	18	47.7	0.89	2.2
Ghana	1989	32	15.93	0.73	3.9
Kenya	1954	51	49.35	4.86	10.6
Nigeria	1960	212	52.04	10.11	28.2
Zambia	1994	15	20.56	0.63	4.1
Zimbabwe	1986	82	N/A	N/A	5.1
<i>Emerging</i>					
Brazil	1890	442	102.78	43.87	56.2
China	1891	1530	184.09	230.37	180.1
India	1875	4887	154.57	94.11	84
Mexico	1886	125	38.89	11.3	31
Russia	1995	328	116.07	58.27	58.9

*Note:* World Bank's World Development Indicators, (2009), Bekaert, Harvey and Lundblad, (2005), Fowowe, (2008).

**Table 3-10: Official liberalisation dates**

Country	Financial liberalisation dates in the BRIMCs and SSA countries	
	Stock market liberalisation date	Banking sector liberalisation date
<b>BRIMCs</b>		
Brazil	1991	1997
Russia	1998	NA
India	1992	NA
Mexico	1989	1993
China	1990	1997
<b>SSA</b>		
Botswana	1990	NA
Ghana	1993	NA
Nigeria	1995	1990
Kenya	1995	1991
South Africa	1996	1980
Zambia	1994	1995
Zimbabwe	1993	1993

*Notes:* The official liberalisation dates corresponds to equity market liberalisation dates by Bekaert, Harvey and Lundblad (2005). Capital account liberalisation in Russia started in 1994-1998 it started with the liberalisation of FDI. NA implies data unavailability.



**Table 3-11: Start dates of moves towards the financial liberalisation process**

Country	Date	Source
Botswana	1986/1989, <b>1990</b>	Bekaert et al. (2005); Fowowe (2008)
Brazil	1988	Bekaert et al. (2005); de Carvalho (2000)
China	1990	Bekaert et al. (2005)
Ghana	1987,1989/ <b>1993</b>	Bekaert et al. (2005); Fowowe (2008)
India	1986/ <b>1992</b>	Kawakatsu and Morey (1999); Bekaert et al. (2005)
Kenya	1985-1994/ <b>1995</b>	Bekaert et al. (2005); Fowowe (2008)
Mexico	1988	Bandiera et al. (2000); Bekaert et al. (2005); de Carvalho (2000)
Nigeria	1985-1987, 1988/ <b>1995</b>	Adegbite (2005); Fowowe (2008); Bekaert et al. (2005)
Russia	1994	Buiter and Taci (2003)
Zambia	<b>1991/1992/1996</b>	Laurens (2005); Bekaert et al. (2005); Fowowe (2008)
Zimbabwe	1991-95/ <b>1993</b>	Bekaert et al. (2005); Fowowe (2008)

*Notes:* The dates coincide with interest rate liberalisation, equity market liberalisation, FDI liberalisations, removal of directed credit, free bank entry, prudential regulation, bank restructuring and first ADR issuance. The dates in bold are the official liberalisation dates as reported by Bekaert et al. (2005), except for Zambia, which was obtained from Laurens (2005) and Fowowe (2008).

**Table 3-12: Description and data source**

Variable	Predicted signs	Definition	Sources
M3	N/A	Ratio of liquid liability to GDP	Beck et al. (2009); WDI (2010)
PC	N/A	Private credit to GDP	Beck et al. (2009); WDI (2010)
MCAP	N/A	Value of listed shares to GDP	Beck et al. (2009); WDI (2010)
TVALUE	N/A	Total shares traded on the stock market exchange to GDP	Beck et al. (2009); WDI (2010)
OFDS	N/A	Overall financial development (size) (the sum of M3 and MCAP)	Author's calculation
OFDA	N/A	Overall financial development (activity) (the sum of PC and TVALUE)	Author's calculation
Y	+	Real GDP per capita, annual growth rate of real GDP per capita	Quality of government database, quality of government institute (2010); WDI (2010)
TRADE	+	Total trade to GDP	WDI (2010)
INF	-	Consumer price index, to measure macroeconomic stability	WDI (2010); International Financial Statistics, IMF, (2008)
ECF	+	External capital flows: Foreign direct investment inflow measured in millions of US \$	UNCTAD (2009)
INS	+/-	ICRG quality of government: This is the mean of the value of ICRG variables 'corruption', law and order' and 'bureaucracy quality', scaled 0-1. Higher value indicate higher quality of government	Quality of government database, quality of government institute (2010)
TINDEX	+	Trade freedom index, takes the value of 1 if repressed and 5 if open	Heritage freedom index (2010)
BHL	+/-	Official liberalisation date of equity, bank and FDI. Equals 1 ever since the date of liberalisation, 0 prior to liberalisation	Bekaert et al. (2005); Fowowe (2008); Adegbite (2005)
FINDEX	+/-	Financial freedom index, takes the value of 0 if repressed and 100 if open. Higher values indicate better openness (data has been rescaled 0-5 for ease of interpretation)	Heritage freedom index (2010)
KAOPEN	+/-	Capital account liberalisation index	Chinn and Ito (2005); updated (2009)
LIBOPEN	+/-	Interaction between openness and liberalisation date	Author's calculation
FOPEN	+/-	Interaction between openness and financial freedom index	Author's calculation
KAOPEN	+/-	Interaction between openness and financial capital account liberalisation	Author's calculation
BHLTRADE	+/-	Interaction between trade and liberalisation date	Author's calculation
FTRADE	+/-	Interaction between trade and financial freedom index	Author's calculation
KTRADE	+/-	Interaction between trade and capital account liberalisation	Author's calculation
OPENK	+	Exports plus import divided by real GDP (constant price)	Penn World Tables 6.3 (2009)

Note: N/A refers to not applicable. + and - refers to results that are expected to be positively or negatively statistically significant, respectively.

## **4 Quality of institutions in Sub-Saharan African Countries: An Empirical Examination of its Impact on Financial Development**

### **Abstract**

Sub-Saharan Africa has been characterised by low levels of financial development for decades. In this contribution, I argue that institutions play an important role in building effective financial systems and, in turn, promoting economic growth. This chapter considers several alternative measures for financial development because financial institutions perform various functions and the use of a single measure maybe uninformative. I also use an alternative measure of institutional quality and highlight the importance of various facets of institutions in the process of financial development in Sub-Saharan African countries. The empirical results based on a sample of 37 countries over the 1980-2007 period, indicate that, whilst the quality of the institutions is important for the overall development of financial institutions in the region, voice and accountability is equally as important.

Furthermore, I examine whether the impact of institution on financial development varies across different levels of economic growth, and as such, the countries are subdivided according to their level of development into three groups: low income, lower middle income and upper middle income countries. I find that institutions in the form of control of corruption, government effectiveness, and voice and accountability tend to promote financial development in low income countries, whereas regulatory quality seems to be more important in lower middle income countries. In the upper middle income countries, institutional quality does not appear to be important for financial development, rather I find that the level of economic growth coupled with low inflation is important. This chapter concludes that policy reforms should aim to improve the quality of institutions in order for it to be beneficial in the region.

### **4.1 Introduction**

The main goal of economics is to understand why some countries perform better than others. Research shows that the development of the financial market is a key factor in the development process. Despite the growing body of theoretical arguments and empirical evidence, the importance of financial development and the channel through which financial systems affect economic growth were not clear until recently. In an

earlier study, Schumpeter (1911) argued that financial intermediation, through the banking channels, played an important role in economic activity, accelerating savings and improving productivity.

More recently, emphasis has been placed on the important role of the financial sector in mobilising savings, corporate governance, allocating capital and easing risk management (Levine, 1997). What is more, it is accepted in the literature that a well-functioning and highly developed financial market promotes efficiency, and in turn, increases economic growth. In fact, the recent turmoil in the international financial market is evidence of the strong link between finance and growth. Moreover, it is this connection that has forced governments in developed countries (for instance, the US and UK) to provide bailouts worth several billions, in order to avoid further damage to the real sector. The persistence of the recent 'credit crunch' has generated increased academic interest in the finance-growth nexus and spurred a new debate on the need to understand to what extent the limit of financial liberalisation and uncontrolled financial sector development affects economic growth.

Prior to the 'credit crunch', the major concern in the recent literature on financial sector development was the determinants of financial sector development, and the direction of the relationship between financial sector development and economic growth. The importance of this lies in its implication for policy development, especially in developing countries. The debate centres on the crucial questions: what determines the persistent differences in financial market development and economic performance? What sector, financial or real, leads in the dynamic process of economic development? Patrick (1966) argues that the relationship between finance and growth, changes over the course of development. He emphasises the view that financial development can lead to real innovation type investments before sustained economic growth takes place. This argument has encouraged many developing countries to establish and promote financial institutions. Indeed the literature also finds that financial development should be encouraged in poor countries such as those in my sample, because financial development reduces income inequality by raising the income of the poor and, in turn, reducing poverty (Beck et al. 2004). As a result, it is important to understand the determinants of financial development, in order to design policies that would encourage financial development.

In the last two decades, many developing countries in particular, SSA countries have experienced stagnation and/or slowdown in their economic growth, with noticeable declines in the main measures of economic performance. According to Beuno (2008), GDP per capita declined an annual average of approximately 1 percent between 1980 and 1997 in SSA countries. Accompanying this poor record is the underdeveloped financial system. In 2007, the aggregate average level of private credit represented approximately 17 percent of total GDP, whereas the averages for Latin America and Caribbean (LAC) and East Asia and the Pacific (EAP) ranged between 40 and 43 percent, respectively.

**Table 4-1: Developing regions: Comparison of private credit ratio to GDP, 2003-2007**

Year	EAP	ECA	LAC	MENA	SOUTH ASIA	SSA
2003	0.33	0.18	0.38	0.32	0.24	0.15
2004	0.34	0.21	0.36	0.32	0.26	0.15
2005	0.36	0.25	0.36	0.33	0.29	0.15
2006	0.40	0.30	0.37	0.34	0.31	0.16
2007	0.43	0.36	0.40	0.43	0.34	0.17

Source: Author's calculations from Beck et al.'s financial structure database, (2001 updated November, 2010).

The poor performance according to the financial repression hypothesis pioneered by McKinnon (1973) and Shaw (1973) result from government dominance in financial service provision, through imposing several restrictions, such as interest rate ceilings and credit allocation which restrained the growth of the sector (Gelbard and Leite, 1999).

Yet, despite the poor performance, empirical findings confirm that financial development underpins economic prosperity. Consequently, many SSA countries, persuaded by both theoretical argument and experience of other rapidly developing countries (such as Asian countries), adopted various structural and financial reform strategies as proposed by McKinnon (1973) and Shaw (1973). The authors argued that financial liberalisation, particularly the integration of the domestic markets with foreign ones, help to reduce the costs of capital and improve the efficiency of financial intermediaries. The reforms include a variety of measures for banking and stock market development as a dominant strategy to improve financial development.

While significant progress has been made, the gains from adopting these policies have had little or no benefit. What is more, the outcome of financial liberalisation appears to

be different in Asia and Africa.<sup>53</sup> A closer look at the literature suggests that late timing and unstable macroeconomic conditions are responsible for the inefficiency of financial liberalisation. In addition, the lack of good governance and information sharing contributed to the poor financial liberalisation process. Many African countries face the challenges of improving resource allocation by reducing corruption and strengthening governance. However, most of these challenges remain difficult to meet because of the weakness in the institutional framework which can lead to inefficiency of the financial sector, and if unchecked, can contribute to the low level of financial development.

According to theory, strong institutional environment<sup>54</sup> exists to alleviate information and transaction costs. In developing countries, particularly African countries, where legal and regulatory structures are outdated or not properly defined, enforcing contract laws becomes costly and problematic (Wright et al. 2005), hence, institutions are required to prevent such costs (North, 1995). Furthermore, the previous failures of the legal environment has convinced many, of the importance of establishing a favourable institutional environment, which is capable of boosting investors' confidence and contributing to the deepening of the financial sector.

Much of the evidence corroborating theoretical findings suggest that reliable polices and functioning institutional environments are essential for developing an efficient financial system.<sup>55</sup> Equally, these studies pointed out the importance of quality institutions (such as legal, economic and political institutions) for financial development. Accordingly, Popiel (1994) suggests that African countries should focus on legal, regulatory and prudential frameworks, because it encourages the correct functioning of the financial system. The results obtained in the previous chapter seem to agree with the view that SSA countries should maintain good corporate governance, and formulate other policies required to strengthen the financial sector.

Several empirical studies have demonstrated that financial development has a positive relationship with economic performance.<sup>56</sup> Equally, many previous studies have recognised the importance of country-specific characteristics, such as their institutional

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<sup>53</sup> See Pill and Pradhan (1997) for comprehensive discussion. In this study, Africa is used interchangeably with Sub-Saharan Africa for convenience.

<sup>54</sup> Institutional environment is a broad concept which encompasses the laws, regulations and procedures that are used to govern and shape the activities of the financial system and the economy as a whole. For the rest of the chapter, we will use interchangeably 'good governance' and 'quality of institutions' to qualify the institutional environment.

<sup>55</sup> See, for example, Acemoglu et al. (2004); La Porta et al. (1997, 1998) and KariKari, (2010).

<sup>56</sup> Beck et al. (2000) and Levine, (2005) show that banking sector development indicators such as private credit and liquid liabilities have a positive impact on economic growth.

environment in explaining growth.<sup>57</sup> These studies show that political and legal institutions are important in explaining cross-country differences in economic growth. While political institutions are often identified by democracy, legal institutions are the rule of laws that governs human interactions. According to the politics and finance literature, the effectiveness of institutions on financial development varies on the type of political support received. Consequently, higher degrees of democracy are typically followed by increase in financial development and vice versa. In the same way, the law and finance literature points out that the effectiveness of legal institutions, especially the protection of property rights and contract enforcement, are particularly important for transactions which are beyond ‘face-to-face’, because the enforcement helps reduce opportunistic risks. Although there are cross-country differences in institutions, the World Bank (2003) suggests that the effectiveness of these policies depends wholly on the effectiveness of the institutions which implement them.

While several studies have examined different issues relating to financial development in developing countries, surprisingly, very few focus on the SSA<sup>58</sup> given the challenges facing them. What is more, many studies do not necessarily consider the heterogeneity of the African economies. Indeed, the weakness in the quality of institutions in the SSA is emphasized by the significant but negative sign of the coefficient of ICRG\_QOG indicator on financial development in the previous chapter. Therefore, it might be informative to explore the role of institutions in determining financial development in the SSA region. I consider the heterogeneity of African countries by isolating the sample countries into three groups based on the level of economic development. Hence, the main objective of this chapter is to examine the role of the institutional environment in promoting financial development among countries in the SSA region. It attempts to provide answers to the following questions: Does institutional environment facilitate deepening of the financial sector? If so, which dimensions of the institutional environment (economic, legal and political institutions) are powerful for financial development?

I revisit the previous chapter by examining which aspect of institutional environment is important for the link between financial liberalisation and financial development in the

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<sup>57</sup> Among them, see Claessens and Laeven (2002); Acemoglu et al. (2001); Knack and Keefer, (1995); Beck and Laeven, (2005, 2006) and Ndulu and O’Connell, (1999).

<sup>58</sup> See, for example, McDonald and Schumacher (2007), and Singh et al. (2009). Arestis and Demetriades, (1997) and Chinn and Ito, (2006 and 2008) included SSA countries in their samples, but did not particularly focus on them.

SSA. Here, I assess the independent role of financial liberalisation and institutions on financial development, as well as their potential interactions. Finally, I revisit the finance-growth nexus using data on SSA countries and ask what factors explain the significant differences in economic growth across SSA countries? Here, I empirically consider the impact of each factor, as well as their potential interactions. It is hoped that the answers to these questions will generate conclusions that may be relevant to policymakers.

The chapter proceeds as follows. Section 4.2 explains the process of financial development and provides the trends of financial development in Africa. A brief review of the literature on financial development, institutions and its effect on growth is provided in Section 4.3. In particular, this section discusses the theoretical and empirical links on finance and growth and identifies the main institutional factors that limit the development of financial markets, and highlights the importance of addressing these in SSA. It also discusses some studies in this area, undertaken for other developing regions. Section 4.4 examines the role of institution and financial development and section 4.5 looks at the factors that promote financial development in SSA countries. This section also provides a brief summary of the econometric technique used and provides details on the variables used in the study, before discussing the results in Section 4.6. Details of the sensitivity analysis are provided in section 4.7. Finally, policy implications and conclusions follow in Section 4.8.

## **4.2 Explaining financial development**

Goldsmith (1969) defines financial development as a change in the structure of a country's financial system during development. Financial systems can be classified as either bank-based or market-based. A well-functioning financial system provides better financial services and is crucial to maximizing sustainable economic growth, because it channels funds to people with the most productive investment opportunities, and encourages savings and capital accumulations. While a well-developed financial system indicates a strong economic environment, an underdeveloped one can lead to a slow growth rate in the economy. Hence the literature emphasises that every economy requires a well-functioning, efficient and sophisticated financial system to grow (Schumpeter, 1911; McKinnon, (1973), Shaw, 1973; Levine, 1997 and more recently, Ang, 2007).



The role of finance in the economy can be traced back to the work of Bagehot (1853), who notes that finance *facilitate capital accumulation* and *manage risks* inherent in particular investment projects during the industrialisation in England. It was not until Schumpeter (1911) explained that financial intermediaries facilitate innovations through savings, evaluate investment project and facilitate transactions, that the services provided by financial intermediaries became more apparent.

Previous studies did not distinguish between the role of the bank and/or stock market in the growth literature. It is believed that both banks and stock market exert different impacts on the economy, as the services they both provide are distinct. Hence, to distinguish between the role of the bank and the stock markets, most studies focus on their functions. These functions, as described by Levine (1999), provide us with a better understanding of the significant role of the financial markets, which was not present in earlier studies. These functions are summarised below:

a. Producing information and allocating capital:

The cost of obtaining and processing information on projects, firms and markets are often high, and individual savers may not have the ability to collect such information. This high cost may also prevent capital to flow to its highest value of use. As a result, financial intermediaries undertake the costly process of researching investment possibilities by lowering the costs of gathering and processing information, and thereby, improving the allocation of resources (Boyd and Prescott, 1986).

b. Trading, diversification and risk management:

Demirguc-Kunt and Levine (2008) point out that both financial intermediaries and security markets provide channels for trading, pooling and diversifying risk. The authors note that high return projects tend to be more risky than low projects. However, because savers do not like risk, the financial systems provide an avenue where agents are allowed to hold a diversified portfolio of risky projects. These induce society to shift towards projects with higher expected returns with a positive incidence on economic growth (Greenwood and Javanovic, 1990 and Gurley and Shaw, 1955). This process of risk diversification, according to Levine (2004), can lead to long run economic growth by altering savings rates and resource allocations.

c. Mobilising and pooling of savings:

Levine (2004) and Demirguc-Kunt and Levine (2008) describe the mobilisation of savings to involve (i) overcoming the transaction costs of collecting savings from numerous individuals, and (ii) overcoming information asymmetries associated with making savers feel comfortable in relinquishing control of their savings. Thus, most savers tend to entrust their monies in banks that invest in firms who use these finances to fund long-term projects. In this context, Bencivenga and Smith (1991) explained that banks play an important role in making credit available for investments through facilitating and channelling savings from individual savers to productive investments. This process leads to capital accumulation, productivity and eventually, economic growth.

d. Facilitates exchange:

Another function of the financial system is that it provides instruments to make and receive payments, in addition to reducing transaction and information costs. Financial intermediaries allow for easy access to funds by facilitating exchange and transaction within the economy and also with other economies.

e. Monitoring firms and exerting corporate governance:

Corporate governance problems relate to a situation where equity holders influence firm managers to act in the interest of shareholders, so as to enhance profitable investment. In a situation where financial intermediaries do not exert corporate governance, this leads to capital not flowing to profitable investments. Therefore, the degree to which the providers of capital to firms (i.e. shareholders) monitor the activities of the firms and the investment process is important in order to protect shareholders interests. To protect shareholder interests, financial intermediaries help monitor the way in which firms use the capital provided to them. This is done through lowering monitoring costs, which will reduce credit rationing, and in turn, promote economic growth, (Bencivenga and Smith, 1993).

The proponents of bank-based market economies tend to suggest that banks are important because they tend to ease information frictions and improve resource allocation. In fact, banks are more efficient than equity markets in improving resource allocation and corporate governance in the early stages of economic development,

(Stiglitz, 1985 and Bhide, 1993). However, the proponents of market-based systems suggest that stock markets provide risk management, reduce the counterproductive monopoly power of banks (i.e. mitigate the problems associated with excessively powerful banks) and stress that the competitive nature of markets encourages innovation through growth enhancing projects (Allen and Gale, 2000 and Levine, 2001). Although the roles of both banks and stock markets have been clearly emphasised, Demirguc-Kunt and Maksimovic (1996) and Beck and Levine, (2004) point out that both banks and stock markets promote economic growth by improving information dissemination and reducing transaction costs.

The empirical literature on this issue (Hoshi et al. 1991 and Arestis et al. 2001), examines which financial structure better explains economic growth and tends to show that financial structure is important. Although, there is no clear indication about which financial system is better (bank-based or market-based), financial systems tend to become more market-based as countries develop (Demirguc-Kunt and Levine, 1999). Besides, in most developing countries, and in particular, African countries, commercial banking is the principal industry because it has the potential to contribute to the development of a country, this is because they tend to be setup before stock markets. In essence, banks contribute more to economic growth in developing countries because they tend to be better developed than stock markets.

Despite the foregoing argument, the literature suggests that having a stock market is an indicator of the health of the financial system. Moreover, stock market development is an important key for economic growth, because there is a long run positive relationship between the stock market and economic growth (Shahbaz et al., 2008). Nevertheless, Adjasi and Biekpe (2006) note that in developing countries, and indeed the SSA region, the lack of liquid stock markets has been a significant factor in impeding stock market development. Levine (1991) provides some explanation that stock market liquidity is more important for growth because a liquid market reduces information asymmetry as argued by Holmstrom and Tirole (1993). This means that investors can easily withdraw their stake in a project and sell it quickly if they need their savings before the maturity of the project (Levine and Zervos, 1998). This claim has been supported by vast empirical evidence, because many empirical studies have found a positive relationship between liquidity and long-term growth. Despite the empirical evidence, the small size of the SSA economies, and the relatively poor financial development, indicates that these countries do not have the financial stock markets culture yet; as banks are the

main financial service providers, with bank loans obtained as and when money is needed.

A report by the United Kingdom's Department for International Development (DFID, 2008) indicated that (i) improving efficiency and competitiveness, (ii) increasing the range of financial services, (iii) diversifying institutions of operation, (iv) increasing the amount of money and capital allocation, (v) better regulation and (vi) more stability are key elements to financial development. This is particularly important for developing countries because both the banking sector and stock markets have been constrained by a lack of relatively good policies and institutional environments, which are important in promoting financial deepening (Standley, 2010).

As a result, many of these countries implemented various financial sector liberalisation strategies as part of the recommendation strategies provided by the McKinnon and Shaw (1973) hypothesis, in an aim to develop the financial sector. Many developing countries witnessed development and improved economic growth, in addition to developing an efficient financial system which was capable of providing good quality financial services. Consequently, developing an efficient capital market will not only provide resources to investors, they will also facilitate the inflow of foreign financial resources into the domestic economy (Ngugi et al., 2009).

#### **4.2.1 Financial development in Sub-Saharan Africa**

A developed financial system plays an important role in the economy. According to Levine (1997: 691) its primary function is to 'facilitate the allocation of resources, across space and time, in an uncertain environment'. The financial sector is the main link between a country's macroeconomic policies and the economy in general. Hence, the level of its development is important in the economy. Many African countries have bank-based financial system because the banks are the main source of the financial system that provides various forms of financial services. However, many of them are characterised by very limited outreach, with less than one in five households having access to a formal banking service, be it savings, payments or credit services, leading to the high level of disparity in the growth of the sector, across countries and income groups in the region. In addition, they were limited to investors due to their short-term financing nature.

Constant government intervention such as interest rate control was introduced in order to foster financial development and in turn promote economic growth. Nonetheless, the World Bank (1989) notes that these controls undermined the financial sector and did not lead to economic growth. Moreover, Green et al. (2000) writes that many African economies suffered low investment in productivity due to a lack of access to funds, because of the rigid collateral conditions and information asymmetry characteristics. Further, Gulde et al., (2006) note that the financial systems in Africa are among the least developed in the world. The authors note, particularly, that low income SSA countries have smaller financial systems, when compared to the middle income countries.<sup>59</sup> To improve the level of financial development in the region, many SSA countries, during 1980s and early 1990s, introduced several financial liberalisation measures (such as restructuring banks and improving banking supervision) to try to develop a deep and efficient financial system. However, these reforms remain ineffective, because the financial systems in the SSA region remain one of the shallowest in the world.

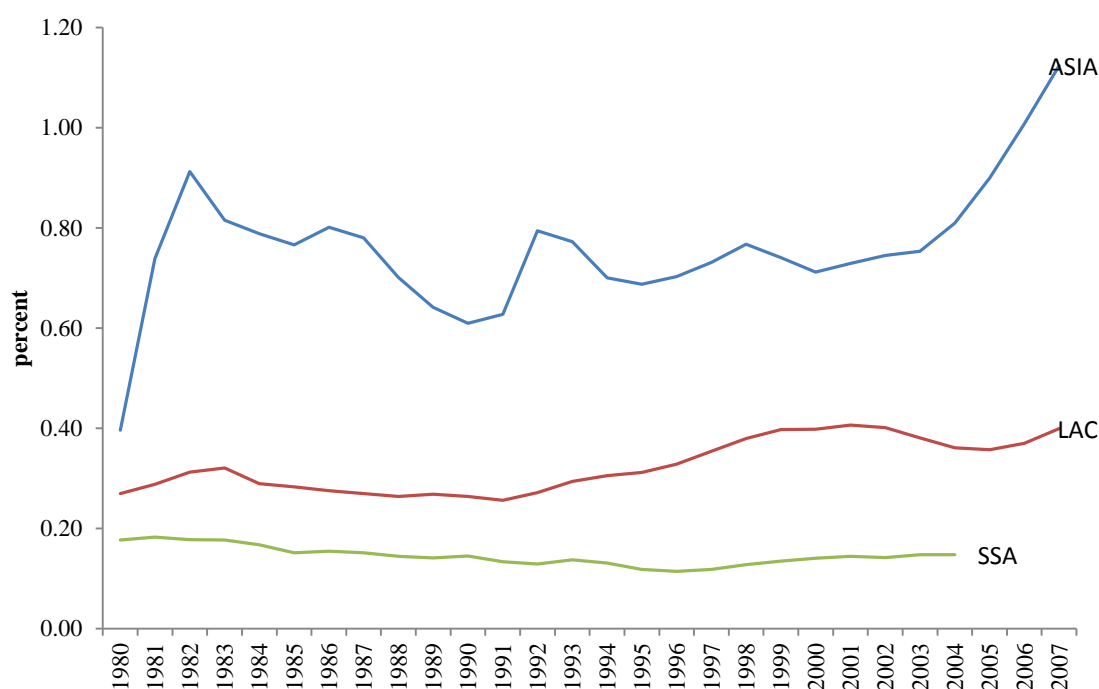
### ***Financial development in SSA and other developing regions***

The level of financial development in a country is determined by the access that individuals have to credit and financial services. In the SSA region, the level of financial development remains low, when compared to other regions (Figure 4-1 below). According to the figure, the average level of credit available to the private sector in SSA was only 13 percent of GDP. The low level of private credit demonstrates the underdevelopment in the financial sector in this region when compared to the other region (71 percent in Asia and 32 percent in Latin America and the Caribbean respectively). Despite several implementations of different banking sector reform policies, the performance of private credit remains somewhat mediocre. Although banks remain the main access to finance for most firms, the poor performance of private credit in the SSA region could probably be related to the wide spread banking crises experienced in many of these transition economies and the SSA countries during the 1980s and 1990s.

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<sup>59</sup> Out of the 37 countries, 22 are low income countries (LIC), 10 are lower middle income countries (LMIC), and 5 are upper middle income countries (UMIC). The average financial development, measured using private sector credit as a ratio to GDP, in LIC countries for the sample period 1980-07 was 13.71 percent. LMIC and UMIC countries had approximately 16.96 and 38.21 percent, respectively.

Figure 4.1: Sub-Saharan Africa and other developing regions: Evolution of private credit, 1980-07

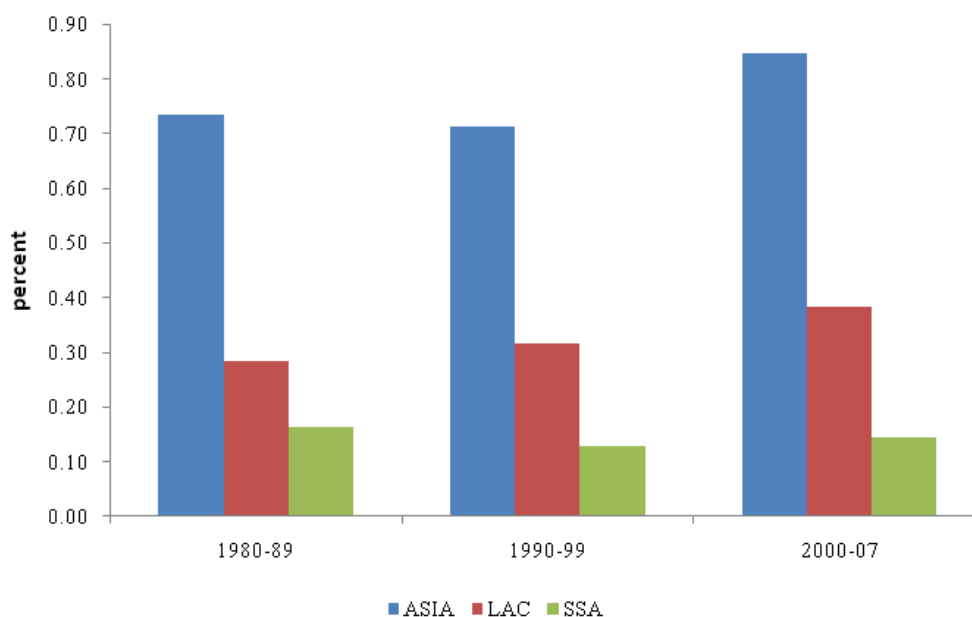


Note: Private credit to GDP across developing regions for each year.

Source: Author's Calculation from Beck et al.'s financial structure, (2001: updated November, 2010).

Gelbard and Leite (1999) observe some noticeable progress in the level of financial development in SSA countries (Figure 4-2 below). However, despite various financial liberalisation reforms, the challenges posed by financial repression in the region have not helped in the development of the financial market in the past two decades. Hence, Gelbard and Leite (1999) in Kablan (2010:10) note that '*much remained to be done*'.

**Figure 4.2: Financial development in SSA and other developing countries: decadal analysis**



Note: 10years average of private credit to GDP across each developing region.

Source: Author's Calculation from Beck et al.'s financial structure, (2001: updated November, 2010).

The literature points to the fact that underdeveloped institutions, in particular, weak legal institutions, affect the level of financial development in the region. For example, Chinn and Ito (2002), in their empirical analysis of the relationship between capital account liberalisation and financial development, found that financial systems with a higher degree of institutional development benefited more from financial liberalisation. Similarly, Demetriades and Andrianova (2003) observed that the strength of institutions, such as financial regulation and the rule of law, may determine the success or failure of financial reforms. The implication in the SSA region based on the literature is that the low level of institutional quality limits financial development.

Although banks are an important element of the financial system, the depressing performance of banks in the region may be a result of the incompleteness of the regulatory and supervisory mechanisms, the contractual and legal systems, and the accounting and disclosure rules. Indeed, previous literature such as La Porta et al. (1998); Levine (1998) and, more recently, Zhao et al. (2011) show that a good institutional environment (i.e. the rules that govern and shape bank interactions) are key to banking efficiency, and that these rules are positively linked to financial development. Therefore, financial development involves improvement in both bank soundness and governance structure, particularly, the legal dimension. Improvements in the legal system, mainly, the enforceability of legal/creditor rights, may reduce

information asymmetry, increase investors' confidence and improve access to credit, because creditors would then be able to obtain information about potential lenders.

### ***Evolution of financial development in SSA***

A standard approach in the literature is to measure financial intermediation using various financial indicators such as liquid liabilities, private credit and bank deposits (Beck et al., 2004; Campos and Coricelli, 2009; Kasekendi, 2007 and Levine et al., 2000). The first indicator, liquid liabilities as a percentage of GDP (M3), is a typical measure of financial depth and has the advantage of measuring, accurately, the role of financial intermediaries in channelling funds to productive agents (Jeaneney and Kpodar, 2005). It is defined as 'currency plus demand and interest bearing liabilities of banks and nonbank financial intermediaries divided by GDP'. This measure is said to capture the overall size of financial intermediation and has been used traditionally by different scholars, such as Demirguc-Kunt and Levine (1999), King and Levine (1993a; b), Rioja and Velv (2002) and more recently, Kiran et al. (2009). The second indicator, private credit, is defined as 'credit to the private sector by banks and other financial intermediaries as a percentage of GDP'. It is a common indicator for financial depth used in the literature. Levine et al. (2000) emphasised the importance of private credit and also observed a positive relationship with economic growth. According to the authors, a high level of private credit indicates low transaction costs and a high level of financial services, which, therefore, indicates a high level of financial development.

The ratio of liquid liabilities to GDP provides an illustration of the level of liquidity provided to the economy. It is usually defined as broad money, comprising:

*currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus travellers cheques, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents. (World Bank, 2010)*

The ratio tends to measure the relative size of the financial sector and reflects the level of liquidity provided to the economy. However, it does not distinguish between the allocation of capital to the private sector and the public sector. Furthermore, liquid liabilities can also be taken as a measure of inefficiency and it indicates the amount of



money needed to support a given level of income. According to Hassan and Suk-Yu, (2007), a higher liquidity ratio implies a higher intensity of the banking sector. Figure 4-3 (below) provides an evolution of indicators of financial development in SSA countries. According to the figure, the ratio of liquid liabilities was volatile in the SSA countries and averages 26 percent during the period 1980-2007. During the post-reform period, the ratio of liquid liabilities to GDP increased for the first few years and, thereafter, decreased, owing to the restructuring of most of the biggest banks in the region. From 1999, the ratio began to increase steadily until 2007; this could partly be due to the increase of financial services.

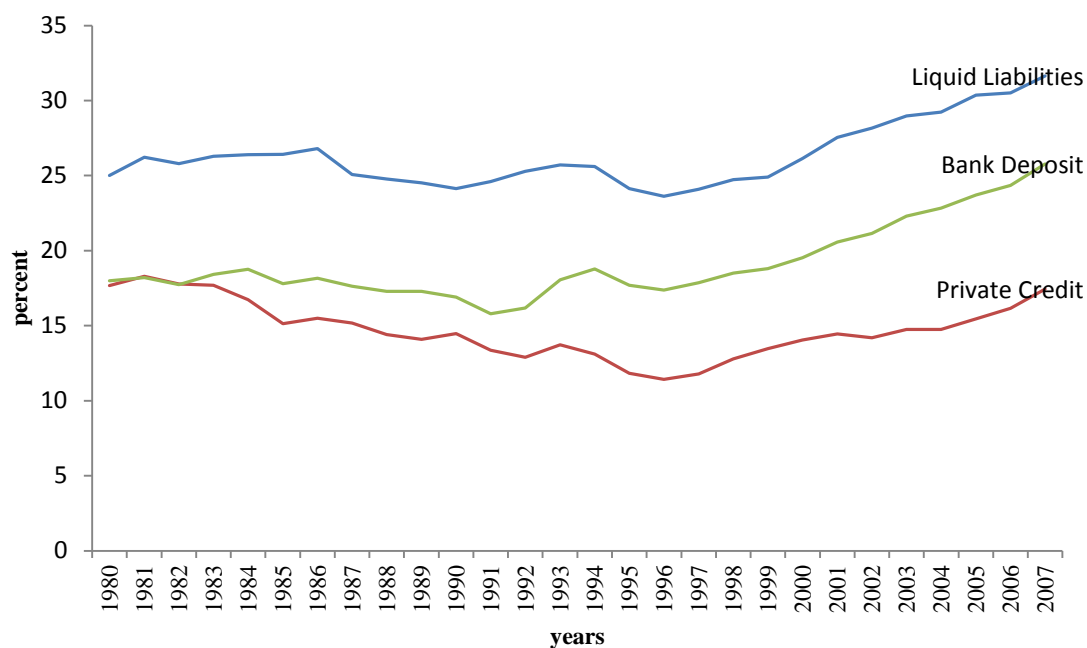
The ratio of private credit to GDP measures the claims on the private sector by deposit money banks and other financial institutions, divided by GDP. It refers to the financial resources provided to the private sector through loans, purchases of non-equity securities, trade credits and other accounts receivable, all of which establish a claim for repayment. During 1980 and 1989, the ratio of private credit to GDP was quite volatile in SSA countries, declining to approximately 15 percent of GDP in 1985 and then dropping slightly to 14 percent in 1989. From 1990-99, the private credit ratio averaged 13 percent.

Bank deposit is the total deposit in deposit money banks as a share of GDP. The ratio of bank deposits to GDP illustrates the extent to which local savings are effectively mobilised. According to the figure, from 1980-83, bank deposits in SSA countries averaged 18 percent of GDP. During the period 1984-91, the ratio of bank deposits to GDP generally decreased. The fall in bank deposits was partly due to the banking crisis that affected many SSA countries from late 1985 to 1995.<sup>60</sup> Although, bank deposits tend to be low in developing countries, when compared to other developing regions, Applegarth et al. (2004) note that, it is lowest in SSA countries. Indeed, I find that in 2003, bank deposits only account for 22 percent of SSA's GDP when compared to 40 percent in both South Asia and Latin America and the Caribbean. However, a slight improvement was recorded between 2000 and 2007 (averaging 23 percent of GDP). Overall, the three measures of financial development reveal an upward trend since 2000 after a series of slow growth.

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<sup>60</sup> For a comprehensive study on the banking crisis in the SSA region, see Daumont, Le Gall and Leroux, (2004).

**Figure 4.3: Sub-Saharan Africa: Average liquid liabilities, private credit and bank deposits, 1980-07**

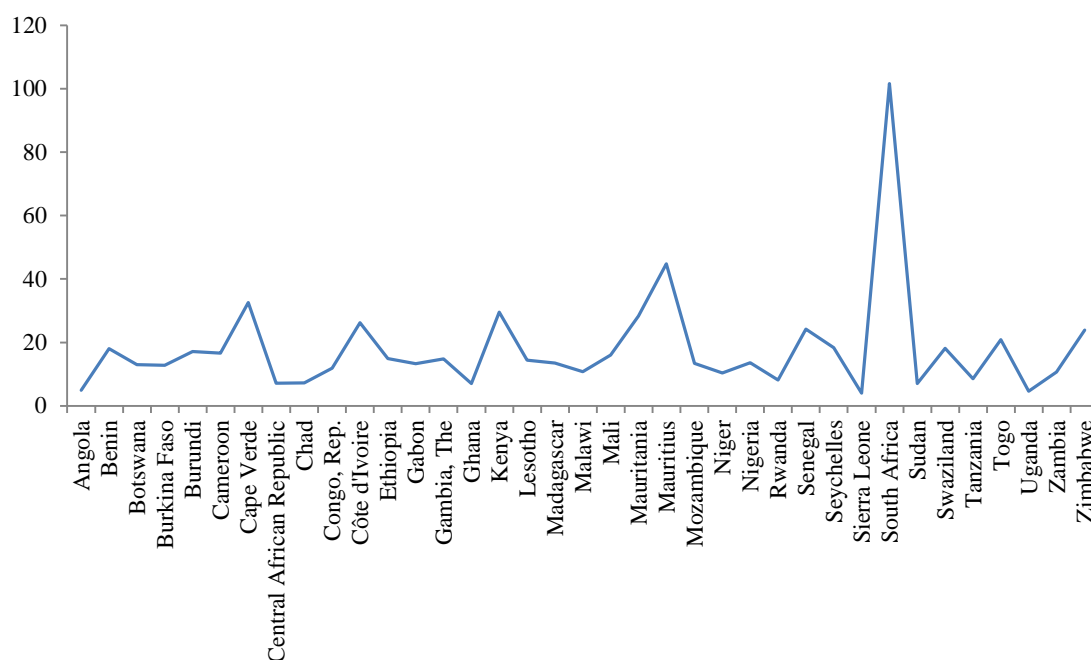


Source: Author's calculation from Beck et al.'s financial structure, (2010: 2001 updated November, 2010).

#### *Level of private credit in the SSA*

With the exception of South Africa, where the private credit ratios were higher than 100 percent, the ratio of private credit to GDP for the remaining SSA countries, during the period 1980-07, tended to be in the range of 4 to approximately 44 percent. Figure 4-4 shows that the bulk of the SSA countries had ratios within the range of 4-18 percent, with the exceptions being Cape Verde, Cote D'Ivoire, Kenya, Mauritania, Senegal, Togo and Zimbabwe, which had ratios between 21 and 33 percent, and Mauritius, which had a ratio of over 40 percent.

**Figure 4.4: Average financial development (ratio of private credit to GDP) in SSA region, 1980-07**



Source: World Banks, *World Development Indicators*, (2010), Author's calculation.

These low levels of private credit suggest limited access of finance to rural households and small and medium scale enterprises (SMEs) in these economies (Gries and Meierrieks, 2010). In addition, non-performing loans, deteriorating macroeconomic environments and a lack of well-developed legal environments undermined the efficiency of the banking system. In fact, these factors undermine the potential of the financial sector to effectively allocate capital to support innovative projects. Kablan (2010) confirms that non-performing loans were responsible for bank inefficiency in SSA countries and concludes that there is a need to improve the regulatory and credit environment.

### ***Fast growing economies and financial development***

The economies of the fastest growing SSA nations experienced growth in the ratio of private credit to GDP during the period 1980-07, making most stride in the mid to late 1990s.<sup>61</sup> Figure 4-5 (below) shows the ratio of private credit to GDP for Botswana, Cape Verde and Mauritius. As shown in the figure, the private credit ratio for Botswana was low towards the end of the 1980s, but rose through to 1992, partly due to the effect of financial liberalisation reforms and a surge in the demand for credit. By 1997, the ratio to the private sector had declined once more, reaching 9 percent; its lowest during

<sup>61</sup> The countries are Botswana, Cape Verde and Mauritius. They had the fastest rate of real GDP per capita growth over the period 1980-2007. Real GDP per capita is obtained from Penn World Table 6.3 version.

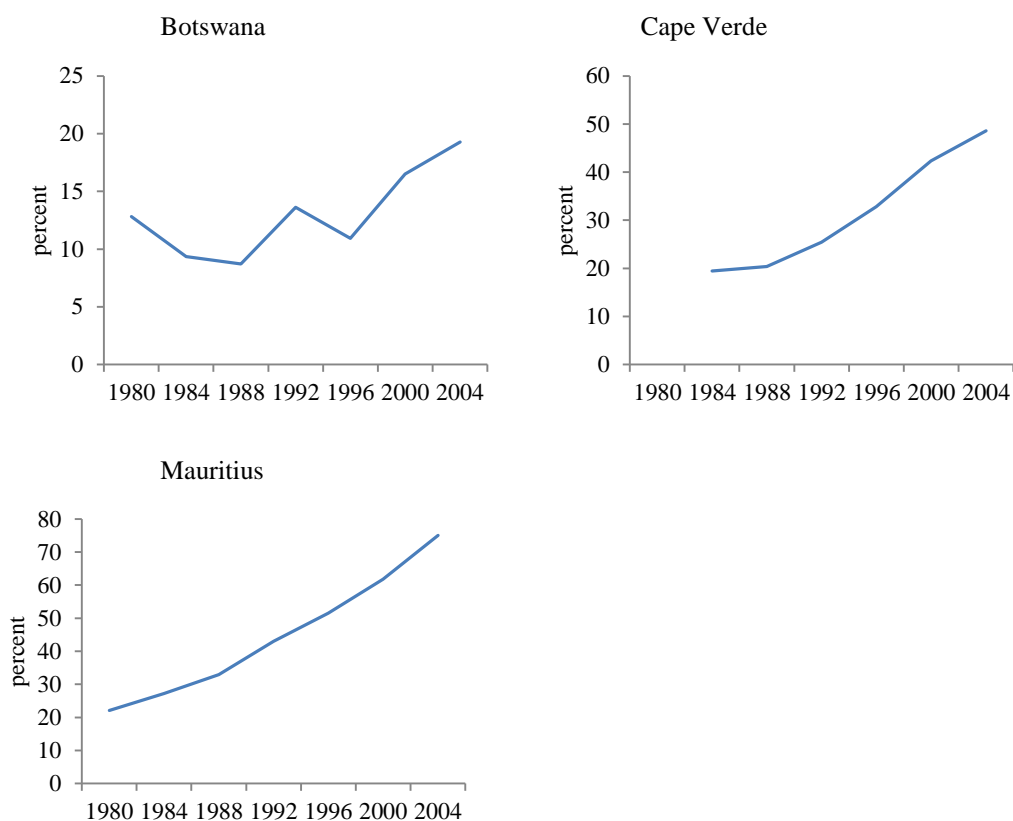
the 1990s. However, between 1998 and 2007, the ratio of private sector credit to GDP grew at an annual average of approximately 6.6 percent, with the highest reaching approximately 20 percent of GDP in 2007.

Several factors explain this significant upward trend. First, the Botswana government developed several economic development strategies focusing on developing an efficient financial system that was capable of promoting financial intermediation. Second, in a bid to promote economic diversification, the government initiated a number of financial assistance programs, by providing credit to the private sector through organisations such as Botswana Development Corporation. Government intervention in the financial sector was also reduced, so as to remove the non-market allocation of capital.

In the case of Cape Verde's financial sector, I observe that there is a significant level of expansion in the ratio of private sector credit to GDP between 1998 and 2007. Efforts made by the government to promote financial development, by stabilising the exchange rate and relaxing exchange controls, account for this development. On an annual average of four years, GDP grew by approximately 5.85 percent during the period 1984-87 to approximately 5.87 percent in the period 2004-07.

The ratio of private credit to GDP in Mauritius was volatile throughout the period 1980-2007, following an upward trend with an average annual growth of approximately 4 percent. This period represents the most developed period of Mauritius' banking system. In fact, McPherson and Rakovski (1999) note that the development of the banking system is consistent with the McKinnon-Shaw (1973) hypothesis, which stresses the reduction in government intervention and the removal of distortions from the capital markets, in order to promote financial sector development. Moreover, developed financial infrastructures, such as institutions and good governance, have been linked with the persistent growth (Figure 4-5, below).

**Figure 4-5: Financial sector development in the top 3 fastest growing SSA countries**



Notes: four years annual average of private credit to GDP ratio covering the period from 1980 to 2007.  
Source: World Bank's *World Development Indicator*, (2010).

#### 4.2.2 Classifying the levels of financial development

To classify Sub-Saharan African countries according to their levels of financial development, I averaged private credit over three decades (1980-89, 1990-99) with the exception of (2000-07).<sup>62</sup>

<sup>62</sup> Data are available for the more recent year 2009, however, due to the sample period, we have opted to focus on 2007; hence, we do not have a complete decade. Nevertheless, the results obtained are no different from when using data from 2000-2009.

**Table 4-2: Level of financial development in SSA countries**

COUNTRY	1980-89	1990-99	2000-07
Angola	N/A	3.95	5.51
Benin	27.73	11.02	14.54
Botswana*	10.24	11.94	17.89
Burkina Faso	13.96	10.35	14.46
Burundi	10.16	17	25.93
Cameroon	27.03	12.27	9
Cape Verde*	18.35	27.98	45.48
Central African Republic	10.24	4.78	6.1
Chad	13.19	4.48	3.39
Congo, Rep.	19.97	10.8	3.28
Côte d'Ivoire	38.14	23.4	14.8
Ethiopia	10.62	13.73	21.36
Gabon	19.22	9.95	10.1
Gambia, The	19.32	10.68	14.5
Ghana	2.85	6.48	13.73
Kenya	30.17	30.58	27.52
Lesotho	12.67	19.16	10.57
Madagascar	17.32	12.97	9.27
Malawi	14.93	8.95	7.7
Mali	17.1	13.17	18.11
Mauritania	31.65	26.22	25.29
Mauritius*	26.17	44.55	68.43
Mozambique	18.83	13.46	12.71
Niger	16.4	7.39	6.38
Nigeria	15.39	10.81	14.93
Rwanda	7.21	7.53	10.89
Senegal	31.6	19.74	20.41
Seychelles	12.7	15.05	29.34
Sierra Leone	5.33	2.96	3.75
South Africa	68.83	106	137.13
Sudan	10.78	2.93	7.36
Swaziland	20.77	16.1	17.52
Tanzania	7.82	8.05	9.44
Togo	24.32	20.99	16.28
Uganda	2.3	3.95	8.33
Zambia	16.58	6.75	8.3
Zimbabwe	14.71	30.26	28.38
SSA average	18.46	16.39	19.41
Min	N/A	2.93	3.28
Max	68.83	106	137.13
Standard Deviation	12.04	17.67	23.48

Notes: \* indicates fastest growing countries in SSA. N/A implies not available.

Source: World Banks' *World Development Indicators*. Author's analysis.

By averaging private credit over ten years, this smoothed out potential structural breaks and allowed us to focus on trends (Greenidge et al., 2004 and Rioja and Valev, 2004). Then, using the average of private credit over the period 2000-2007,<sup>63</sup> countries are classified into low and high level of financial development, based on their deviation from the mean.<sup>64</sup> On the basis of this classification, Sub-Saharan African countries fit into two main groupings: low level of financial development and high level of financial development. Table 4-3 indicates that out of the 37 countries used in the sample, only 10 fall within the high level of financial development group during the period 2000-2007. Those analyses seem to agree with the literature that SSA countries, generally, have a low level of financial development.

**Table 4-3: Financial development: Country groupings**

Level of financial development	Average private credit to GDP ratio	Countries in the group
Low	Less than 19.41 percent	Angola, Benin, Botswana, Burkina Faso, Cameroon, Central African Rep., Chad, Congo Rep., Cot d'Ivoire, Gabon, Gambia, Ghana, Lesotho, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Sierra Leone, Sudan, Swaziland, Tanzania, Togo, Uganda and Zambia.
High	Above 19.41 percent	Burundi, Cape Verde, Ethiopia, Kenya, Mauritania, Mauritius, Senegal, Seychelles, South Africa and Zimbabwe

Notes: SSA countries grouped into low and high level financial development based on the mean of private credit in the 2000-2007 period.

In Table 4-4 (see below), I examine whether there has been changes in the level of financial development, as measured using the ratio of private credit to GDP during the period under study. The table shows that 24 of the 37 countries did not witness any change in the level of financial development. Specifically, I note that 5 out of the 24 countries already had a high level of financial development.<sup>65</sup> However, it was interesting to find that Lesotho moved from having a low level of financial development during 1980-89, to a high level of financial development in 1990-99, and then back to low level of financial development in 2000-2007 period. According to Aziakpano (2005), bank concentration, poor corporate governance and inefficiency in the banking sector accounts for this change. The low level of financial development in the region

<sup>63</sup> We believe that the banking sector improved greatly in this period.

<sup>64</sup> A country is considered as 'high' if its private credit value falls above the sample mean and 'low' if private credit falls below the sample mean. According to Bianchi (2008), splitting the sample according to the mean of the group gives the same qualitative results. In addition, using the median gives approximately an equal number of observations.

<sup>65</sup> Using a similar methodology to that used in determining the level of financial development, we find that Kenya, Mauritania, Mauritius, Senegal and South Africa had a high level of financial development during 1980-07 period.

has been confirmed in recent studies, including Beck et al. (2003) and Kablan (2010). These studies conclude that improvement in institutions (such as legal institutions) is required, in order to promote banking efficiency and encourage the investment needed to boost economic growth.

**Table 4-4: Changes in level of financial development in SSA countries**

<b>FINANCIAL DEVELOPMENT IN SSA, 1980-07</b>
<b>IMPROVED</b>
Cape Verde, Lesotho*, Seychelles and Zimbabwe
<b>DETERIORATED</b>
Benin, Cameroon, Congo Republic, Cote d'Ivoire, Gabon, Gambia, Lesotho*, Mozambique, Swaziland and Togo
<b>NO CHANGE</b>
Angola, Botswana, Burkina Faso, Burundi, Central African Republic, Chad, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Sudan, Tanzania, Uganda and Zambia

Notes: \* indicates two different changes. First, during the period 1990-99, Lesotho encountered an improvement in the level of financial development, however, the level of financial development deteriorated in 2000-07 period.

### **4.3 Literature review**

#### **4.3.1 Theoretical framework**

The existence of a relationship between finance and growth is widely recognised in the literature.<sup>66</sup> There are two distinct views in the finance-growth nexus. The first one considers finance as important to growth (Goldsmith, 1969; Fry, 1995 and Schumpeter, 1911) and the second considers finance as an unimportant aspect of growth (Robinson, 1954 and Singh, 1997).

The view that finance is important for growth was first proposed by Schumpeter (1911), who argues that financial intermediaries, through the provision of financial services and resources to investors who are ready to finance new projects, are important drivers of economic growth. The argument here is that the financial system plays a critical role in reallocating resources to the most productive projects, which that will in turn lead to higher economic growth. In addition, a well-functioning financial system encourages technological innovation and, in turn, improves economic growth. The implication of this is that countries with well-developed financial systems (usually measured by the size of the financial system) tend to grow faster than those with underdeveloped financial systems. Consequently, this type of relationship is referred to as '*supply-leading*'. The above view was later formalised by Goldsmith (1969); Fry (1995);

<sup>66</sup> The foundation of the importance of financial systems in the economy can be traced to Bagehot, (1973). He argued that financial systems were responsible for igniting industrialisation in England.



McKinnon (1973) and Shaw (1973), who all believed that financial development facilitates economic growth.

The second view postulated by Robinson (1954), suggests that financial development is a result of economic growth, and that the increase in the demand for financial services is actually caused by economic growth. According to Robinson, as the real sector grows, the demand for financial services induces growth. That is to say, as an economy grows, the financial institutions, financial products and financial services emerge in response to the increased demand for financial services, hence, the author concludes that '*where enterprise leads, finance follows*'. This argument suggests that financial and monetary systems do not have a long-run relationship with economic growth. Thus, this type of relationship is referred to as 'demand following finance'. This view is supported by Ireland (1994) and Singh (1997), who find that financial development may actually impede economic growth in the short-run.

The two views detailed above are contradictory and create significant debate. Patrick (1966) tries to reconcile both views by pointing out that finance was required for growth in the early stages of economic development, this is the case of the '*supply-leading*' finance. Nevertheless, finance also responds to the changes in the economy in the later stages of development. Thus, this also implies that, economic growth creates a demand for developed financial institutions and services, hence, '*demand-following*' finance. Despite this explanation, Lucas (1988) refutes these findings and concludes that 'financial sector development is not related to economic growth' and that the role of finance in growth has been 'badly overstressed'.

As explained above, the debate has remained unresolved. Thus, to understand the role of finance in growth, I revisit the early theory of economic growth, because it will help us understand the sources and/or factors that cause economic growth. In the early growth theories, the role of finance in promoting economic growth was not mentioned; rather, it was believed that the efficient utilisation of the factors of production (labour and capital) led to economic growth. Chandavarka (1992) explains that development economists are always sceptical of the role of finance in the growth process, and as such, it is often ignored. Accordingly, the literature on growth notes several other factors that cause economic growth including; investment ratio (Harrod-Domar model, Pagano, 1993), trade openness and research and development (R&D), (Rodrik, 1999), human capital and technological progress (Barro and Lee, 1994 and 1997 and Romer, 1986). The literature on growth is very large, but to understand the factors that drive

economic growth, I examine the exogenous and endogenous growth theories. It should be noted that the purpose of this chapter is not to provide an in-depth review of the theoretical literature, but to examine the role of institutions on financial development and to examine its role as a channel through which finance affects growth in Africa. Hence, the exogenous and endogenous theories are used to guide our theoretical underpinning.

Robert Solow (1956) developed one of the first models used in explaining the processes and causes of economic growth. By extending the Harrod-Domar model, the Solow model, as it is known, proposed that economic growth occurs through exogenous changes in factor accumulation. That is to say, a change in the factors of production (capital and labour) will lead to changes in output over time. In explaining the process of economic growth, Solow considers a production function with four main variables; output ( $Y$ ), capital ( $K$ ), labour ( $L$ ) and knowledge ( $A$ ). Using the supply side of the economy as the main focus, the model assumes that savings, investments, factor accumulation and technological progress, or knowledge ( $A$ ), are exogenous in determining economic growth. It also assumes that both capital and labour exhibit constant returns to scale. From this assumption, it follows that an increase in labour would lead to a decrease in output, given that capital remains the same. Eventually, an increase in capital will produce no output, therefore causing growth to cease.

In this model, an increase in technology or knowledge ( $A$ ), will lead to an increase in output. This implies that if new technologies improve the productivity of labour and capital, and prevents a decrease in the rate of return, the labour force will grow at an exogenous rate. In addition, growth in the labour force is dependent on changes in population growth. Thus, a change in capital depends on net investment, and capital will only grow if investment is positive. The Solow model assumes a closed economy **with no government** and in the long-run, supply and demand are equalised. Therefore, in the short-run, capital grows faster than labour, causing output and capital per worker to grow temporally, while in the long-run, the output and capital growth rate is equal to zero, and savings rate is just enough to provide for labour (Al-Tamman, 2005). Consequently, the theory of exogenous growth argues that sustained economic growth is dependent only on exogenous technological change.

In the endogenous growth theory, on the other hand, investing in human capital and research and development (R&D), and the introduction of institutions which are capable of providing funding for people to be innovative, are important in explaining long-run

economic growth. This model highlights the failures of the Solow model by arguing that technological progress is not given, rather that investment in human capital and R&D leads to the discoveries of new technologies. Accordingly, the new found technology or knowledge leads to innovation and further investment in human capital, because it is an important aspect of economic growth. The main argument the endogenous model puts forward is the importance of government intervention. According to the theory, appropriate government policies can raise a country's growth rate, particularly if they lead to a higher level of competition in markets and a higher rate of innovation.

The endogenous growth theory argues that the former growth theory did not allow for government intervention or policies, and that the role of savings and technological progress was not clearly justified, hence, the need to revisit the theory. The theory also emphasised the role of private institutions. Endogenous growth theory notes that the introduction of private institutions that provide incentives for people to be inventive and promote innovation is essential for economic growth. The implication of this is that financial intermediaries that promote and allocate resources to the development of new innovations may have a positive role in promoting long-run economic growth. The endogenous theory best captures the role of financial intermediaries, as described by Schumpeter (1911).

From the discussion above, I observe that both theories believe investment is important for economic growth, but the main difference between the two is that the endogenous growth model introduces the importance of government intervention and private institutions. Consequently, it might imply that financial intermediaries that promote and allocate resources to the development of new innovations may have a positive role in promoting long-run economic growth.<sup>67</sup> This explanation seems to be in line with earlier studies of Schumpeter (1911).

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<sup>67</sup> Greenwood and Javanovic (1990), using an endogenous growth model framework, conclude that financial intermediaries have a positive effect on the steady state growth.

### *Explaining the role of finance in growth*

The increasing role of finance in the growth process of developing countries, particularly the SSA region, has been recognised. For example, following several economic and financial reforms in the 1990s, South Africa's stock market and banking system has now been recognised by the World Economic Forum's first financial development index in 2008 as ranking 25<sup>th</sup> largest financial system in the world, (WEF, 2008: 12).<sup>68</sup> In fact, the International Monetary Fund (IMF, 2008:1) observed that South Africa's financial system is "fundamentally sound, has a sound financial infrastructure and a good legal framework supported by prudent macroeconomic management".

According to the World Bank (2007), the improvement has earned the Johannesburg Stock Exchange (JSE) the ranking of the fourth largest among emerging economies and the eighteenth largest in the world by market capitalisation. Although, South Africa's financial system is the largest in Africa and the SSA region, other countries in the region still face the challenges of illiquidity, improving their financial infrastructure and transparent and corporate governance. Despite the JSE being recognised as well-functioning and matured, the majority of SSA countries still rely on their banking system to promote economic growth. Consequently, the argument on which financial structure is important for growth, in the SSA region, still remains unresolved.

To illustrate the distinction of the role of bank-based or market-based systems in economic growth, the literature focuses on the functions provided by both financial structures in a microeconomic and macroeconomic context. Herein, the bank-based theory highlights the importance of banks in the economic development process, while noting the deficiency of the stock markets. This theory suggests that banks can promote economic growth more efficiently, when compared to stock markets in developing countries. Here, they noted that many developing countries, particularly the SSA countries, tend to have better developed banking systems, hence, banks promote more growth. However, the proponents of the market-based theory highlight the fact that well-functioning markets promote more economic growth than underdeveloped ones (for instance, Schumpeter, 1911).

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<sup>68</sup> The report measures and analyses factors that enable the development of financial systems in a number of economies around the world based on efficiency and size of banking and other financial services, overall business environment, financial stability and the extent of financial disclosure and market liberalisation. It grades countries on these criteria out of a maximum of 7 points and generates an overall financial development index which is used in ranking these economies.

### ***The role of banks***

According to Boyd and Prescott (1986), financial intermediaries (banks) may lower the costs of gathering and processing information, through the improvement of collecting information on all economic agents, and in doing so improve the allocation of resources to boost economic growth. Here, the authors emphasise the fundamental role of banks in producing information and reducing the misallocation of resources. This view is also supported by Bencivenga and Smith (1993), who argued that banks can alleviate the corporate governance problem by lowering the monitoring costs, reducing credit rationing and, thereby, spurring growth. Meanwhile, Stiglitz (1985) examined the activities of stock markets and banks by evaluating the behaviour of managers in relation to shareholders funds, and argued that stock market liquidity will not enhance incentives for acquiring information about firms or exerting corporate governance. According to the author, stock markets will not enhance resource allocation and corporate government as banks do. Moreover, as is the case of many developing countries where financial liberalisation has led to the rapid expansion in stock markets, Singh (1997) argued that these markets alone cannot promote economic growth. The literature suggests that one of the main reasons for this is that *the interaction between stock markets and credit markets in the wake of unfavourable economic shocks may exacerbate macroeconomic instability and reduce long-term growth*, hence favouring bank-based systems.

### ***The role of stock markets***

By contrast, market-based theory highlights the importance of well-functioning stock markets, whilst simultaneously noting the problems that plague bank-based economies. Two of the studies that explain the role of stock markets in the economy is that of Diamond (1984) and Greenwood and Javanovic (1990). They suggest that the stock market promotes the acquisition, as well as dissemination, of information, and may actually reduce the cost of mobilising savings, thereby, facilitating investment and, ultimately, increasing economic growth. From this perspective, the financial systems that encourage the mobilization of savings, by providing attractive instruments and saving vehicles, can profoundly affect economic development. Nonetheless, Levine (1991) argued that stock market liquidity is crucial for growth because a liquid stock market enhances an economy's ability to mobilise savings, diversify risk and improve

the allocation of capital. Holmstrom and Tirole (1993) also note that liquid stock markets can increase incentives for investors to get information about firms and improve corporate governance. In addition, Greenwood and Smith (1997) argued that large stock markets can decrease the cost of mobilising savings, therefore, facilitating investment in the most productive technologies. According to the authors, stock markets affect growth in the long-run however, economic growth, in turn, encourages the formation of markets, hence, providing support for Patrick (1966).

Other studies (such as Diamond and Verrecchia, 1982 and Jensen and Murphy, 1990) examined the activities of stock markets by evaluating the behaviour of managers (agents) and owners (principals) at the firm level. They argue that a well developed stock market may enhance corporate control by mitigating the principal-agent problem by aligning the interests of managers and owners, in which case managers could strive to maximise firm value. Using overlapping generation models, Bencivenga, Smith and Starr (1996) show that stock market development facilitates a reduction in transaction costs, this helps in promoting economic growth, therefore, making it easy for investors and savers to frequently sell and buy their assets.

Allen and Gale (2000) suggests that stock markets are potentially important mechanisms for promoting economic growth, because they reduce market inefficiencies due to the monopoly power of banks and, therefore, encourage growth enhancing activities. In fact, Arestis and Demetriades (1999) and Arestis (2003) observe that these markets assume an important role because; (i) the higher interest rates which usually follow banking liberalisation encourage firms to issue equity, (ii) it provides a channel through which international investors gain access to developing countries, thus providing access to the foreign capital required for economic growth, and (iii) they are often a compulsory part of the financial liberalization packages. According to the above explanation, openness in the financial market would lead to an increase of the inflows of domestic and foreign capital, which in turn increases the resources available for investment whilst also leading to an increase in stock market capitalisation. Consequently, a deep and liquid stock market is important to promote economic growth.

When compared to other developing countries in Asia and Latin America, stock markets in Sub-Saharan Africa show some distinctive features. African stock markets tend to be small, illiquid, shallow and narrow. The fragile nature of the stock markets makes it difficult for them to attract the volume of participation needed to deepen them

(Standley, 2010). The current state of the stock markets in the region has been linked to the small size of the economies. Nevertheless, it is also recognised that there are other international explanations for this, such as the poor state of the institutional environment, excessive volatility, insider trading and lack of financial infrastructure (Singh, 1998). As a result, stock markets limit economic development in Africa. According to Arestis (2003), the impact of stock market on growth depends on the type of institutional environment in which they operate. The implication of this in the African context, is that the weak and generally inefficient institutional framework would not be capable of effectively, and efficiently, enforcing laws and regulations in order to monitor and safeguard investor interest. As a result it is difficult for the stock market to promote economic growth.

### ***The complementary role***

In one of the influential study on finance-growth relationship, King and Levine (1993a) argued that other than stock markets, banks may also spur the rate of technological innovation, by selecting those entrepreneurs with the greatest chances of launching successful ventures. From this point of view, both banks and stock markets complement each other. Gurley and Shaw (1955) and Greenwood and Javonovic (1990) equally present a framework in which financial intermediaries and security markets provide vehicles for trading, pooling and diversifying risk. Thus, financial systems allow agents to hold a diversified portfolio of risky projects, which will induce society to shift towards projects with higher expected returns with a positive incidence on economic growth. Despite the general lack of consensus on the role of finance on growth in the theoretical discussions, Levine, (1997) concludes that ‘the development of financial markets and institutions is an important part of the growth processes’, thus implying, that financial markets may cause economic growth.

### **4.3.2 Empirical evidence on finance and growth in developing countries**

The positive role of finance on growth has been well established in the field of economics (for example Levine, 1997; Arestis et al., 2001 and Demirguc-Kunt and Levine, 2008). One of the earliest contributions to the literature is the seminal paper by Goldsmith (1969), who provided empirical evidence to show the relationship between finance and economic growth. The work of King and Levine (1993b) clarified this relationship using an endogenous growth model featuring financial entrepreneurship and economic growth. They stressed the importance of finance for growth by explaining

that access to better financial services expands the scope and improves the efficiency of innovative activity and, in turn, promotes economic growth.

To confirm this in an empirical setting, the authors used four different measures; (i) real per capita GDP growth, (ii) growth in the capital stock per person, (iii) total factor productivity growth also known as ‘Solow residual’ and, (iv) investment to proxy economic growth. They then construct three measures of financial sector development to use in their model. These include; (i) **Depth**, which is the ratio of the liquid liabilities of the financial system to GDP, (ii) **Bank**, which is the domestic money in banks divided by the domestic assets of deposit money banks and central banks, (iii) **PRIVATE**, which relates to the ratio of claims on the non-financial sector to the total domestic credit (excluding credit to money bank) and, (iv) **Privy**, which relates to the ratio of claims on the non-financial sector to GDP. This is interpreted in such a way that a higher value indicates an increase in credit to the private sector.

The authors examined the relationship between these new measures using 77 countries, over the period 1960 to 1989. According to their result, there exists a strong positive correlation between all measures of financial development and economic growth, even after controlling for other factors affecting economic growth such as trade, education and political stability. The authors found that the degree of financial development explains economic growth, and as such, they concluded that financial development is strongly linked to economic growth. Moreover, their results show that well developed financial systems promote economic growth, and this is done is by funding productive investment.

Although the above study provides evidence of a positive relationship between finance and growth, one main shortcoming is that it focused on one aspect of the financial system (i.e. banks). Furthermore, the model does not consider other factors that might affect finance and growth in the context of developing countries. For example, in most SSA countries, credit allocation is often subject to government intervention, thus, it is unlikely that finance, or better still, a well-developed financial market would promote economic growth by channelling funds into productive investment. This is because of the differences that exist between the economies in this region and the institutional framework in which they operate.

While some studies (such as Arestis and Demetriades, 1997; Beck et al., 2000; Levine and Zervos, 1998 and Odedokun, 1996) found that banks promote economic growth in



developing countries, others (such as Atje and Jovanovic, 1993; Ciritodoulos and Tsinas, 2004; Kenny and Moss, 2001; Levine and Zervos, 1995, 1998; Mohtadi and Agarwal, 2004) suggest that stock market development has a positive effect on economic growth, although the majority of these studies focus mainly on developed and transition countries. Nonetheless, several studies (Allen and Ndikumana, 2000; Guillaumont et al., 2006 and Shahbaz et al., 2008) find indicators of financial development do indeed have a significant positive effect on economic growth. Gelbard and Leite (1999) also empirically demonstrated that there is a strong positive relationship between financial depth and growth in SSA.

A number of empirical literatures confirm the positive role of finance on growth; however, counter evidence also exists. Akinboade (2000) examined the relationship between financial deepening and economic growth in Tanzania using measures of banking sector development. The results suggest that financial deepening has a negative and significant effect on growth during the financial liberalisation period. Similarly, Beck and Levine, (2004), Favara (2003), and Ghimire and Giorgioni, (2009), used other measures such as private credit to proxy banking development, demonstrate that there is a negative effect of private credit on economic growth in the short-run which turns positive and significant in the long-run. Following a similar line of argument is Zhang (2003), who shows that banking sector development in Asia had a significant negative effect on economic growth during the 1960 to 1999 period. Andersen and Tarp (2003) also report a similar finding for a sample of African and Latin American countries. Levine (2002), however, notes that the negative effect may be a result of the banks being involved with intermediaries that have a huge influence over firms.

The empirical findings remain contradictory, thus leaving many economists puzzled. While studies such as Allen and Gale (2000), Atje and Jovanovic (1993), Capasso (2008), Greenwood and Jovanovic (1990), Greenwood and Smith (1997) and Morck and Nakuruma (1999), and, all argue that the stock market has a positive effect on economic growth, others like Stiglitz (1985) and Singh (1997), tend to favour the banks' role in the growth process. Meanwhile, Boyd and Prescott (1986), Boyd and Smith (1998) and Blackburn et al. (2005), have all shown that both stock markets and banks are necessary in promoting economic growth, therefore, suggesting a complementary relationship between them. Both banks and stock markets promote economic growth by improving information dissemination and reducing transaction costs (Beck and Levine, 2004).

To show that financial structure is important in the finance-growth literature, empirical literature focuses on four developed countries (Germany-Japan and U.K-U.S). Germany-Japan is classified as bank-based and U.K-U.S, market-based. On the one hand, Demirguc-Kunt and Levine, (1999) and more recently, Arestis et al. (2005) point out that the fact that these countries historically share similar growth patterns, as a result of financial structure, does not matter. However, on the other hand, Gerschenkron, (1962) in seminal paper on ‘Economic Backwardness in Historical Perspective’ detailing the industrialisation process of Britain, Germany and Russia, found that the developmental role of banks cannot be ignored. The author notes that ‘banks are more capable of financing economic growth than the weak stock markets.’<sup>69</sup> The author linked Germany’s rapid development to its banking system (which he saw as the primary source of capital and entrepreneurship) and concluded that:

- It is ‘largely by the application of the most modern and efficient techniques that backward countries could hope to achieve success, particularly if their industrialization proceeded in the face of competition from the advanced country’, (p. 9);
- To succeed in catching-up, countries had to build up new ‘institutional instruments for which there was little or no counterpart in the established industrial country’, (p. 7);
- The more backward the country, the greater the need for banking to supply both capital and entrepreneurship.

Andrianova et al. (2008) and Mobolaji (2008) generally share similar views to Gerschenkron, (1962). They note that state owned banks can effectively overcome market failures by allocating savings in countries with weak institutions at an early stage of economic development. This implies that in regions characterised with underdeveloped financial system, banks tend to perform better than stock markets (Tadesse, 2001).

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<sup>69</sup> Although there has been rapid expansion of stock markets in many developing countries, these markets are small and underdeveloped. Moreover, Singh (1997) argues that stock markets alone cannot promote long-term growth in these countries. Besides, banks play a major role in the financial system of developing countries, especially African countries.

The lack of general consensus on the finance-growth relationship has been linked to several factors. For instance, Jappelli and Pagano (1992) stress the importance of specifying the type of financial structure (banking sector or stock market), in order to distinguish its impact on economic growth. Ang and McKibbin (2008) argued that the positive or negative effect of financial development on economic growth depends on the type of financial indicator used, and Gregorio and Guidotti (1995) argue that the impact of finance on growth depends on the region, time periods and levels of income. Moreover, the use of a combination of countries, with varying levels of economic development, often leads to the distortion of results. In addition, the use of cross-country analysis makes it difficult to interpret results, because it deals with average effects (Favara, 2003).

#### **4.4 Institutions and financial development in Sub-Saharan Africa**

The proposition that institutions are important for financial development has been a subject of recent debate, with the main emphasis on; (i) law and regulations and (ii) political economy. The literature relates to a combination of developed and developing countries. Interestingly, the results have been very persuasive, but not conclusive, characterising the issue as one of continuous research importance, especially in developing countries where there are concerns over how rules governing the activities of the countries are not well defined or practiced in totality.

North (1991: 97) defines institutions as ‘humanly devised constraints that structure political, economic and social interactions’. In other words, institutions are rules that are set to regulate or constrain the interactions of a member of society. These rules must be shared by the members of the society and remain anchored in their minds. Institutions define what people are ‘prohibited from doing and the conditions under which individuals are permitted to undertake certain activities’ (de Soysa and Jutting, 2006: 3). Based on the degree of formality, institutions are either formal (e.g. laws, property rights and constitutions) or informal (e.g. customs, traditions, taboos and codes of conduct).

On the one hand, formal institutions are written rules that are devised to constrain human interaction and exchange. On the other hand, informal institutions are unwritten codes of conduct that govern human interaction, or they are human constraints, derived from shared norms of behaviour. They arise due to the demand for protection in societies, where free riding is increasing and the cost of punishing the defectors is too high,

because of their increasing number. Although both operate under different principles, they are created from the necessity of reducing uncertainty in human exchange. While formal institutions are enforced by courts, judges or the states, informal institutions rely on self-enforcing mechanisms to ensure that contract terms are adhered to. The present study is most interested in the formal type of institutions. These can be classified into: economic and political. Economic institutions, such as property rights and its enforcement, tend to shape the rules of economic game and political institutions; mainly, the political system (either democracy or autocracy) shapes the rules of the political game.

The existing research that explored the relationship between institutions and financial development show that financial development relies on good governance to transfer savings into productive areas effectively. It has been documented that the role of the financial system is to transfer funds from savers, to borrowers who have productive investment opportunities. However, in the real world, the functioning of the financial markets is sometimes distorted by imperfect information, which often leads to market imperfection. This type of information asymmetry can be in the form of; (i) adverse selection and (ii) moral hazard. In adverse selection, information asymmetry arises when lenders do not have the full information about the borrowers prior to signing a contract (whether they tend to engage in risky projects or not) or when borrowers fail to provide the correct information to lenders, in order to obtain funds with low cost and without risk premiums.

Moral hazards occur after the contract is signed. When lenders tend to lack information as to whether the borrower will enter into risky project, or when lenders cannot monitor and control risk-taking by borrowers, as a result, some borrowers take on more risk than they agree to in financial contracts. In this context, it is important that financial systems are regulated and supervised to ensure that the confidence of the savers is not undermined by bank failures, and that savings are being channelled to the most productive investments rather than into high-risk projects (Hellman et al., 2000). Hence, having an effective, efficient and functioning institution which is capable of managing the risks associated with financial markets is important (Law and Azman-Saini, 2008). In this regard, formal institutions are set up to reduce uncertainty and risks, by clearly specifying the terms and agreements of a contract, and the consequences of breach. Hadfield (2004) notes that it backs up the transaction with the third party's power to extract penalties.

### *Evolution of institutions in Sub-Saharan Africa*

There is no doubt regarding the importance of financial development, however, developing the right institutions is also essential. In the *Governance Matters* publication by the World Bank, Kauffman et al. (2008), observe that some developing economies, such as Botswana and Mauritius, have better governance scores than those of developed economies like Greece. These scores are calculated from the six globally accepted standards of good governance; (i) voice and accountability, (ii) political stability and absence of violence, (iii) government effectiveness, (iv) regulatory control, (v) rule of law, and (vi) control of corruption. They can be grouped under three dimensions: political, economic and institutional (legal). Firstly, the political cluster deals with the process in which those in authority are selected. They include voice and accountability, and political stability. Secondly, economic institutions deal with the capacity of the government to implement policies and provide public services. They include government effectiveness and regulatory control. Finally, the legal cluster deals with the respect for institutions that govern interactions among citizens and the state. They include rule of law and control of corruption.

Using the average of the six dimensions of governance to measure overall institutional development, which I refer to as KKM (Kaufmann, Kraay and Mastruzzi, 2008) I examine the level of institutional development across the countries in our sample. Out of the 37 countries studied, the quality of institutions found in Botswana seem to be better compared to the other countries during the period under consideration.

**Table 4-5: Average governance indicators in SSA region, 1996-2007**

COUNTRY	CCE	GEE	PSE	RLE	RQE	VAE	KKM
Angola	-1.25	-1.18	-1.32	-1.43	-1.37	-1.28	-1.30
Benin	-0.66	-0.40	0.49	-0.43	-0.33	0.27	-0.16
Botswana	0.82	0.62	0.91	0.61	0.66	0.70	0.72
Burkina Faso	-0.16	-0.71	-0.13	-0.54	-0.27	-0.39	-0.37
Burundi	-1.06	-1.36	-1.95	-1.27	-1.30	-1.24	-1.37
Cameroon	-1.07	-0.91	-0.69	-1.13	-0.68	-1.08	-0.93
Cape Verde	0.32	0.09	0.94	0.51	-0.24	0.63	0.37
Central African Republic	-1.14	-1.43	-1.31	-1.37	-1.07	-0.98	-1.20
Chad	-1.12	-0.96	-1.38	-1.10	-0.94	-1.16	-1.10
Congo, Rep.	-1.02	-1.37	-1.55	-1.33	-1.12	-1.06	-1.24
Côte d'Ivoire	-0.80	-0.95	-1.54	-1.28	-0.63	-1.18	-1.06
Ethiopia	-0.69	-0.84	-1.31	-0.73	-1.13	-1.09	-0.96
Gabon	-0.75	-0.60	0.04	-0.59	-0.22	-0.63	-0.46
Gambia	-0.46	-0.59	0.29	-0.09	-0.56	-0.88	-0.38
Ghana	-0.25	-0.24	0.00	-0.17	-0.13	0.07	-0.12
Kenya	-0.98	-0.68	-1.03	-0.97	-0.30	-0.47	-0.74
Lesotho	-0.21	-0.24	0.16	-0.15	-0.52	-0.15	-0.18
Madagascar	-0.05	-0.48	0.05	-0.39	-0.40	0.00	-0.21
Malawi	-0.68	-0.58	-0.15	-0.52	-0.39	-0.33	-0.44
Mali	-0.45	-0.65	0.11	-0.36	-0.32	0.28	-0.23
Mauritania	-0.15	-0.25	-0.02	-0.54	-0.28	-0.86	-0.35
Mauritius	0.42	0.44	0.64	0.83	0.46	0.86	0.61
Mozambique	-0.65	-0.38	0.06	-0.80	-0.45	-0.08	-0.39
Niger	-0.89	-0.93	-0.35	-0.81	-0.67	-0.53	-0.70
Nigeria	-1.26	-1.03	-1.73	-1.34	-1.03	-0.85	-1.21
Rwanda	-0.53	-0.83	-1.21	-1.01	-0.88	-1.34	-0.99
Senegal	-0.31	-0.13	-0.36	-0.28	-0.24	0.05	-0.21
Seychelles	0.28	-0.04	0.94	0.31	-0.66	0.05	0.13
Sierra Leone	-1.04	-1.23	-1.09	-1.23	-1.14	-0.81	-1.09
South Africa	0.46	0.75	-0.36	0.13	0.43	0.78	0.36
Sudan	-1.17	-1.22	-2.16	-1.49	-1.30	-1.69	-1.51
Swaziland	-0.38	-0.68	0.00	-0.56	-0.44	-1.27	-0.55
Tanzania	-0.83	-0.51	-0.32	-0.40	-0.34	-0.38	-0.46
Togo	-0.84	-1.24	-0.56	-0.94	-0.63	-1.29	-0.92
Uganda	-0.83	-0.52	-1.37	-0.71	-0.03	-0.70	-0.69
Zambia	-0.86	-0.83	-0.22	-0.58	-0.37	-0.39	-0.54
Zimbabwe	-1.06	-0.97	-1.33	-1.36	-1.78	-1.29	-1.30

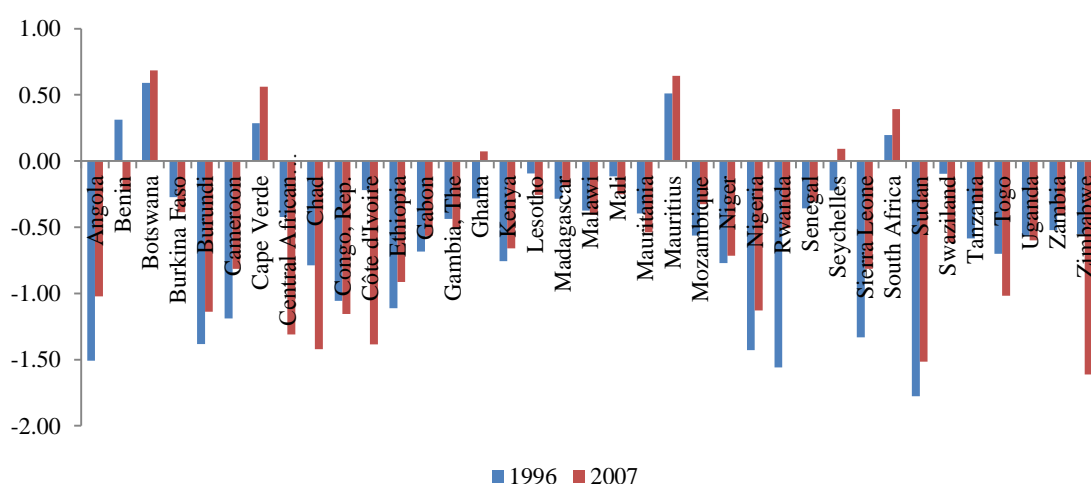
Note: The range of governance indicators are between -2.5 and +2.5. Where +2.5 indicates best governance and -2.5 indicates worst governance. CCE refers to control of corruption, GEE refers to government efficiency, PSE is political stability, RLE is rule of law, RQE is regulatory quality, VAE refers to voice and accountability and KKM is the average of the six measures of governance.

Source: World Banks, *World Governance Indicators*, (2010).

### *Changes in institutional development during the period 1996 and 2007*

Using the average of the various aspects of governance as an indicator of overall institutional development, I show the changes in institutional development in the sample of SSA countries between 1996 and 2007 in Figure 4-5. The governance indicator, by Kaufmann et al. (2009) is measured on a scale ranging from -2.5 to 2.5, where 2.5 refers to a high level of institutional development and -2.5 refers to low level of institutional development. According to the figure, five countries had positive and high levels of institutional development in 1996. The figure also shows that the level of institutional development improved in 21 of the 37 countries, while the remaining 16 deteriorated significantly. During this period, the figure shows that institutional development in Chad, Cote D'Ivoire and Zimbabwe showed the largest levels of deterioration.

**Figure 4.5: Changes in governance indicators in SSA between 1996 and 2007**



Note: Data are averages of institutional attributes for 1996 and 2007.  
Source: Kaufmann et al. (2009).

Using the data for 1996 and 1997, I try to examine whether there has been any change in the various aspects of institutions in SSA countries during this period (see tables 4-6 and 4-7). According to the data, in 1996, Sierra Leone had the worst level of control of corruption amongst the sample of countries, compared to Sudan which witnessed a significant improvement. In the same year, rule of law, government effectiveness, regulatory quality, voice and accountability and political stability was relatively poor in Sudan. Out of the six aspects of governance, I observed that in 2007, Zimbabwe witnessed a significant deterioration in rule of law, corruption and regulatory quality.

**Table 4-6: Changes in the level of institutional development in SSA, 1996 and 2007**

Country	Overall institution development 1996	Overall institution development 2007	Major Deterioration	No significant change	Major Improvement
Angola	-1.51	-1.02	x		
Benin	0.31	-0.22	x		
Botswana	0.59	0.69		x	
Burkina Faso	-0.27	-0.39		x	
Burundi	-1.38	-1.14	x		
Cameroon	-1.19	-0.81		x	
Cape Verde	0.29	0.56			x
Central African Rep.	-0.42	-1.31	x		
Chad	-0.79	-1.42	x		
Congo, Rep.	-1.06	-1.16		x	
Côte d'Ivoire	-0.22	-1.39	x		
Ethiopia	-1.11	-0.91		x	
Gabon	-0.68	-0.56		x	
Gambia, The	-0.44	-0.51		x	
Ghana	-0.28	0.07			x
Kenya	-0.76	-0.66		x	
Lesotho	-0.09	-0.26	x		
Madagascar	-0.28	-0.19		x	
Malawi	-0.38	-0.41		x	
Mali	-0.12	-0.25		x	
Mauritania	-0.40	-0.54		x	
Mauritius	0.51	0.64		x	
Mozambique	-0.56	-0.33		x	
Niger	-0.77	-0.71		x	
Nigeria	-1.43	-1.13		x	
Rwanda	-1.56	-0.51		x	
Senegal	-0.36	-0.30		x	
Seychelles	-0.22	0.09			x
Sierra Leone	-1.33	-0.81	x		
South Africa	0.20	0.39		x	
Sudan	-1.78	-1.52		x	
Swaziland	-0.10	-0.62	x		
Tanzania	-0.58	-0.31		x	
Togo	-0.70	-1.02	x		
Uganda	-0.57	-0.60		x	
Zambia	-0.52	-0.40		x	
Zimbabwe	-0.55	-1.61		x	

*Note:* The range of governance indicators are between -2.5 and +2.5. Where +2.5 indicates best governance and -2.5 indicates worst governance. Overall institutional development is the average of the six measures of governance. Source: World Banks, *World Governance Indicators*, (2010).



**Table 4-7: Changes in institutional development from 1996-2007**

Institutions attribute	Governance indicators	Least developed		Most developed	
		1996	2007	1996	2007
Legal	Control of Corruption	Sierra Leone	Zimbabwe	Sudan	Botswana
	Rule of Law	Sudan	Zimbabwe	Seychelles	Mauritius
Economic	Government Effectiveness	Sudan	Togo	South Africa	South Africa
	Regulatory Quality	Sudan	Zimbabwe	Botswana	Mauritius
Political	Voice and Accountability	Sudan	Sudan	South Africa	Cape Verde
	Political Stability	Sudan	Sudan	Seychelles	Seychelles

Source: Kaufmann et al. (2009).

### ***Financial development and institutions in SSA***

The development of the financial system remains quite low in the SSA regions, when compared to other developing countries. The increase in the level of financial services is often referred to as deepening. A key characteristic of the financial system in SSA countries is that access to credit of the private sector remains very low, when compared to the situation in other developing countries. When measured by the ratio of private credit to GDP, the SSA countries current average is 22.5 percent, compared to 34 percent in Latin America and approximately 52 percent in Asia.<sup>70</sup> A similar observation holds for the ratio of liquid liability to GDP (M3). M3 is usually referred to as the size of the financial sector, because it is the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit and securities repurchase agreements (M2), plus travellers cheques, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents. Asian countries are on average approximately two times deeper than SSA countries.

In terms of the ability of the banking system to provide credit, there is evidence, in many SSA countries, of a diminishing access for the private sector. Ghana's financial system contracted by approximately 3.6 percent while, Burundi's financial system grew at a remarkable 5.8 percent. The examples of these two countries do reflect extreme cases; there are notable exceptions, such as South Africa and Mauritius, due to well-developed financial infrastructures. When I compare cases of countries with similar

<sup>70</sup> The result is based on the 37 countries in our sample.

levels of development (i.e. either belonging to low income, middle income or upper middle income); I observe that the level of financial development differs across the board. A possible explanation for the variation of the level of financial development across countries may be because of the outcomes of policies which are specific to these countries. Many authors attribute the low levels of financial intermediation in SSA countries to institutional issues and poor financial reform policies. Moreover, according to the World Bank (2003), the effectiveness of these policies depends on the effectiveness of the institutions which implement them. Therefore, it is noteworthy to examine the relationship between financial development and institutional development in the SSA region.

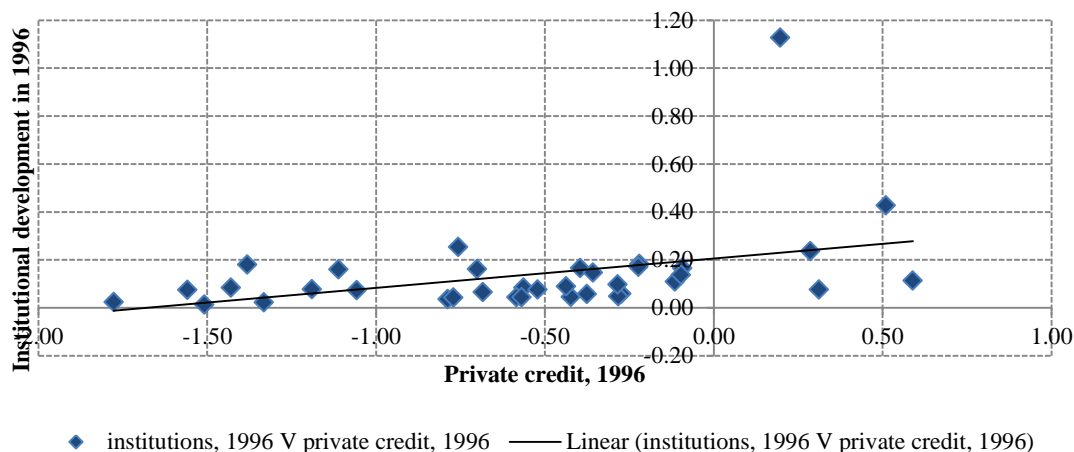
Figures 4-6 and 4-7 illustrate the relationship between institutional development and the level of financial development in SSA countries in the sample. In this study, the level of institutional development is measured by the International Country Risk Guide, ICRG-QOG index. It is measured on a scale of 0-1, with 1 implying a higher quality of government. An alternative measure, the average of all the governance indicators, provided by the World Bank Governance Indicator, (Kaufmann et al, 2008) and referred to as the KKM index is also used. This index is measured from -2.5 to 2.5, with 2.5 representing good governance.<sup>71</sup>

Figure 4-6 suggests a positive relationship between institutional development and financial development (private credit) in 1996. This implies that good quality institutions lead to improvements in financial development. For example, moving from Sudan, a country with a low level of institutional development, to Botswana, I note that there has been an increase in financial development from 2 to 11 percent. Figure 4-7 also indicates that there is a positive relationship between institutions and financial growth in 2007. The improvement in the level of institutions increased private credit to about 40 percent in 2007. The positive relationship provides support to the literature, however there is a need for further empirical analysis to be able to provide policy implications.

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<sup>71</sup> Appendix IV.II provides full details on data documentation, definition and source.

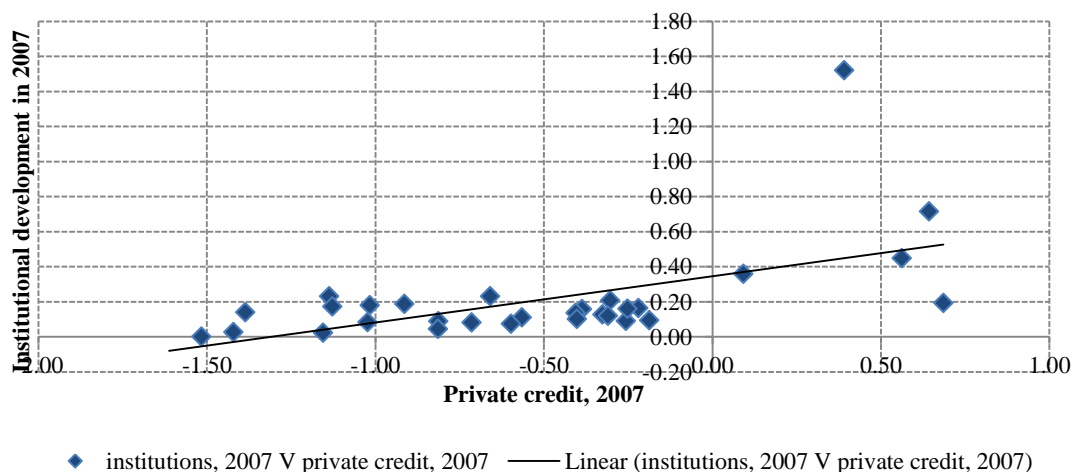
**Figure 4.6: Relationship between institutional development and financial development in SSA region, 1996**



Notes: Average level of financial development and institutional development in 1996. Institutional development here refers to KKM index.

Source: Beck et al., Financial structure and Governance indicators, (2010), Author's calculations.

**Figure 4.7: Relationship between institutional development and financial development in SSA region, 2007**



Notes: same as Figure 4-6.

Following the study on ‘Governance, financial liberalisation and financial development in SSA’ by Karikari, (2010), I classify SSA countries according to their level of financial and institutional development. This creates two categories: high and low levels of financial development, with two sub groups under each category. The result is presented in Table 4-8 (see below).

**Table 4-8: Level of financial and institutional development: Country classification**

Country		Indicators	
Low level of financial development		FD: Mean 0.22	ID: Mean -0.55
GROUP 1		Low	High
Benin	Mozambique		
Burkina Faso	Niger		
Ghana	Senegal		
Lesotho	Tanzania		
Madagascar	Togo		
Malawi	Zambia		
Mali			
GROUP 2			
Angola	Mauritania		
Burundi	Nigeria		
Cameroon	Rwanda		
Central African Republic	Sierra Leone		
Chad	Sudan		
Congo	Swaziland		
Cote d'Ivoire	Uganda		
Gabon			
High level of financial development			
GROUP 1		High	High
Cape Verde			
Kenya			
Mauritius			
Seychelles			
South Africa			
GROUP 2		High	Low
Ethiopia			
Gambia			
No change in level of financial development			
Botswana		No Change	High

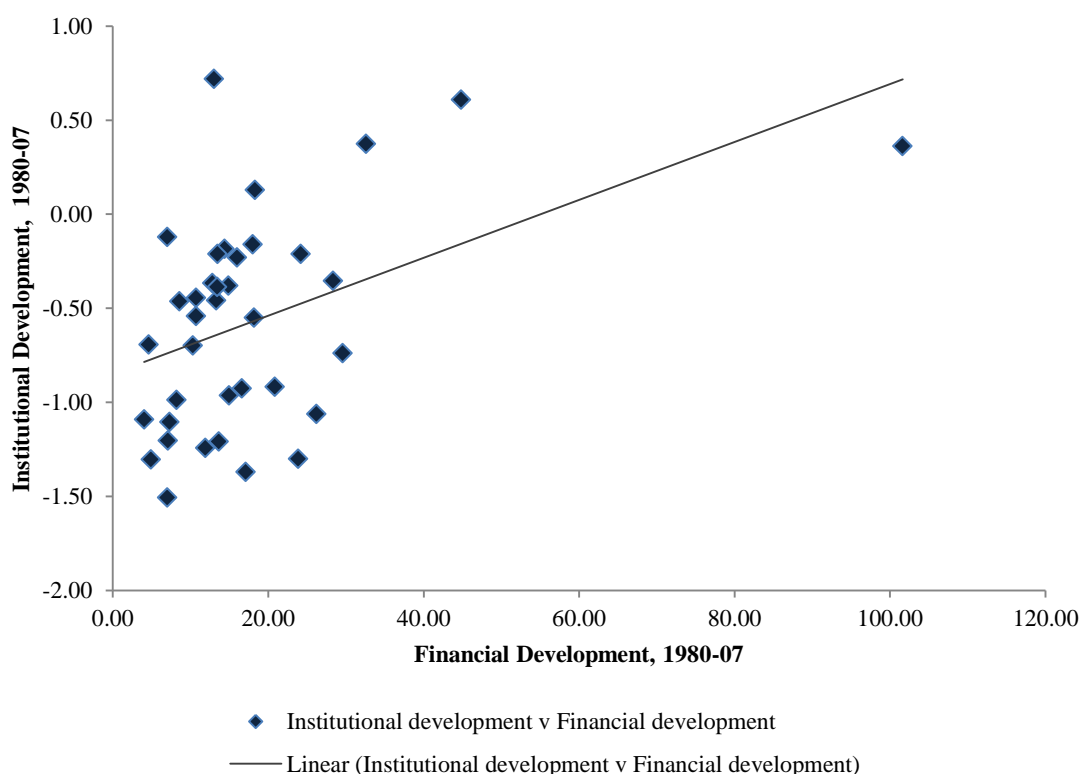
Source: Author's calculations using data from World Banks' *World Development Indicators*, (2010).

The groups are created depending on whether the countries were above or below the average level of overall financial development (average of liquid liabilities and private credit divided by 2) in the sample period. I find only 7 countries have a high level of financial development compared to 28 countries low levels. Furthermore, Botswana has an average level of financial development. Despite having an average level of financial development, I find that there is a high level of institutional development. All the countries with low levels of financial development also exhibit low levels of institutional development. While the table is instructive, it is better to conduct a more rigorous analysis, in order to establish any possible relationship.

### ***Financial development is associated with institutional development***

The link between financial development and institutional development has been discussed in the literature. Figure 4-8 shows a generally positive relation between finance (measured by private credit) and institutional development. I also find that there is a significant, positive correlation between each of the two measures of financial development indicators and the measures of institutional development, at the five percent significant level.

**Figure 4.8: Relationship between financial development and institutional development in SSA region, 1980-07**



Notes: same as Figure 4-6.

### ***Law and regulations: legal institutions and financial development***

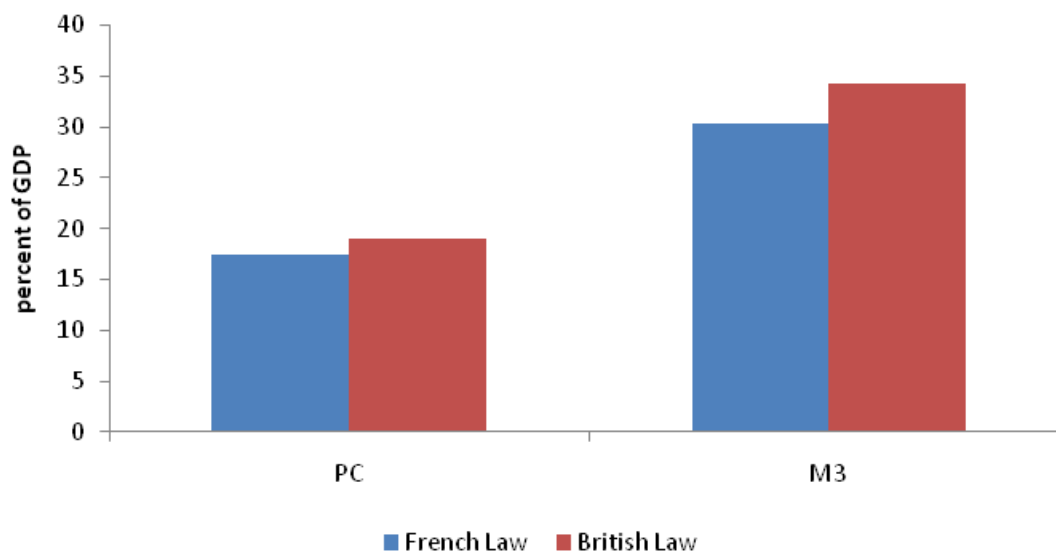
La Porta et al. (1997, 1998 and 2008), established the importance of legal origin using the law and regulations framework. To explain the differences in international finance development, the authors identified the role of legal rules and the quality of their enforcement. According to the argument, laws vary across countries and its enforcement affects financial development mainly through; (i) corporate governance and (ii) the degree of investor and creditor protection.

In their analysis, the authors classified legal systems into four different origins: British, French, German and Scandinavian, and emphasised the role of enforcing property rights. Property rights are the rights of a firm or an individual to assets, to the income gained from the use of these assets and to any contractual obligations due to the firm or individual (North, 1990). According to La Porta et al, (1997, 1998), legal traditions differ in terms of their treatments of creditors and shareholders, and the efficiency of contract enforcement, which are both essential for financial development. Thus, the argument goes that in countries where legal systems enforce private property rights and protect the legal rights of investors, savers would be more willing to finance long-term projects, whereas, countries that do not support the enforcement of property rights witness poor financial development. In other words, the degree of enforcement influences the degree of expropriation, and hence, the confidence with which people purchase securities and participate in financial markets. The authors note that British common law tends to provide external investors with stronger protections for property and contractual rights, while countries with French legal origin tend to give investors the worst; countries of German and Scandinavian legal origin are somewhere in between. Consequently, countries that adopt its legal traditions from British common laws often tend to have a higher level of financial development, when compared to other legal origins.

Beck et al. (2002) provide support for the claim that financial development is higher in countries with British legal origin, by examining data for two different samples of 70 former colonies and 115 former colonies and non-colonies. In their small sample of 70 colonies, they include 45 French and 25 British legal origin countries. Using graphical representations, they clearly show that British legal origin countries tend to have a higher level of financial development, compared to those with French legal origins. They further buttress their results by examining the correlation between French legal origin colonies and financial development indicators, and performing a regression of financial development indicators on a French legal origin dummy. Their results show that countries with French legal origin tend to have lower financial development, when compared to those with British legal origin. Djankov et al. (2007) also examined the determinants of private credit in 129 countries during the period between 1978 and 2003. Their results show that the level of private credit is higher in countries practicing common law, than the civil law practising countries.

Following Beck et al. (2002) and La Porta et al. (1998), I also find support for the view that legal origin is important for financial development. Figure 4-9 shows that countries with British legal origin have higher levels of financial development, than those of French legal origin. The sample consists of 25 French and 15 British legal origin countries.

**Figure 4.9: Financial development across legal origin in SSA countries, 1980-2007**



*Note:* The graph shows the mean of private credit and liquid liabilities for countries grouped as either having a British legal origin or French legal origin.

*Source:* Author's calculation, World Bank, *World Development Indicators*, (2010).

The literature provides support for the importance of legal traditions in explaining cross-country differences in financial development. Previous studies such as Demirgüç-Kunt and Maksimovic, (2002) and La Porta et al. (1997 and 1998) find that weak legal systems and poor institutional infrastructure impede market development, especially in developing countries. In fact, the literature point out that financial development has not achieved its main function of promoting economic performance, because of lack of well-developed institutions. In the SSA region for example, Ajakaiye et al. (2007) found that legal systems are weak and, thus, threaten property rights by making financial development difficult. It is also observed that due to the high degree of asymmetric information that arise in many African financial systems, it is important to have a legal system that will ensure that contracts and property rights are clear, and in the case of default, that when judgement is passed, it is quickly enforced. This is because for a market to function well, firms must be able to rely on the enforceability of contracts. Hence, it is important to establish legal and regulatory structures to promote the development of a healthy and well-functioning financial system, because an efficient legal system plays an important role in the financial sector and the development process.

Creane et al. (2003) notes that the institutional environment, which financial systems operate in many developing countries, is an important determinant of the quality of services provided by these financial institutions. However, they suggest that to achieve a well-functioning financial system, there is a need to develop a sound institutional environment, because poor institutions allow and encourage unproductive activities, slowing the economy and hindering financial development. On this backdrop, the law and finance literature tries to judge which institutional quality indicator is more important for financial development. Accordingly, the literature points out that if one can get a rule of law that protects property rights, investors would be willing to invest, and in turn, promote financial development. However, the capacity to effectively enforce contracts and deal with the changing financial situations impedes financial development, especially in developing countries. Consequently, Ncube (2007) suggests the need for legal systems to be adaptable and to evolve to meet the fast-changing innovation in the financial world, in order to handle contracts based on complex financial instruments. Although the above literature suggests that weak institutions, in particular, legal traditions, hinder financial development, the question arises as to what other reasons account for the cross-country differences in financial development.

In an alternative view, the endowment theory established that a country's geographical location and colonial history may indirectly affect financial development through its effect on institutional quality (Beck et al., 2003 and Herger et al., 2007). According to this theory, geography plays an important role in shaping the type of institutions bestowed upon a colony (for example, Acemoglu et al., 2001). The authors observed that the geographical location of a country (e.g. temperate, tropic and sub-tropic) tends to shape the development of the type of institutions available. According to the authors, the weak institutions observed in countries such as the ones in our sample may actually be as a result of their geographical locations. For example, it is argued that countries located in tropical and subtropical areas tend to lack supportive institutions because of the high rate of diseases and the lack of support for agriculture. Thus, colonisers in this area are unwilling to develop an institutional environment that would promote long-run growth or financial development, because the area is not hospitable to European settlers. However, in areas that are more conducive, colonial powers develop institutions that will encourage economic prosperity. In essence, institutions found in tropic and subtropical regions such as those countries in our sample, hinder financial development.



Accordingly, the geographical endowment of a country determined whether European settlers formed a colony or an extractive state.

As Detragiache et al. (2005) argue that colonial history affects financial development via its impact on institutions. It is suggested that where European settlers are after extractive natural resources, they tend to form institutions that suit that purpose. Furthermore, Acemoglu et al. (2001) note that institutions in extractive countries tend to survive post-independence, due to the fact the type of institutional environment tends to favour the settlers because the geographic conditions discouraged them from settling in these countries. Hence, it is suggested that extractive colonisation tends to hinder financial development. The empirical work in this area shows a negative relationship between settlers' mortality and financial development (Beck et al., 2002). Therefore, it is important to examine the effects of different types of institutions on financial development in SSA region.

### ***Political institutions and financial development***

Not only do property rights and the legal system shape the financial system and constitute the main cause of global differences in financial development, the literature points out that the differences in political institutions is also important. According to this view, the type of political economy (*democratic or autocratic*) is important for financial development. It is suggested that financial development is an outcome of specific laws and regulations and it depends on how a government enforces these laws. Here, countries that are democratic in nature tend to have better financial development, compared to autocratic regimes. Clague et al. (1996) argue that democracy enhances fundamental civil liberties and promotes property rights protection. In addition, a democratic economy tends to curb the influence of specific interest groups through various checks and balances which are intended to reduce corruption (Rajan and Zingales, 2003). As a result, savings and investments become more attractive and this often leads to the demand for liquidity and other financial services, which in turn, promotes financial development (KariKari, 2010). On the contrary, Rajan and Zingales, (2003) using the interest group theory, argue that where a country's political decisions are being controlled by a small number of elites, the development of the financial sector may be obstructed by denying finance access to potential competitors. This is because the government in this kind of environment tends to *deliberately omit the creation of*

*institutions* that would nurture successful financial development (Rajan and Zingales, 2003).

#### **4.4.1 The role of institutional quality in financial development and economic growth**

The Heritage Foundation Index of Economic Freedom (2010) describes economic freedom as ‘the fundamental right of every human to control his or her own labour and property’. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please, with that freedom both protected by the state and unconstrained by the state. In economically free societies, ‘governments allow labour, capital and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself.’ This index classifies the majority of Sub-Saharan African countries as either ‘mostly repressed’ or ‘repressed’.

The importance of institutions in financial development and economic growth has been widely discussed in the literature. The idea that institutions are important for growth dates back to Adam Smith (1776) in his prominent book ‘The Wealth of Nations.’ Adam Smith stressed the importance of property rights, monetary exchange systems and stable legal systems for economic growth. However, it was not until historical economists, North and Thomas (1973), provided a detailed critical account of the evolution of property rights, that its role became prominent. North (1990) defines property rights as ‘the rights of a firm or individual to assets, to the income gained from the use of these assets and to any contractual obligations due to the firm or individual.’

De Soto (1989 and 2000) explains that property rights are important for economic growth. He identified the availability of credit to the private sector (financial development) as a channel through which property rights affect economic growth, thus pointing out the role of institutions in the finance-growth literature. According to De Soto, poorly defined property rights weakens the incentives for ‘owners’ to make long-term capital investment, which may also limit the ability of ‘owners’ to use their property as collateral to secure the loans needed to finance capital investment. Thus, where credit is inaccessible, future investment and economic growth would decline. From the aforementioned, I note that although political instability can deter economic growth, Campos et al. (2008) note that both financial development and political instability may have a positive impact on growth in the long-run.

In theory, financial systems through the provision of information and legal and regulatory frameworks enhance the allocation of capital and, in turn, promote economic development. For instance, Diamond and Verrecchia (1982) and Jensen and Murphy (1990), suggest that a well-developed financial system may enhance corporate control by mitigating the principal-agent problem through aligning the interests of managers and owners. In addition, the disclosure of information that would not necessarily be provided, but required by regulations to disclose, would be evaluated before being conveyed to investors. From this point of view, good corporate governance tends to reduce the conflict of interest between managers and owners (shareholders). In this context, institutional environment is important for finance-growth relationship, because they set up the legal system and regulatory environment, which have an impact on the quality of information received by shareholders.

Jones (2002) recognised the importance of institutional environment in explaining economic growth by arguing that politics is important for economic growth because factors determining the profitability of investment, which positively influence economic growth, are mostly related to political institutions. This view is supported by Rodrik et al. (2002), who used Kauffman et al's (2002) index of 'rule of law' to proxy institutions, and found significant evidence that institutions are important in determining the income levels of countries.

The literature studying the determinants of financial development and finance-growth nexus, especially in developing countries, has provided substantial evidence to show that improvements in institutional quality are important for financial development.<sup>72</sup> The role of institutions in the finance-growth nexus can be schematically described as follows:

Institutional development     $\longrightarrow$     financial development     $\longrightarrow$     economic growth

It is argued that growth rates in countries with good institutions and financial policies perform better than those with restrictive policies and underdeveloped institutions. For instance, the poor economic performance in Ghana during the 1960s and 1970s is linked to political instability, high levels of corruption and a general lack of direction (Aryeetey and Tarp, 2000). Similarly, problems in the Niger-Delta area of Nigeria have been linked to persistence violence, government oppression, bad governance and corruption on the part of the government, both at the state and local government levels.

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<sup>72</sup> See, for example; Huang, (2009 and 2010), Girma and Shortland, (2008), Gries and Meierrieks, (2010) and Demetriades and Rousseau, (2010).

As a consequence of the underlining problems facing the Niger-Delta, Nigeria remains mainly underdeveloped. Although African countries differ in terms of size, the problems confronting them are quite similar. Barro and Lee (1993) observe that economic instability is often the result of political instability, and vice versa. Thus, the argument implies that the problems facing many African countries can be linked to their political environment. In this context, bad leadership, the main determining factor of political instability, has resulted in stagnant economic performance in many African countries. More recently, Roe and Siegel (2011) found evidence that political instability hinders financial development and widens income inequality.

Further, the existing institutions in many African countries are weakened by political instability, as a result of bad governance. In this context, political instability hinders financial development, and as a result, impedes growth. To explain the role of bad institutions on financial development and long-run growth, the political economic literature focuses on the role of incumbents. According to Rajan and Zingales (2003), interest groups tend to oppose financial development policies because they believe that their benefits would be eroded. This is because financial development fosters competition by enabling potential entrants to gain free entry into the sector. The implication of this is that in democratic economies, where openness is central, financial development policies are important because the incumbents may need new areas of financing.

On the contrary, in an autocratic economy, where incumbents have access to government powers, financial development is restrictive in order to prevent new entrants into the market. Consequently, promoting financial reforms is crucial for financial development. The idea is that financial liberalisation can help improve economic prospects through the establishment of the necessary institutional framework (Beck et al., 2008). Not only is a well-developed institutional framework important, but Ong'ayo (2008) suggests that to strengthen Africa's institutions, 'there is a need to promote democracy and accountability with an input from local perspectives'. Accordingly, the general observation in the institutional development literature suggests that the effectiveness of financial reforms depends on the effectiveness of the institutions which implement them (World Bank, 2003).

The role of institutions on financial development in SSA countries should be instrumental in explaining the channels of linkages between finance and growth. For instance, Collier (2004) notes the importance of institutional environment in promoting

financial development and growth. In other words, the role of institutions is to provide incentive structure and shape the direction of the economic change towards growth, stagnation or decline (North, 1991: 97). Recent empirical findings identified political institutions as the most important factor that determines financial development (North and Shirley, 2008).

Although there is a relative consensus on the positive role of finance on growth, and that institutional quality is a key channel to the finance-growth nexus, in order to achieve sustainable growth, the establishment of well-developed institutions should be a policy priority for governments in developing countries and, in particular, Sub-Saharan Africa. Indeed, the literature points out those countries that inherited their legal traditions during the colonial era have enjoyed improved economic growth. In particular, countries with the common law legal traditions tend to have higher economic growth, than countries with civil laws, because they better protect property and, in turn, investors. However, Roe and Siegel (2011) observe that some African countries with common law legal traditions did not perform as well as those with civil law traditions. Therefore, providing support to the findings that legal origin alone does not explain the cross-country variation in financial development.

#### **4.4.2 Empirical evidence on institutions, financial development and growth**

Although there is overwhelming empirical evidence in the literature on the effect of institutional environment on financial development and economic growth, there is no general consensus. For example, Arestis and Demetriades (1996 and 1997), using time series analysis, examined the impact of institutional environment on the finance-growth nexus in twelve developing and developed countries during the period 1949 to 1992. They note that countries with similar financial systems and policies may differ in relation to the effectiveness of their government. According to the authors, it is possible that the same financial policies may work differently in different countries, depending on how the policies are implemented and the effectiveness of the institutions. Their results confirm their claim that institutions and policy differences are important when considering the effect of finance on growth. The results corroborate the World Bank's (1993) statement that 'economic policies are country-specific and the effectiveness depends on the effectiveness of the institutions which implement them'. Bordo and Rousseau (2006) provide support for this claim by investigating the role of institutions and how they affect the finance-growth nexus, using historical cross-section data for 17

developed countries for the period 1880-1997. Their findings show that although both political and legal factors are important for financial development, its growth enhancing role remains unexplained by other institutional fundamentals. Thus, Badjun (2009) reached the conclusion that every country is specific as there are different views on the role of financial development on economic growth.

Levine (1998), in one of the most influential empirical law-finance literatures, analyzed the relationship and link between a country's legal system and banking development, and their long-run impact on economic growth, capital stock and productivity growth. The author found a strong relationship between banking development and the legal system. Specifically, he found that countries that emphasise the 'creditor's right' have a more developed banking system. He also found that countries with legal systems that enforce laws and contracts have more developed banking systems than countries that do not. Thus, the author argued that legal framework is crucial in the establishment of a developed financial system. This claim has been supported by the work of work of La Porta et al. (1998) and Pistor et al. (2000), who highlight that not only the quality of legal frameworks, but also the effectiveness of legal institutions, are crucial for financial development. In a similar way, Beck et al. (2003) ascertained the importance of strong legal frameworks and conclude that this leads to a higher level of financial development. Acemoglu and Johnson (2005) examined the role of institutions and in particular, property rights institutions. Their findings suggest that property rights have a positive effect on long-run economic growth, investment and financial development.

In a recent study, Nabi and Suliman (2008) note that legal framework is particularly important for banking development, in that when there is a default on a loan, banks often have the right to seize a collateral. However, the implementation of these rights often depends on the costs of the judicial procedure and the rule of law. Examining the causal link between institutions and banking and economic growth, the authors use data consisting of 22 MENA countries over the period 1984-2004. Their results are two-fold: first, they find bi-directional causality that runs from banking development to economic growth, with the relationship being more pronounced in countries with a more developed institutional environment, and second, causality runs from economic growth to banking, suggesting that a more developed country has a more developed banking system. The authors concluded that in many developing countries, most banks are

public and are constrained to finance the government and to rationalise private firms which may undermine economic growth.

Campos et al. (2008) examined the role of financial development and political instability on economic growth in Argentina during the period 1896 to 2000 using a power-ARCH (PARCH) framework. In order to understand the effect of political instability, the authors further split this factor into two: formal/unanticipated and informal/anticipated political instability. They found that both formal and informal political instability have an indirect impact on economic growth, and the effect of informal political instability is more pronounced in the short-run than in the long-run

#### **4.5 What drives financial development in Sub-Saharan Africa?**

This section presents the methodology, data and multivariate analysis. Empirical findings on the institutional and macroeconomic determinants of financial development in SSA are also presented. The main objective is to determine the impact of a better quality institution on financial development. In addition, I examine whether the long-run relationship between finance and growth is led by institutional conditions. Using a sample of 37 SSA countries, I seek to find answers to the following questions:

1. Does a good quality institution lead to financial development in the SSA region? In particular, are corruption, law and order and bureaucratic quality important for financial development?
2. Does institution affect the finance-growth relationship in SSA? Particularly, what role does institution play in the finance-growth nexus.

In the previous chapter, I used the ICRG-quality of governance (ICRG-QOG) indicator to analyse the effect of financial liberalisation on financial development in emerging and frontier markets. The ICRG-QOG is an indicator of the quality of governance and it is a composite index, which is the mean of three sub-indices (corruption, law and order and bureaucratic quality) measured on a scale of 0-1, where the higher values indicate a higher quality of government. The use of this measure makes it difficult to interpret which aspect of institutional quality was responsible for financial development after financial liberalisation in the SSA region. Consequently, I decompose the ICRG-QOG indicator and include corruption, law and order and bureaucracy quality in the empirical analysis in order to know which aspect of governance is important for financial development in the SSA region.

### 4.5.1 Econometric methodology, data and model specification

Since the purpose of this chapter is to analyse the role of institutional environment in determining financial development in the SSA region and given that the results obtained using various estimation techniques, financial development indicators, data frequency and regions studies have been inconclusive, this study hence follows theoretical literature which predicts financial development to be a function of institutions and other factors, which can be written as:

FD = f (institutions, level of economic development and control variables).

This can be empirically written as:

$$FD_{it} = \alpha_0 + \beta_1 INST_{it} + CV_{it} + \varepsilon_{it} \quad (4.1)$$

where FD is the dependent variable in our regression is a financial development indicator. I employ two main indicators that are used in the literature and are of particular importance to SSA countries, to take into account banking development: log of private credit expressed as a percentage of GDP and log of liquid liabilities expressed as a percentage of GDP.

*INST*, the independent variable is an indicator of quality of governance. In this study, I use ICRG quality of government (ICRG-QOG) to proxy government quality.<sup>73</sup> The data is obtained from The QoG Social Policy Dataset (Teorell et al., 2010), which collects data from several freely available data sources into a unique dataset. In addition, I include the different dimensions of governance in our regression to understand what aspect of governance is important for financial development in the region. Law and Azman-Saini (2008) argue that including the various dimensions of governance into the regression by themselves might lead to the problem of omitted variable bias, hence, I also examine whether the various aspects of governance simultaneously lead to the development of the banking sector. As a robustness check, I use the KKM index from Kaufmann et al. (2009) to measure institutional quality.

*CV* is the conditioning set which captures other macroeconomic determinants of financial development. They include; level of economic development (GDPC) and

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<sup>73</sup> The *ICRG-QOG* is the mean value of the ICRG variables ‘Corruption’, ‘Law and Order’ and ‘Bureaucracy Quality’, scaled 0-1. Higher values indicate a higher quality of government. The *KKM index* consists of the average of all measures of government quality: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption.



economic stability (INF).<sup>74</sup> This is the list of control variables commonly used in the literature (Beck et al., 2000 and Boyd et al., 2000). It also includes regional and year dummies.

#### 4.5.2 Data and preliminary testing

To explore the relationship between institutional environment and financial development in the SSA region, I use panel datasets covering the periods 1980 to 2007 and 1996 to 2007 (with some gaps)<sup>75</sup>, and 37 countries.<sup>76</sup> The main specification uses annual data; however, I also test the robustness of the results using four year averages. To estimate whether institutional environment leads to financial development, I use a similar model to Law, and Azman-Saini, (2008):

$$\ln FD_{it} = \alpha_0 + \alpha_1 \ln INST_{it} + \alpha_2 \ln RGDP C_{it} + u_i + v_t + \varepsilon_{it} \quad (4.2)$$

where  $FD_{it}$  is the level of financial development in country  $i$  over years  $t$ , and  $INST$  is institutional quality.  $RGDP C$  is real GDP per capita. The subscripts  $i$  and  $t$  index countries and time, respectively. In addition, the specification also contains an unobserved country dummy  $u_i$  and year dummy variable  $v_t$ . The motive behind including country fixed effects is to control for time invariant country-specific fixed factors, such as legal origin. The year dummy is used to control for time varying common shocks.  $\varepsilon_{it}$  is the error term.

Other variables that may influence the development of the financial sector are included in our regression. In particular, I examine economic stability, and note that due to uncertainty, changes in monetary policies might have a negative or positive effect on financial development. Thus, the basic financial development equation is extended as follows:

$$\ln FD_{it} = \alpha_0 + \alpha_1 \ln INST_{it} + \alpha_2 \ln RGDP C_{it} + \alpha_3 \ln CPI_{it} + u_i + v_t + \varepsilon_{it} \quad (4.3)$$

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<sup>74</sup> The rationale for including these control variables is as follows. We control for per capita GDP firstly, to account for the huge cross-country differences in the level of economic development. Secondly, richer countries enjoy better quality institutions, as such, it is important that the quality of institutions variable does not proxy for the level of economic development (Feldman, 2005). We also control for inflation rate, to account for the effect of change in monetary policies on financial development. High inflation is presumed to affect financial development adversely. A change in monetary policy can lead to a shock in the system, which can then trigger financial instability and compromise the effectiveness of such policies. As such, the development of a stable, well functioning financial system capable of withstanding financial pressures cannot be overemphasised.

<sup>75</sup> The sample period is from 1996, then 1998, 2000, 2002 and then annually.

<sup>76</sup> Due to data limitations, not all specifications cover exactly 37 countries; hence in most cases the panel is unbalanced. The list of countries in the sample is presented in Appendix IV.

where  $CPI$  is inflation.

The relationship between finance and institutional development might be nonlinear. Although institutional development has a positive relationship with financial development, the extent to which it affects financial development might vary with respect to the level of development in a country. As such, the predicted sign is ambiguous in the lower levels of development, and as the level of development improves, the sign is positive. Thus, to examine the nonlinearity between finance and growth, the squared term of institutional quality variable is added and included into equation 3. The regression can be re-written as:

$$\ln FD_{it} = \alpha_0 + \alpha_1 \ln INST_{it} + \alpha_2 \ln INST_{it}^2 + \alpha_3 \ln RGDPc_{it} + \alpha_4 \ln CPI_{it} + u_i + v_t + \varepsilon_{it} \quad (4.4)$$

### ***The measures of financial development***

To measure the level of financial development in the SSA, I use the log of private credit to GDP ratio (PC) and the log of liquid liabilities to GDP ratio (M3). Private credit is a measure of the assessment of credit availability in a country relative to the size of its economy. It captures the activity of the financial intermediary through channelling savings to investors, and isolates credit issued to the private sector, (Levine et al., 2000). A higher level of PC indicates higher level of financial services for the private sector and a better access to credit and vice versa. It also indicates that a country is financially developed or underdeveloped. M3 captures financial ‘depth’ as it does not distinguish between the financial sectors. Hence, it is referred to as the size of the financial sector. For this analysis, PC is our preferred measure of financial development as it is widely used in the literature as a proxy. To test the robustness of our results, I use M3 to proxy financial development.

The basic summary statistics shows that the level of financial development within Sub-Saharan Africa is very poor. Private credit over the sample period (1980-2007) varies between 5.62 in Ghana (1983) to 162.46 in South Africa (2007), with an average of 18.28 and a standard deviation of 18.66.

**Table 4-9: Basic statistics (Annual data: 1980-2007)**

a. Full sample

Variable	Mean	Std. Dev.	Min	Max
Financial development indicators				
Private credit	18.28	18.66	1.54	162.46
Liquid liabilities	31.90	19.87	0	143.02
Institutional development indicators				
ICRG_QOG	0.43	0.14	0.10	0.83
KKM	-0.56	0.59	-1.78	0.84
Components of institutions (KKM)				
CCE	-0.58	0.57	-1.76	1.07
GEE	-0.62	0.57	-1.74	0.95
PSE	-0.50	0.92	-2.55	1.14
RLE	-0.63	0.63	-1.72	0.94
RQE	-0.55	0.56	-2.37	0.84
VAE	-0.51	0.71	-1.95	1.01
Other institutional development indicators				
P_POLITY2	-1.48	6.10	-10	10
AVGPRCL	4.79	1.78	0	7
Control variables				
Real PCAP	2986.17	3378.47	578.30	20006.49
CPIIMF	21.54	159.41	-20.81	4145.22
Instruments				
FRENCHL	0.59	0.49	0	1
AL_ETHNIC	0.75	0.43	0	1

*Notes: Private credit is the total credit available to the private sector as a ratio of GDP. Liquid liabilities are used to measure the overall size of financial intermediaries, hence, the ability to provide financial services. It is the ratio of liquid liabilities to GDP. ICRG\_QOG is our measure of institutional quality and it is the mean of law and order, corruption and bureaucracy. KKM is the average of the six components of good governance and is also a measure of institutional quality. CCE is control of corruption, GEE is government effectiveness, PSE is political stability and no violence, RLE measures the rule of law, RQE measures regulatory quality and VAE is voice and accountability. P\_POLITY2 is a measure of democracy and AVGPRCL indicates the average of property rights and civil liberties. The level of development is indicated by real GDP per capita, economic stability is measured by annual rate of inflation (CPI obtained from IMF). French legal origin is a dummy which takes the value of 1 for countries with French legal tradition and zero otherwise. Ethnic fractionalisation is the probability that two randomly selected individuals in a country will not speak the same language.*

b. Low income countries

Variable	Mean	Std. Dev.	Min	Max
Financial development indicators				
Private credit	13.86	8.49	1.54	44.16
Liquid liabilities	25.49	12.56	0	82.3
Institutional development indicators				
ICRG_QOG	0.42	0.13	0.1	0.69
KKM	-0.66	0.41	-1.66	0.31
Components of institutions (KKM)				
CCE	-0.71	0.38	-1.76	0.37
GEE	-0.75	0.39	-1.74	0.18
PSE	-0.57	0.77	-2.41	1.02
RLE	-0.73	0.41	-1.72	0.41
RQE	-0.61	0.49	-2.37	0.58
VAE	-0.59	0.56	-1.64	0.69
Other institutional development indicators				
P_POLITY2	-1.83	5.57	-9	9
AVGPRCL	5.02	1.68	0	7
Control variables				
RPCAP	1371.72	799.06	578.3	5267.7
CPIIMF	14.62	22.53	-13.06	183.31
Instruments				
FRENCHL	0.59	0.49	0	1
AL_ETHNIC	0.86	0.34	0	1

Notes: same as Table 4-9a.

### ***The measures of institutional environment***

The review of literature in the previous section confirms that a country's economic, political and legal institutions affect its financial development. However, it is difficult to determine which particular one is important for financial development. For example, in the previous chapter, I use the mean of corruption, law and order and bureaucracy quality to measure the quality of government, which I referred to as INS. The results from our findings provided us with a mixed result, in addition to difficulty in interpreting which independent indicator of institution was relevant to financial development after financial liberalisation. Thus, the question arises that what aspect of institution is relevant to financial development?

In this context, the objective is to examine the effect of institutions on financial development. Here, I incorporate all aspects of institutions - *economic, political and legal institutions*, to assess their independent effects and identify which institution is

relevant to financial development. I then examine the effect of the interaction of the particular institutional variable with our financial liberalisation variable to assess to what extent it affects financial development. Hence, I estimate the following regression:

$$\ln FD_{it} = \alpha_0 + \alpha_1 \ln INST_{it} + \alpha_2 \ln(INST * FINLIB)_{it} + \alpha_3 \ln RGDP_{it} + \alpha_4 \ln CPI_{it} + u_i + v_t + \varepsilon_{it} \quad (4.5)$$

### **1. The economic institutions variable**

Economic institutions refer to the capacity in which government are able to implement policies and provide public services. They include: government effectiveness and regulatory quality, corruption levels, protection of property rights and rule of law. Gries and Meierriecks, (2010) recognise that; (i) strong protection of property rights, (ii) robust legal framework, and (iii) low levels of corruption are associated with a high quality of economic institutions, which can influence financial development. Following Van de Walle, (2005) we use government effectiveness to proxy *economic institutions*. Government effectiveness measures the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government to such policies. In other words, government effectiveness measures the competence of the bureaucracy and the quality of public service delivery.

### **2. The political institutions variable**

Political institutions refer to the process by which those in authority are selected and replaced. It includes voice and accountability and political stability and absence from violence (Kauffman et al., 2008). The use of polity2 as a proxy for political institutions is common in the literature (for example, Huang, 2010). This variable is used to proxy the degree of democracy and seeks to measure institutional quality based on the freedom of suffrage, operational constraints, balances on executives, and respect for other basic political rights and civil liberties. It is usually referred to as a '*revised combined polity score*'<sup>77</sup> which is obtained by 'subtracting autocracy score from the democracy score' to obtain an aggregate democracy variable which is measured on a scale of -10 to 10; a higher level indicates a higher level of democracy.

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<sup>77</sup> According to Teorell et al. (2010), 'the revised combined polity score is designed to facilitate the use of the polity regime measure in time series analysis.'

Plumper and Neumayer, (2010) have criticised the reliability and validity of using polity2. A measure is considered reliable if it would give us the same results over and over again (Trochim, 2007), while valid empirical measures accurately reflect the analytical concepts to which they relate (Norris, 2008). Plumper and Neumayer, (2010: 209) argues that polity2 lacks ‘face validity’ because ‘*on closer inspection the rules for the coding of polity2 for interregnum and affected transition years give values that are implausible and likely to be misleading regarding the political regime in many of the affected country years*’. Although Norris (2008) seems to agree that the issue of coding in the Polity IV database may result in certain important aspects of the obtained measure being excluded from consideration, she, however, argues that econometric research is often concerned with being able to replicate results, and as such, the issue of validity may not be of major concern.

Following Huang (2010), therefore, I use ‘polity2’ to proxy democracy. It is obtained from the Polity IV database by Marshall and Jaggers (2009), courtesy of Teorell et al. (2010). Hadenius and Teorell (2005) suggest the average of political rights and civil liberties and an alternative. According to the authors, this variable performs better than polity2, in terms of validity and reliability. Political rights are defined as ‘rights to enable people to participate freely in the political processes’, whereas civil liberties are ‘the freedoms to develop views, institutions and personal autonomy apart from the state’. Hence, following Huang .Y (2005) and Kalyvitis and Vlachaki (2008), I include the average of political rights and civil liberties, which I refer to as STATUS to proxy democracy. A higher level indicates better political rights and civil liberties. These are obtained from data compiled by Teorell et al. (2010) from the University of Gothenburg, The quality of government institute (QOG) and obtained freely from Freedom House.<sup>78</sup> To test the robustness of our empirical analysis, I use either political rights or civil liberties to proxy political institutions.

### ***3. The legal institutions variable***

The respect for the institutions that govern interaction among citizens and the state is referred to as legal institutions. Beck (2010) defines legal institutions as ‘rules that govern commercial relationships between different agents of the society, i.e. firms, households and government and it include the control of corruption and the rule of law. For the purpose of this study, I focus on the quality and efficiency of legal institutions. I

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<sup>78</sup> Gastil et al. (1989).

use the Heritage Foundation's property rights to proxy legal institutions. This measures the degree to which a country's laws protect private property rights and the degree to which the government enforces those laws. It also accounts for the possibility that private property will be expropriated. For a robustness test, I use the rule of law to proxy legal institutions. A full documentation of the above institutional quality indicators are provided in Appendix IV.II. As a robustness test, I use *security of property rights and legal structure* to measure the quality of a country's legal institutions, following Miletkov and Wintoki (2008).

According to the aforementioned, it is worthy to note that the main institutions important to financial development are legal and political, thus the focus is mainly on political and legal institution variables.

#### **4.5.3 Control variables**

As is standard practice in the law-finance (Beck and Levine, 2003) and finance-growth literature (Levine, 2005 and Beck et al., 2008), I control for the effect of other variables, which can potentially determine financial development. Here, I include macroeconomic conditions such as country income level denoted by real GDP per capita and inflation (changes in CPI). The level of development measured by real GDP per capita is supposed to positively influence financial development (Levine, 1997). As mentioned earlier, financial development requires a stable macroeconomic environment, thus, to examine whether a macroeconomic policy variable can explain the persistent cross-country differences in financial development over a period; the inflation rate (measured using changes in price level, CPI) from the IMF is used.

I consider the heterogeneity of the SSA group by subdividing these countries according to their level of development, using the World Bank classifications for income group. Thus, the other variables included in the model are income level dummies. The dummy takes the value of 1 if a country belongs to low income level (LIC) and 0, otherwise. Similar definition is used to depict lower middle income countries (LMIC) and upper middle income countries (UMIC). To show the origin of a country's legal system I include two indicators: BritishL and FrenchL. The data is obtained from La Porta et al. (1998).

#### 4.5.4 Presentation of the model variables: Identification problems

Equations (4-3) and (4-5) provide the basis for the estimation in this study. I note that there are issues that can arise from the inclusion of indices (given that the measurements for institutional quality are indexes) as they may induce a bias in the regression results. According to Rathinam and Raja (2010) institutions that cause economic growth evolve very slowly over a period. Hence, due to the difficulty in obtaining a ready-made time series of an institutional indicator, Boji (2007) notes that the introduction of these factors, as independent variables of time, might not pose problems.

Furthermore, previous studies on financial development have emphasised the problem of endogeneity, which can arise due to measurement error, reverse causation or omitted variables. However, Baltagi (2001) suggests using a suitable estimation technique, which will provide consistent and efficient estimates, in order to avoid such problems. Beck et al. (2000) applied dynamic panel regressions to deal with endogeneity concerns. Here, lagged values of the explanatory endogenous variables are used as instruments, as it is believed that the past values of the explanatory variables are likely to suffer the same problem as its present values. An advantage of using dynamic panel data methods over the cross-sectional instrumental variable regression is that it controls for endogeneity and measurement error for the explanatory variables.

Hence, to avoid the problems discussed above, I follow the methodological approach of earlier studies such as Rathinam and Raja (2010) and conduct a panel data estimation based on four year averages of financial development indicators (and other variables). I, therefore, generate series for financial and institutional development variables which are measured in 1980-83, 1984-87, 1988-91, 1992-95, 1996-99, 2000-03 and 2004-07, so that there is seven non-overlapping, four year periods. This gives us seven observations for each country. An advantage of averaging the time periods is to enable for the control of problems which may arise due to business cycle effect. Thus, the new equation estimated is specified as follows:

$$\ln FD_{it-4} = \alpha_0 + \alpha_{1i} \ln INST_{it-4} + \alpha_{2i} \ln RGDPc_{it-4} + \alpha_{3i} \ln CPI_{it-4} + u_i + v_t + \varepsilon_{it} \quad (4.6)$$

#### 4.5.5 Descriptive statistics and correlations: Preliminary findings

The preliminary statistical interpretation of the data is presented in Tables 4-10a-d and Table 4-11. They show simple statistical summaries and correlations between the financial development and governance indicators. Table 4-10a shows a disparity in



financial development in the sample of countries (when focusing on the full sample). Taking into account that our sample is heterogeneous, I split the sample countries into various income groups (low, lower middle and upper middle income groups). Table 4-10b shows that the mean values for financial indicators are uniformly lower in low income SSA countries than the other groups, as measured in terms of private credit and liquid liabilities. I also observe that there are differences in the explanatory variables between low income SSA countries and the rest of the group, particularly with respect to overall institutional development (ICRG\_QOG and KKM). A closer look at the table reveals that the difference between financial development in low income and lower middle income SSA countries is very small.

**Table 4-10: Basic statistics (Annual data: 1980-2007)**

a. Full sample

Variable	Mean	Std. Dev.	Min	Max
Financial development indicators				
Private credit	18.28	18.66	1.54	162.46
Liquid liabilities	31.90	19.87	0	143.02
Institutional development indicators				
ICRG_QOG	0.43	0.14	0.10	0.83
KKM	-0.56	0.59	-1.78	0.84
Components of institutions (KKM)				
CCE	-0.58	0.57	-1.76	1.07
GEE	-0.62	0.57	-1.74	0.95
PSE	-0.50	0.92	-2.55	1.14
RLE	-0.63	0.63	-1.72	0.94
RQE	-0.55	0.56	-2.37	0.84
VAE	-0.51	0.71	-1.95	1.01
Other institutional development indicators				
P_POLITY2	-1.48	6.10	-10	10
AVGPRCL	4.79	1.78	0	7
Control variables				
Real PCAP	2986.17	3378.47	578.30	20006.49
CPIIMF	21.54	159.41	-20.81	4145.22
Instruments				
FRENCHL	0.59	0.49	0	1
AL_ETHNIC	0.75	0.43	0	1

*Notes: Private credit is the total credit available to the private sector as a ratio of GDP. Liquid liabilities are used to measure the overall size of financial intermediaries, hence, the ability to provide financial services. It is the ratio of liquid liabilities to GDP. ICRG\_QOG is our measure of institutional quality and it is the mean of law and order, corruption and bureaucracy. KKM is the average of the six components of good governance and is also a measure of institutional quality. CCE is control of corruption, GEE is government effectiveness, PSE is political stability and no violence, RLE measures the rule of law, RQE measures regulatory quality and VAE is voice and accountability. P\_POLITY2 is a measure of democracy and AVGPRCL indicates the average of property rights and civil liberties. The level of development is indicated by real GDP per capita, economic stability is measured by annual rate of inflation (CPI obtained from IMF). French legal origin is a dummy which takes the value of 1 for countries with French legal tradition and zero otherwise. Ethnic fractionalisation is the probability that two randomly selected individuals in a country will not speak the same language.*

b. Low income countries

Variable	Mean	Std. Dev.	Min	Max
Financial development indicators				
Private credit	13.86	8.49	1.54	44.16
Liquid liabilities	25.49	12.56	0	82.3
Institutional development indicators				
ICRG_QOG	0.42	0.13	0.1	0.69
KKM	-0.66	0.41	-1.66	0.31
Components of institutions (KKM)				
CCE	-0.71	0.38	-1.76	0.37
GEE	-0.75	0.39	-1.74	0.18
PSE	-0.57	0.77	-2.41	1.02
RLE	-0.73	0.41	-1.72	0.41
RQE	-0.61	0.49	-2.37	0.58
VAE	-0.59	0.56	-1.64	0.69
Other institutional development indicators				
P_POLITY2	-1.83	5.57	-9	9
AVGPRCL	5.02	1.68	0	7
Control variables				
RPCAP	1371.72	799.06	578.3	5267.7
CPIIMF	14.62	22.53	-13.06	183.31
Instruments				
FRENCHL	0.59	0.49	0	1
AL_ETHNIC	0.86	0.34	0	1

Notes: same as Table 4-10a.

c. Lower middle income countries

Variable	Mean	Std. Dev.	Min	Max
Financial development indicators				
Private credit	17.29	10.53	1.62	51.8
Liquid liabilities	24.94	7.86	0	35.88
Institutional development indicators				
ICRG_QOG	0.38	0.12	0.15	0.64
KKM	-0.78	0.61	-1.78	0.56
Components of institutions (KKM)				
CCE	-0.74	0.55	-1.55	0.75
GEE	-0.76	0.52	-1.54	0.36
PSE	-0.83	1.04	-2.55	1.1
RLE	-0.85	0.69	-1.64	0.83
RQE	-0.76	0.45	-1.88	0.14
VAE	-0.79	0.73	-1.95	0.9
Other institutional development indicators				
P_POLITY2	-3.46	5.48	-10	8
AVGPRCL	5.03	1.68	0	7
Control variables				
RPCAP	2853.41	1626.05	836.15	7748.74
CPIIMF	43.92	306.52	-9.62	4145.22
Instruments				
FRENCHL	0.57	0.50	0	1
AL_ETHNIC	0.70	0.46	0	1

Notes: same as Table 4-10a.

d. Upper middle income countries

Variable	Mean	Std. Dev.	Min	Max
Financial development indicators				
Private credit	38.21	38.09	6.59	162.46
Liquid liabilities	60.19	22.94	23.52	143.02
Institutional development indicators				
ICRG_QOG	0.56	0.15	0.31	0.83
KKM	0.27	0.44	-0.68	0.84
Components of institutions (KKM)				
CCE	0.24	0.57	-1.35	1.07
GEE	0.23	0.53	-0.78	0.95
PSE	0.44	0.57	-1.11	1.14
RLE	0.26	0.51	-1.01	0.94
RQE	0.13	0.54	-1.36	0.84
VAE	0.35	0.59	-0.89	1.01
Other institutional development indicators				
P_POLITY2	4.50	6.37	-9	10
AVGPRCL	3.42	1.76	0	6
Control variables				
RPCAP	9862.53	3730.26	3274.1	20006.49
CPIIMF	8.50	9.67	-20.81	55.88
Instruments				
FRENCHL	0.60	0.49	0	1
AL_ETHNIC	0.40	0.49	0	1

Notes: same as Table 4-10a.

**Table 4-11: Pair-wise correlation matrix**

Variables		1	2	3	4	5	6	7	8
1	PC	1							
2	M3	0.4535*	1						
3	ICRG_QOG	0.3016*	0.3175*	1					
4	KKM	0.4727*	0.4447*	0.5322*	1				
5	P_POLITY2	0.2287*	0.3348*	0.0546	0.5520*	1			
6	AVGPRCL	-0.2378*	-0.2714*	-0.1661*	-0.8026*	-0.6621*	1		
7	CCE	0.5196*	0.5072*	0.5316*	0.8921*	0.4236*	-0.6647*	1	
8	GEE	0.5903*	0.4823*	0.5452*	0.9124*	0.4693*	-0.6835*	0.8453*	1
9	PSE	0.2092*	0.3704*	0.3762*	0.8789*	0.3765*	-0.6587*	0.7168*	0.6874*
10	RLE	0.4478*	0.5585*	0.6013*	0.9465*	0.4660*	-0.7305*	0.8681*	0.8642*
11	RQE	0.4087*	0.0900	0.4675*	0.8390*	0.4177*	-0.6164*	0.6889*	0.7775*
12	VAE	0.4816*	0.3710*	0.3617*	0.8942*	0.7930*	-0.9281*	0.7354*	0.7998*
13	FRENCHL	-0.0449	-0.0979*	-0.1692*	-0.0456	-0.0618	0.0632*	0.0009	-0.1417*
14	AL_ETHNIC	-0.0837*	-0.5793*	-0.2632*	-0.3101*	-0.0869*	0.1692*	-0.4450*	-0.3189*
15	RPCAP	0.4524*	0.8192*	0.3086*	0.5421*	0.2299*	-0.2867*	0.5702*	0.5575*
16	CPIIMF	-0.0545	-0.0567	0.0098	-0.1100*	-0.0141	0.0433	-0.0623	-0.0817
Variables (contd)		9	10	11	12	13	14	15	16
9	PSE	1							
10	RLE	0.8173*	1						
11	RQE	0.6373*	0.7540*	1					
12	VAE	0.7259*	0.7974*	0.7288*	1				
13	FRENCHL	0.0485	-0.0679	-0.1279*	-0.0136	1			
14	AL_ETHNIC	-0.2729*	-0.3944*	-0.0727	-0.1901*	0.0497	1		
15	RPCAP	0.4464*	0.5700*	0.3709*	0.4324*	0.0689*	-0.4585*	1	
16	CPIIMF	-0.1277*	-0.0967	-0.1102*	-0.0939	-0.0051	0.044	-0.0221	1

Note: \* denotes significance level, p at 5% level. N=37. Other details same as Table 4-10a.

The correlations in Table 4-11 are informative. All the financial development indicators are correlated with all the various variables in our sample. The result also indicates that financial development is positively related to institutional quality. For example, government effectiveness is significantly and highly correlated with private credit, and has a correlation coefficient of 0.59. A similar situation holds for control of corruption. The institutional quality variables and the components of institutional quality are also positively correlated with each other, where the correlation coefficient ranges between 0.71 and 0.86.

The macroeconomic and structural variables are strongly correlated with the measures of financial development and with the expected sign. In particular, there is a positive relationship between real growth and the financial development indicators, and inflation has a negative relationship with the indicators of financial development. The relationship between real GDP per capita and our indicators of financial development is positive and significant, suggesting that there is a long-run relationship between finance and growth.

#### **4.5.6 Economic Assumptions Underlying the Models and Testable hypothesis**

Several studies have tried to examine the determinant and impact of financial development in developing countries. Although these studies have found financial development positively affects economic growth, there is no general consensus on the determinants of financial development amongst academics. As a result, empirical analysis may be found to be misleading at times. The level of income, geography, resource endowment, macroeconomic policies, openness, culture and institutional environments such as corruption, legal origin, bureaucratic quality and democracy significantly determines the level of financial development or has a mixed influence on financial development in a country. For example, Bertola and Lo Prete (2011) found that trade openness is insignificant in determining financial development, while Rajan and Zingales (2003) and Huang and Temple (2005), on the other hand, found it significantly determines financial development. These inconclusive results might be related to the difficulties encountered when choosing reliable proxies for institutional environment. Thus, it is logical to postulate the following hypothesis:

H1: Countries with better governance are more likely to have a well-developed financial sector.

The first hypothesis requires that countries with well-developed institutions have a positive relationship with financial development.

It is widely acknowledged that finance is important for growth. Yet, the literature still seeks to answer whether finance is important for growth and if so, what the likely transmission channels are. It is argued that better institutions promote financial development and, in turn, economic growth, however, lack of institutions sometimes leads to growth decline (for example, Posner, 1998). In addition, as countries become richer, they have access to finance that aids in promoting the development of better quality institutions. Thus, to empirically assess the role institutions play in the finance-growth relationship, it is logical to postulate the following hypothesis:

H2: Financial development positively affects economic growth in countries with better governance.

I examine how the quality of institutions, across countries, modifies the influence of financial development on economic growth. Here, financial development needs to be statistically significant in the growth equation before concluding that financial development has any impact on economic growth. It also requires that the interactions between financial development and institutions are positive in order to conclude that institutional environment is a likely channel through which finance affects growth. Alternatively, following Tressel and Detragiache (2008), I run separate regressions for countries belonging to different institutions (for example, British law and French law), such that the interpretation of the result will be that institutions help shape the financial systems response to financial liberalisation.

## **4.6 Regression analysis**

This section attempts to empirically verify the hypothesis in the previous section. Here, I control for the level of economic development, inflation and other country-specific factors included in the country dummy variables.

### **4.6.1 Baseline regression**

This estimation is done following several steps: (1) the baseline model is estimated with private credit (unless otherwise stated) as the dependent variable and ICRG\_QOG, real GDP per capita and CPIIMF as independent variables, and (2) in this step I see how individual components of institutions affect FD by including related variables to the



previous step. The report of the estimated regression for several subsamples is reported and discussed below.

**Table 4-12: Impact of institutional development on financial development: Dependent variable: Private credit**

Variables	FE	IV	GMM
ICRG_QOG	0.446***	-2.154	-0.310
	(2.61)	(-0.41)	(-0.28)
RPCAP(log)	0.763***	0.794**	0.405***
	(7.27)	(2.35)	(4.35)
CPIIMF(log)	-0.031**	-0.016	-0.14***
	(-1.87)	(-0.32)	(-6.04)
Constant	-3.352***	-2.554***	-0.379
	(-4.24)	(-2.92)	(-0.99)
Sargan Test of over identifying restrictions		-0.191	-1.513
		(-0.66)	(-0.22)
Durbin-Wu-Hausman (test for endogeneity)			-1.091
			(-0.30)
Test for strength of instruments (first stage)			11.52
			(0.00)
Obs	521	521	521

Notes: p-values are in brackets. \*, \*\* and \*\*\* indicate p values significant at 10%, 5% and 1% level of significance. ICRG-QOG indicates institutional quality. The model is well specified as the diagnostic test is satisfactory. The Sargan and Hensen J test does not reject the over identification restrictions. I do not reject the Durbin-Wu-Hausman test and, likewise, the test for the joint significance of our instruments show that the instruments are sufficiently strong. Private credit is in logarithm form.

The estimation results are presented in Table 4-12. First, I estimate a one-way fixed effects and random effects model. Then employ the Hausman specification tests<sup>79</sup> to determine which estimation technique is suitable for the regression. The Hausman test result indicates that fixed effects is the preferred method of estimation; therefore, results for fixed effects are reported. Noting that there may be one or more endogenous variables in the analysis, instrumental variables (IV) and generalised methods of moment's technique are applied to remove this bias.

Table 4-12 also presents the results of estimating equation (4-3) using fixed effects (FE); two stage least square and GMM approach. Here, the dependent variable is private credit. ICRG\_QOG is used as a measure of institutional quality. The table indicates that all the determinants of financial development have the correct sign. In fact, I note that the coefficient of ICRG\_QOG is statistically significant and positively related to financial development. This result suggests that good institutions in the form of law and

<sup>79</sup> We obtain a  $\chi^2(3) = 53.07$  with a p-value of 0.0000. The significant P-value indicates the use of FE estimator.

order, bureaucratic quality and rule of law promotes financial development in SSA provides support to the view of Gries and Meierrieks (2010). However our result is contrary to the findings of Mobolaji (2008), who used corruption to measure institutional quality and found that this hinders financial development in the region.

The control variables; real GDP per capita and inflation, generally carry their expected signs. The coefficient of real GDP per capita is positive and significant in determining financial development. In contrast, the coefficient of inflation is negative and significant suggesting that an unstable economic environment hinders the development of the financial sector.

Turning to the IV and GMM approach, it is observed that the coefficient of institutional quality measured by ICRG-QOG is negative and insignificant in promoting financial development.

#### **4.6.2 Effect of various dimensions of good governance on financial development**

This section examines which aspect of institutions affects financial development in SSA the most, by disaggregating the ICRG\_QOG and KKM variables. Table 4-13 reveals that the various institution variables are positively correlated with financial development. It also reports the estimated results of equation (3) using disaggregate institutional quality variables. All the diagnostics tests performed indicate that the model is correctly specified.

The full sample results show that all our measures of institutional quality are positively related to financial development, with the exception of the rule of law. The results indicate that only control of corruption and voice and accountability have a coefficient that is statistically significant, at the 10 and 5 percent significant level, respectively. Further, all the control variables have the correct sign and are statistically significant in determining financial development in the SSA region.

**Table 4-13: Effect of various facets of institutions on financial development**

Variables	FE	IV	GMM
ICRG_QOG	0.446***	-2.154	-0.310
	(2.61)	(-0.41)	(-0.28)
RPCAP(log)	0.763***	0.794**	0.405***
	(7.27)	(2.35)	(4.35)
CPIIMF(log)	-0.031**	-0.016	-0.14***
	(-1.87)	(-0.32)	(-6.04)
Constant	-3.352***	-2.554***	-0.379
	(-4.24)	(-2.92)	(-0.99)
Sargan Test of over identifying restrictions		-0.191	-1.513
		(-0.66)	(-0.22)
Durbin-Wu-Hausman (test for endogeneity)			-1.091
			(-0.30)
Test for strength of instruments (first stage)			11.52
			(0.00)
Obs	521	521	521

Notes: Regression estimated using fixed effects model. PCAP is real GDP per capita, CPIIMF is inflation, CCE = control of corruption, GEE = government efficiency, PSE= political stability and no violence, RLE= rule of law, RQE= regulatory quality and VAE is voice and accountability. See Table 4-12.

I then try to examine whether the impact of institutions on financial development varies across SSA regions, thus I classify countries into three groups according to their level of development: low income, lower middle income and upper middle income countries. In the low income countries, the regression results show that control of corruption, government effectiveness and voice and accountability are positively linked with financial development. Although political stability and regulatory quality are positive, their impact on financial development is insignificant. The results also indicate that the rule of law has a negative impact on financial development in countries like Benin, Kenya and Zimbabwe. The macroeconomic variables all have the correct signs with the coefficients statistically significant.

The results for the lower middle income countries show that of all the six measures of good governance, only the coefficient of regulatory quality are statistically significant. The effect of the level of economic development on financial development is positive, with a statistically significant coefficient. The positive impact of GDP per capita on financial development is in agreement to theoretical predictions. Specifically, a one percent increase in the level of development (US \$836 to US \$7748) would lead to approximately 153 percent increase in financial development.

In the upper middle income countries, our estimation results show that none of the various indicators of good governance are significant in determining financial development. However, the level of development seems to positively promote financial development in these countries. Inflation seems to have the correct sign, although the coefficients in all the estimations are not statistically significant. One reason for this might be that inflation is generally low and stable in these economies, such that its impact is insignificant. For instance, in Botswana, the rate of inflation has been kept low and stable over the years, partly, as a result of the monetary framework policy put in place to promote banking sector development and avoid exchange rate appreciation.

#### **4.6.3 Non-Linear effects of institutional quality on financial development**

Table 4-14 reports the estimated regression of equation (4.4). In this analysis, an extra squared term of the institutional quality indicator is included in the table to allow for the formation of the U-shape movement. Using ICRG\_QOG to measure institutional quality, the results of the estimation using FE, suggests that institutional quality has a negative and significant effect on financial development. The squared term also has a negative result, suggesting the relationship between institution and financial development is linear.

**Table 4-14: Non-linear relationship between institutional development and financial development**

Variable	FE	IV	GMM	FE	IV	GMM
ICRG_QOG	-1.784**	-12.917	-10.260			
	(-2.45)	(-1.42)	(-1.24)			
ICRG_QOG^2	-1.508*	-12.101	-9.362			
	(-1.89)	(-1.24)	(-1.05)			
KKM				-0.021	-2.081**	-2.024***
				(-0.11)	(-3.22)	(-3.19)
KKM^2				-0.090	-1.035***	-0.999**
				(-0.85)	(-2.53)	(-2.48)
FRENCH LAW						
AL_ETHNIC						
RPCAP(log)	-0.712***	-0.386***	-0.357***	-0.691***	-0.105	-0.105
	(-6.59)	(-5.19)	(-5.41)	(-6.15)	(-0.64)	(-0.64)
CPIIMF(log)	-0.030*	-0.132***	-0.134***	-0.069***	-0.083**	-0.083**
	(-1.80)	(-4.56)	(-4.94)	(-3.60)	(-2.62)	(-2.65)
Constant	-3.242***	-3.176	-2.385	-2.523***	-4.004***	-3.988***
	(-4.10)	(-1.38)	(-1.16)	(-2.86)	(-2.95)	(-2.93)
Sargan Test of overidentifying restrictions		-1.105	-1.105		-0.237	-0.237
		(-0.29)	(-0.29)		(-0.63)	(-0.63)
Durbin-Wu-Hausman (test for endogeneity)		-3.131	-2.528		-4.392	-5.156
		(-0.07)	(-0.11)		(-0.04)	(-0.02)
Test for strength of instruments (firststage)		6.524	6.524		11.201	11.201
		(0.00)	(0.00)		(0.00)	(0.00)
Obs	521	521	521	295	295	295

Note: See Table 4-13.

Similarly, I find that using the average of the governance indicators, both KKM and KKM squared have a negative and significant relationship with financial development, as indicated in the IV and GMM estimation. I come to the same conclusion that the relationship between institutional quality and financial development is linear and significantly negative as indicated by the signs of the coefficient. For a significant contribution of institutions to financial development, it is important to adopt policies that would not be too restrictive to banking development.

#### 4.6.4 Finance-growth nexus: The role of institutions

I examine whether institutions are a channel through which finance affects economic growth in the SSA region. Thus, I estimate the following equation:

$$\ln rPCAP_{it} = \alpha_0 + \alpha_1 \ln FD_{it} + \alpha_2 \ln INST_{it} + \alpha_3 \ln(FD * INST)_{it} + \alpha_4 \ln CPI_{it} + \varepsilon_{it} \quad (4.7)$$

The above equation tests the marginal effects of financial development and institutions on economic growth.

$$\frac{\partial \ln rPCAP_{it}}{\partial \ln FD_{it}} = \alpha_1 + \alpha_3 \ln INST_{it} \quad (4.8)$$

$$\frac{\partial \ln rPCAP_{it}}{\partial \ln INST_{it}} = \alpha_2 + \alpha_3 \ln FD_{it} \quad (4.9)$$

In order to conclude that institutions affect the finance-growth nexus, the derivatives need to be positive. This implies that as financial sectors become more developed, the better the institutions within which they operate.

To analyse the importance of institutions for finance-growth nexus, I calculated the marginal effects of both financial development and institutions for the interaction term and the results are presented in. The results from Table 4-15 indicate that the coefficient of financial development is statistically significant at a 1 percent significance level, and is positively signed. The results also indicate that both institutions and the interaction term are positively signed and statistically significant at the 1 percent level of significance. This implies that financial development is positively related to economic growth; however good level of institutions help boost the extent to which finance promotes economic growth.

**Table 4-15: Finance-growth nexus role of institutions**

Variable	FE	FE	IV	GMM
Constant	7.22***	7.321***	11.841***	11.406***
	(143.28)	(128.24)	(8.72)	(9.28)
lnPC	0.133***	0.131***	-0.222	-0.19
	(8.30)	(7.49)	(-1.33)	(-1.25)
lnICRG	0.076***	0.103***	4.172***	3.775***
	(3.00)	(3.68)	(3.99)	(4.00)
lnPC*lnICRG	0.197***	0.247***	2.737***	2.696***
	(3.01)	(3.43)	(3.02)	(3.37)
lnCPIIMF		-0.026***	-0.02	-0.016
		(-3.90)	(-0.50)	(-0.43)
Sargan Test of overidentifying restrictions				
Arellano-Bond test for AR(1)				
Arellano-Bond test for AR(2)				
Obs	586	521	521	521

Notes: See Table 4-13. ICRG\_QOG indicates good governance. lnPC\*lnICRG indicates the interaction between good governance and finance. Dependent variable is economic growth.

#### 4.7 Sensitivity to alternative measures of financial development

I try to examine whether the result is sensitive to changes in independent variables, hence, I use the KKM index to measure institutional quality. The results, reported in Table 4-16, indicate that institutions are positively related to financial development in the SSA countries in all of the regressions; however, the coefficient is statistically significant only when using FE and GMM estimation techniques. The level of economic development and inflation also has the correct signs, with their respective coefficients statistically significant at the 1 and 5 percent level of significance, respectively.

**Table 4-16: Robustness test using KKM as independent variable**

Variable	FE	IV	GMM
KKM	0.254*	2.062	1.343**
	(1.85)	(0.45)	(2.14)
RPCAP(log)	0.422***	-0.035	0.038
	(3.57)	(-0.02)	(0.19)
CPIIMF(log)	-0.089**	-0.068*	-0.01
	(-1.87)	(-1.81)	(-0.16)
Constant	-0.391	-4.107	3.026*
	(-0.41)	(-0.30)	(1.73)
Sargan Test of over identifying restrictions		-0.007	-2.16
		(-0.93)	(-0.14)
Durbin-Wu-Hausman (test for endogeneity)			-3.229
			(-0.07)
Test for strength of instruments (firststage)			3.01
			(0.05)
Obs	295	295	295

Notes: See Table 4-13. KKM indicates good governance.

In the IV regression, only the inflation variable is significant with the coefficient having the correct signs. Turning to the GMM regression, the result indicates that institutional quality is statistically significant and positively related to the level of financial development in the SSA region.

Table 4-17 presents the analysis using GMM on data for four year averages and produces significant findings of a positive relationship between financial development and the KKM index.



**Table 4-17: Impact of institutional quality on financial development (four year average)**

Variables	ICRG_QOG	KKM
lnPC	-1.182	1.253**
	(-0.56)	(2.03)
RPCAP(log)	-0.349**	-0.089
	(-2.38 )	(-0.47)
CPIIMF(log)	-0.159***	0.047
	(-3.82)	(0.40)
Constant	-0.246	2.454
	(-0.36)	(1.48)
Sargan Test of over identifying restrictions	-0.67	-1.668
	(-0.41)	(-0.20)
Durbin-Wu-Hausman (test for endogeneity)	-0.079	1.593
	(-0.78)	(0.21)
Obs	150	110

Notes: See Table 4-13. .Dependent variable is private credit in logarithm. The regression uses generalised methods of moments estimation technique and data is four year average. The model is well specified as the diagnostic test is satisfactory. The Sargan and Hensen J test does not reject the over identification restrictions. We do not reject the Durbin-Wu-Hausman test.

#### 4.8 Policy implication and conclusion

This chapter has analysed the role of institutional environments in promoting financial development and, in turn, economic growth in 37 Sub-Saharan African countries using fixed effects, instrumental variables (IV) and generalised methods of moments (GMM) techniques, over the 1980-2007 period. The empirical analysis suggests that good institutional environment is required for the development of the financial sector, especially banking sector development, using private sector credit as an indicator. The study provides support for previous literature (Law et al., 2008) who reports a similar finding for a sample of 63 countries over the period 1996-2004. By disaggregating the institutional quality data, the results indicate that not all components of institutions are important when financial development is concerned. In the SSA region, the result indicate that voice and accountability is the most important for financial development, however, freedom from corruption is equally important, although only significant at 10 percent level. Besides the level of institutions, I find real GDP per capita is also statistically significant in promoting financial development, while inflation hinders it.

By splitting the sample into three according to their level of economic development, I was able to examine which aspect of institution is important to financial development in SSA region. Specifically, voice and accountability control of corruption and government effectiveness is important for significant development of the banking sector

in low income countries. I find that regulatory quality is important for banking sector development in low and lower middle income countries. However, in the upper middle income countries, while control of corruption, bureaucracy, political stability and rule of law all have a positive sign, their coefficient is insignificant. In terms of policy implication, the findings suggest that enhancing the quality of institutions and identifying the beneficial aspect of a particular facet of institution is important to encourage banking sector development.

## Appendix IV: Summary of countries used in regression

**Table 4-18: List of countries in dataset**

Angola	Côte d'Ivoire	Mauritania	Sudan
Benin	Ethiopia	Mauritius	Swaziland
Botswana	Gabon	Mozambique	Tanzania
Burkina Faso	Gambia	Niger	Togo
Burundi	Ghana	Nigeria	Uganda
Cameroon	Kenya	Rwanda	Zambia
Cape Verde	Lesotho	Senegal	Zimbabwe
Central African Republic	Madagascar	Seychelles	
Chad	Malawi	Sierra Leone	
Congo, Rep. (Brazzaville)	Mali	South Africa	

**Table 4-19: Income group dummy**

Takes the value of one for the following income groups

LIC (\$995 or less)		LMIC (\$996-\$3945)		UMIC (\$3946-12195)	
Benin	Mauritania	Angola	Nigeria	Botswana	Seychelles
Burkina Faso	Mozambique	Cameroon	Senegal	Gabon	South Africa
Burundi	Niger	Cape Verde	Sudan	Mauritius	
Central African Republic	Rwanda	Congo Rep	Swaziland		
Chad	Sierra Leone	Cote d'Ivoire			
Ethiopia	Tanzania	Lesotho			
Gambia	Togo				
Ghana	Uganda				
Kenya	Zambia				
Madagascar	Zimbabwe				
Malawi					
Mali					

*Note:* Countries are divided according to 2009 GNI per capita. The groups are: low income, \$995 or less; lower middle income, \$996 - \$3,945; upper middle income, \$3,946 - \$12,195; and high income, \$12,196 or more. Source: World Bank, (2010).

## **Appendix IV-I: Data Documentation, Definition and Sources**

*Measures of Financial Development:* I used two measures of financial sector development, but restrict it to banking sector development due to the fact that in the SSA region, banks are the most important element of the financial system. The first one is private credit as a ratio of GDP. Source: World Bank, *World Development Indicators* (2010) compiled by ESDS international and Beck et al. (2010). The second measure of banking sector development used is liquid liabilities as a ratio of GDP. Source: World Bank, *World Development Indicators* (2010) compiled by ESDS international and Beck et al. (2010). I also use the Beck et al. (2010) financial structure database.

*Measures of Institutional Environment:* Various measures of institutional environment have been used in this analysis. Two main measures that I use in the analysis are: the ICRG-QOG and the KKM index. The ICRG-QOG is obtained from Teorell et al. (2010). The ICRG-QOG is the mean of the ICRG variables ‘corruption’, ‘law and order’ and ‘bureaucracy quality’. It is scaled 0-1; higher values imply a higher quality of government.

a) *Corruption:*

b) *Law and Order:*

c) *Bureaucracy quality:*

To test the robustness of our estimation, I use the KKM index to proxy institutional development. The KKM index, which is obtained by averaging the six measures of government quality. Source: World Bank’s *World Governance Indicators* (WGI) based on Kaufmann et al. (2009).

To enable us understand which facet of institutions are important to financial development, I decompose both the ‘ICRG-QOG’ and the KKM index. Thus, I include: (a) control of corruption, rule of law and bureaucratic quality and (b) voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. Source: World Bank’s *World Governance Indicators* (WGI) based on Kaufmann et al. (2009).

Other institutional quality indicators are derived from World Bank Governance Indicators (Kaufmann et al., 2007 and 2008, and Gwartney et al., 2010). These

indicators are based on several hundred individual variables measuring perceptions of governance. These measures of governance are assigned to categories capturing key dimensions of governance and then aggregated into six governance indicators. The governance indicators are normally distributed, with a mean of zero, and a standard deviation of one in each period. Thus, scores are virtually between -2.5 and 2.5, with higher scores corresponding to better governance.

- a) *Control of Corruption*: measures perceptions of corruption, conventionally defined as the exercise of public power for private gain. The presence of corruption is often a manifestation of a lack of respect of both the corrupter (typically a private citizen or firm) and the corrupted (typically a public official or politician) for the rules which govern their interactions and hence represents a failure of governance according to our definition.
- b) *Government Effectiveness*: measures the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
- c) *Political Stability and Absence of Violence*: measures perceptions of the likelihood that the Government will be destabilised or overthrown by unconstitutional or violent means, including domestic violence and terrorism.
- d) *Rule of Law Index*: is a measure of the extent to which agents have confidence in and abide by the rules of society. The degree to which a society's atmosphere is conducive to regular, orderly social and economic activity and the protection of private property is an important measure of government effectiveness.
- e) *Regulatory Quality*: includes measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development.
- f) *Voice and Accountability*: measures the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
- g) *Security of Property Rights and Legal Structure*: consists of judicial independence, impartial courts, the protection of intellectual property, military interference on the rule of law and political process and integrity of the legal system. The index ranges from 0-10, where 0 indicates 'no judicial independence, trusted legal framework, no protection of intellectual property, military interference in rule of law and no integrity in the legal system', and 10 indicates that 'there is high judicial independence, trusted legal framework, protection of intellectual property, no military interference in rule of law and integrity of the legal system'. Source: Teorell et al. (2010). Missing data is updated using Gwartney et al. (2010), EFW database.

- h) *Heritage Foundation's Property Rights*: This measures the degree to which a country's laws protect private property rights and the degree to which the government enforces those laws. It also accounts for the possibility that private property will be expropriated. In addition, it analyzes the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts. The less certain the legal protection of property is and the greater the chances of government expropriation of property are, the higher a country's score is. The country's property rights score ranges from 0 and 100, where 100 represent the maximum degree of protection of property rights. Source: Toerell et al. (2010).

*Control Variable*: To conform with previous studies (Beck et al., 2004 and Law and Azman-Saini, 2008), this study uses factors such as level of economic development and macroeconomic stability to control for other factors that may affect financial development. I also control for time by including a time dummy variable, other country-specific factors, and time invariant variables.

## **5 On the Determinant and impact of Foreign Direct Investment: Evidence from Developing Countries<sup>80</sup>**

### **Abstract**

During the last years, the determinant of FDI and its influence on economic growth has been discussed extensively in the economic literature. However, the results have been far from unanimous. The purpose of this chapter is thus to empirically access this relation using a sample of 30 developing countries from Asia, Latin America and the Caribbean and Sub-Saharan Africa over the period 1980 to 2007. In particular, the study examines the effect of the interaction of economic openness and human capital insofar as attracting FDI is concerned. The findings suggest that FDI is mainly determined by human capital and economic openness and a good level of infrastructural development. In addition the results indicate a strong evidence of threshold effects with respect to the level of human development. In testing the FDI-growth hypothesis, the results indicate that FDI is positively related to growth and this effect is stronger for host countries with a higher level of economic openness and level of human capital development as measured by trade volume and adult literacy in the host country. The findings also indicate the importance of human capital is highlighted as complementary to FDI inflows, underlying the importance of technology adoption.

### **5.1 Introduction**

In recent times, economic and financial globalisation has played a large role in accessing capital, technology and goods and services from a wide range of markets. On one hand, many governments view globalisation as a threat to independence, because of the growing influence of financial and multinational corporations (hereafter, MNCs). On the other hand, its benefits in terms of technology transfer, managerial skills, research and development (hereafter, R&D) and openness of the domestic markets to the global economy cannot be ignored, especially in developing countries, as it is suggested to be a lasting solution in 'kick starting' the sluggish growth observed in these economies. Also, as opposed to other sources of capital flows that are volatile and reversible, FDI is more stable and it provides the much needed capital for investment. It increases competition in host countries by aiding local firms in the industry to become

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<sup>80</sup> A paper based on this chapter has been accepted for publication in the special edition of Journal of Management and Practice.

more efficient, by adopting new technologies and investing in human and physical capital. This all suggests that FDI, which is a key driver in globalisation, plays an important role in promoting economic growth and development in developing countries, by modernising their domestic economy.

The potential role of FDI in promoting economic growth is being accepted as the majority of economies ease up the entry of foreign capital inflows and set up an advanced system to increase their prospective of attracting FDI inflows. For instance, many developing countries tend to develop different promotional policies such as liberalisation of capital flows, establishing special economic zones, geographical location and developing sound business environments to enable them to attract FDI to sectors where it is badly needed (Ajayi, 2006). Nevertheless, these policies have not effectively promoted economic growth and development processes in most developing countries, particularly in the Sub-Saharan Africa (hereafter, SSA) region where the flow of FDI is low relative to other developing countries. In the 1990s for instance, average FDI inflows to SSA countries was 1.43 percent, compared to 2.1 percent in Asia and 2 percent in Latin America and the Caribbean. According to Onyeiwu (2003), regional discrimination exists in terms of FDI distribution in developing countries. To explain these differences, some analysts point to the characteristics of the host country. For instance, the role of governance, democracy, need for stable and sound macroeconomic environment and the capacity of economic management (World Bank, 1997, IMF, 2001: 49-50). In addition, foreign investors are attracted to countries with a large market size and potential, friendly business environment with skilled or semi-skilled labour (depending on the motive of the FDI) and areas with sound macroeconomic policy and institutional quality. Hence, countries found in regions such as Asia, Latin America and transitional countries in Europe attract more FDI than those in SSA because of their larger potential consumer market having the common characteristics of a large population (Vijayakumar and Sridharan, 2010).

The importance attached to FDI in the development process, coupled with the difference in economic growth across countries, has led to a resurgence of research interest in the determinants of FDI and its impact on economic growth. Much of the literature contains competing explanations and the notable ones include, for example; Caves, 1982; Borensztein et al., 1995 and 1998; De Mello, 1997 and 1999; and Campos and



Kinoshita, 2002. A general characteristic of the literature is that they relate to a combination of developing and developed countries, or a comparison between regions where inflow of FDI is rather attractive. Fuelling this debate is the mixed empirical evidence on whether FDI contributes to economic growth.<sup>81</sup> A closer look at the evidence, however, indicates that the econometric techniques used, and the measurement of FDI and its direct linkages to economic growth, are complicated.<sup>82</sup> For example, Mottaleb (2007) studied the determinants of FDI and its impact on 60 low income and lower middle income countries using panel data analysis. The results of the analysis showed that top FDI recipient countries have a larger domestic market size, high market potential and friendly business environments. Although, the research shows that FDI significantly affects economic growth, the sample was restricted to a combination of top and low FDI recipient countries and does not cover countries that consistently attract FDI. In contrast to this paper, Asiedu (2002) found that the impact of the determinants of FDI in developing countries is different across regions. As for estimation techniques, Asiedu (2002) employed an Ordinary Least Square (OLS) method. The author analysed the determinants of FDI in 70 developing countries for the period 1988-1997. Thirty one of the countries are in SSA. The results show that infrastructure development and a higher return on investment are important factors that drive the attraction of FDI in the sample. It also shows that economic openness is an important determinant of FDI; however, SSA will receive less FDI inflow due to its geographical location. One of the problems associated with the technique used by Asiedu (2002) is that OLS assumes that each country's intercept value is identical, and it does not control for country-specific characteristics, resulting in the conclusion of the existence of a 'regional effect' for SSA.

In an attempt to analyse the impact of FDI on economic growth, Carkovic and Levine (2006) used both the pure cross-sectional OLS analysis and dynamic panel data procedure for the period 1960 to 1995. After controlling for government size and macroeconomic policies, FDI was found to have a positive impact on economic growth. However, a negative relationship was obtained after controlling for trade and financial

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<sup>81</sup> In a survey of the literature, Carkovic and Levine (2002) conclude that the empirical research does not find a robust significant effect of FDI on economic growth.

<sup>82</sup> Using FDI net inflow to measure FDI activities, Alfaro et al. (2003) suggested that FDI would impact positively on economic growth in countries with well functioning financial markets. Likewise, in studying the link between FDI and economic growth, Carkovic and Levine (2002) used FDI gross inflow. The authors found that FDI does not have a robust impact on economic growth.

development. Given the difficulty in demonstrating the relationship, several recent papers study the different channels through which FDI inflow can lead to faster economic growth.<sup>83</sup>

According to Borensztein et al. (1998), the inflows of FDI to developing countries may increase economic growth through technology transfer. Technology diffusion can take place in different forms; for example, the transmission of ideas or knowledge expertise and the importing of high technology products from MNCs. MNCs are perceived as the most technologically advanced firms and an important channel for access of advanced technologies by developing countries (Borensztein et al., 1998). According to the authors, the positive effect of FDI on economic growth depends on whether the educated workforce in the country can take advantage of the technological spillovers associated with FDI. Therefore, to benefit from the spillover effects of FDI, it is assumed that liberalising trade will enhance a country's opportunity to have access to a free flow of goods and services resulting from lowering trade barriers; which is an effect of globalisation. Further, it is argued that by improving access to foreign technological advances, through the transmission of ideas (i.e. FDI and trade) in the intermediate and capital goods that embody technology (i.e. knowledge spillovers), this can enhance the efficiency of these countries beyond the effect of increased investment which is a key requirement for sustained economic growth. In addition, to bridge the resource gap, meet the Millennium Development Goals (MDGs) and strengthen the economies of developing countries, a lot of premium has been put on FDI, because it is expected to enhance productivity and create jobs, (Ajayi, 2006).

Using panel data from 30 developing countries, this chapter tries to investigate the underlying factors that affect inflow of FDI in the developing countries. In particular, the chapter tries to establish that the level of openness and human capital and the interaction between them significantly affects the inflow of FDI, and that FDI positively and significantly affects the market size (measured by GDP per capita growth) of a country. This chapter takes into account factors that influence FDI, while focusing on the indirect transmission of ideas and technological advancement through FDI inflow, in the context of the level of openness of a country to the global economy. Specifically, the chapter aims to examine the link between the level of openness and the differing levels

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<sup>83</sup> See Blomstrom and Kokko (2003) for an overview of the literature.

of human capital in attracting FDI in our sample of developing countries.<sup>84</sup> In the backdrop of the literature, this research seeks to firstly, examine the determinants of FDI and secondly, study the impact of FDI on economic growth. The primary research question, therefore, is: What factors account for the inflow of FDI to developing countries and does FDI lead to economic growth through technological knowledge spillovers? The research sub questions are:

- What factors determine the inflow of FDI to developing countries? Specifically, what is the effect of the degree of economic openness modified by the level of human capital? Are there similarities or differences in the factors that determine the inflow of FDI to the different regions, income groups and the fastest growing emerging economies?<sup>85</sup>
- What is the impact of the interaction between the level of openness and human capital on the attraction of FDI in the select developing countries? Are there similarities or differences in the effect of this factor on the attraction of FDI to the different regions, income groups and the fastest growing emerging economies?
- What is the impact of FDI on economic growth in the developing countries? Specifically, does the interaction between FDI, openness and human capital promote economic growth in the select developing countries? Are there similarities or differences in the impact of FDI on economic growth in the different regions and the fastest growing emerging economies?

Finding answers to these questions is important for several reasons. Although there is an extensive literature on the determinants of FDI, only a few SSA countries are included in the samples.<sup>86</sup> In this analysis, about half of the countries are found in the SSA region. An advantage of using a dataset that includes different regions, income groups and economic bloc is that it allows us to test the extent to which the FDI determinants, identified in previous literature, help explain the variation in FDI and its impact on economic growth in the sample. With regards to the questions above, specifically on the

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<sup>84</sup> The assumption in this chapter is that economic openness leads to higher FDI inflows by improving the level of human capital development.

<sup>85</sup> The regions include; Asia, Latin America and Sub-Saharan Africa, Income group include: Upper Middle Income, Low and middle Income and Low Income countries and the fastest growing economies include: Brazil, Russia, India, Mexico and China, which is referred to as the BRIMCs.

<sup>86</sup> For example, Schneider and Fry (1985) consider 51 countries, of which 13 are SSA. An exception is Ng'ang'a (2005), where 41 out of 94 countries are in the SSA region.

comparison of factors that determine FDI in the fastest growing emerging economies (BRIMCs), these issues are yet to be addressed in the literature. Thus, this study aims to contribute to the debate by providing further empirical evidence and building on the strengths of previous literature. Specifically, following recent development in the literature on the contribution of China and India to the global economic development, I examine the determinants of FDI in the BRIMCs, and examine how inward FDI is linked to development process in these economies and other emerging economies in our sample.

Using a panel data covering 30 developing countries between 1980 and 2007, the results show that the main determinants of FDI inflows to these countries are a highly literate workforce, economic openness and infrastructural development. The empirical analysis also investigates whether the set of determinants varies across region and income group. The findings indicate that for the Asian countries, a large market size with a highly literate workforce and a high degree of economic openness are the main determinants, while for BRIMC countries a large market size are the main drivers of FDI inflows. In the LAC countries, infrastructural development is more important whereas, in SSA region, the level of human capital and openness are the main drivers of FDI inflows. In terms of income groups, economic openness seem to be important for FDI inflows in low income countries, however market size, the level of human capital, economic openness and a stable economy promotes FDI inflows to lower and middle income countries. The result also indicates that FDI inflows to upper and middle income countries are driven by economic openness and infrastructural development. With respect to the impact of FDI on economic growth, the findings show a strong evidence of a positive relationship.

The rest of the chapter is structured as follows. Section 5.2 discusses trends of FDI flows in developing countries. Section 5.3 looks at previous literature on FDI flows. It reviews the relationship between FDI, trade, human capital and economic growth and then provides evidence linking FDI, trade, human capital and economic growth together. Section 5.4 briefly describes the model and data, provides the economic assumptions underlying the model and empirical strategy used. Section 5.5 reports the empirical results. The conclusions are in section 5.6.

## **5.2 Inflows of FDI to developing countries**

The past two decades have witnessed a remarkable increase in foreign capital flow, especially to developing countries, of which FDI has played a significant role. In 1980, world FDI outflow represented approximately 5 percent of world gross domestic product. The percentage almost tripled to 14 percent by the end of the 1990s (UNCTAD, 2000). The inflows of FDI to developing and developed countries amounted to US \$334 billion and US \$542 billion, an increase of 37 percent and 22 percent over 2004, respectively (World Investment Report (2006: 4)). The five largest developing countries- Brazil, Russia, India, Mexico and Russia accounted for 43 percent of total FDI inflow to developing countries. Despite the increase in FDI flows to developing countries, Asia received 60 percent of this amount, inflows to LAC was 33 percent and 6 percent was reported for SSA (UNCTAD, 2006). These inequities in the distribution of FDI flows are partly due to the fact that both Asia and the Latin America and Caribbean regions have larger economies than other developing regions. In addition, lack of economic openness and poor institutions account for the low level of FDI inflows to the SSA region.

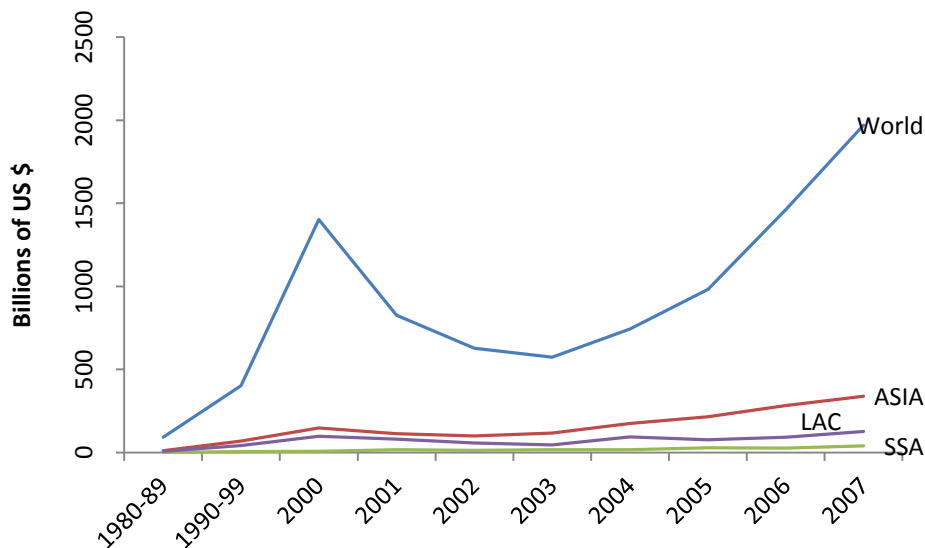
The rapid increase in FDI, particularly to developing countries, can be associated to an increase in cross border mergers and acquisitions (M&As), which was made possible through the liberalised restrictions on FDI and the provision of incentives to attract FDI (Gholami et al., 2006). Privatisation has been another leading source of the explosion of FDI into developing countries, particularly LAC regions. Out of the \$62 billion FDI inflow to LAC in 1997, \$11.4 billion were related to privatisation (Rivera-Batiz, 2000).

FDI inflows to developing countries have been shown to have a positive impact on economic growth. For example, Romer (1993, cited in Moran, 2002 and UNCTAD, 2006) asserts that FDI has the potential to generate employment, raise productivity, managerial knowledge and skills, improve marketing strategy, improve production procedures, enhance exports, transfer foreign skills and technology, and contribute to the long-term economic development of the world's developing countries.

Figure 5-1 presents the trends of the inflow of FDI in the world, as well as across regions of developing countries. The trends reflect that FDI mostly flows towards Asia and Latin America and the Caribbean. FDI inflow towards Asia, Latin America and the Caribbean and the world exhibit a similar pattern. For example, FDI inflow in Asia,

LAC and the world spiked in 2000 and then started to decline in a similar pattern, reaching its lowest point in 2003. FDI inflow started to increase, but more sharply for countries in Asia and LAC. On the other hand, an annual FDI flow into SSA is so small. Starting from similar levels in the mid-1980s, annual FDI flows into SSA stagnated for a long time at around \$1 billion, while the amounts received in LAC and Asia expanded impressively from the 1980s onwards. However, FDI inflow to SSA has been on an increase since 2004. In 2007, total inflow of FDI to Asia was more than US \$319 billion compared to Latin America which was more than US \$120 billion, whereas in the same year in SSA, total FDI inflow was approximately US \$41 billion respectively, (UNCTAD, 2008).

**Figure 5.1: Trends in FDI inflows to world and other developing region, 1980-2007**

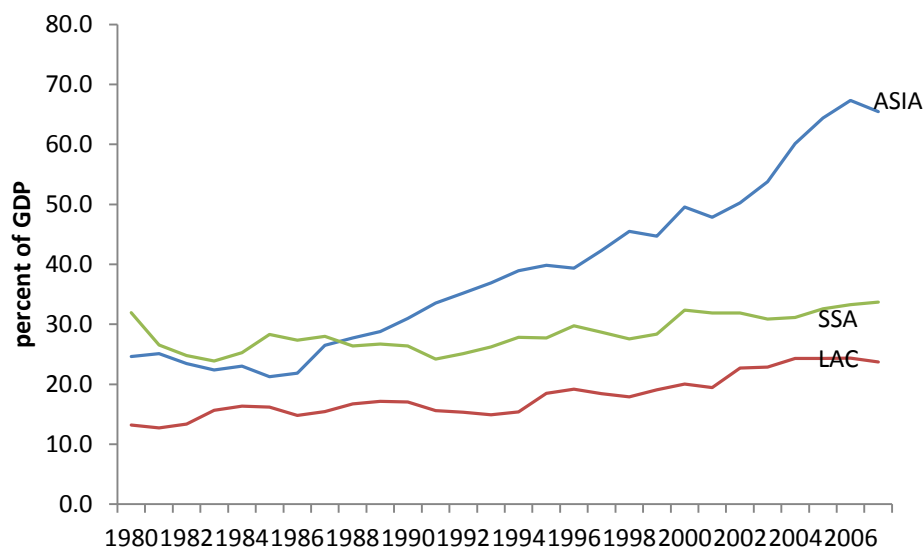


Source: UNCTAD FDI database (2008).

FDI plays an important role in the economic development of any developing countries. Firstly, FDI has provided an additional source of capital and expanded the country's production activities. The use of FDI, in addition to domestic investment, has increased the capacity of the host country's production beyond what could have been achieved using only domestic investment. Secondly, FDI has promoted international trade, especially in countries that are open. FDI has encouraged exports, in particular, in developing countries. As shown in Figure 5-2, export as a percentage of GDP has more than doubled, especially for the countries in Asia between 1991 and 2006. It also shows that the introduction of the World Trade Organisation (WTO) in 1995 has helped SSA increase its share of export. It is argued that there is a strong correlation between export

growth and FDI inflows. Hence, without FDI, most developing countries might not have experienced a rapid increase in their exports. Finally, FDI has helped in the transfer of new technology and management skills to the host country. According to UNCTAD (2000), FDI provides a rapid and more effective way to deploy new technologies in host countries.

**Figure 5.2: Regional Exports of goods and services as a percent of GDP, 1980-2007**



Source: World Bank's *World Development Indicator* (2010).

Note: Data for Asia is the aggregate of East Asia and Pacific and South Asia.

### 5.3 Related literature on determinant of FDI

In this section, I provide a theoretical underpinning of the factors that determine the attraction of FDI and the location determinants of FDI. This section also uses economic growth theories to explain the role of FDI in the economic growth process. The role of FDI as a channel through which new technology is deployed from advanced countries to developing ones will also be a focus in this section.

#### 5.3.1 Determinants of FDI: Some Theoretical Considerations

The theoretical analysis of international trade and the determinant of FDI can be traced back to the 18<sup>th</sup> century with the work of Adam Smith. Using the theory of absolute advantage, Adam Smith postulates that if two countries are endowed with different natural resources, then it is useful for each to undertake specialisation, after which they engage in trade so as to meet their needs and requirements. In his argument, he notes that if international trade always results into a deficit for one of the party engaged in it,

it will not last for long. According to him, trade relations must generate mutual benefits for all parties involved. Adam Smith's theory became the foundation for further theories on international trade and by 1933; Ohlin presented motives for international trade. According to the author, trade was motivated mainly by the possibility of high profitability in growing markets, along with the possibility of servicing these investments at a low cost in the host country. In addition, the access to other factors such as natural resources and the ability to overcome trade barriers are also considered. This implies that international trade tends to occur between advanced and developing countries because of their different endowment.

Early literature suggests that international trade and FDI are two alternative strategies for certain products. For instance, it is noted that firms (multinational corporations, MNCs) could either produce at home, or export to foreign destination or produce abroad and substitute home country exports with foreign affiliate local sales. In order for this to occur, several decision making processes are considered; including trade costs and economies of scale. To explain the decision making process of MNCs, the theoretical literature focused on two main approaches: *location and internalisation*.

The first, the *location theory*, considered the reasons why multinational corporations (MNCs) locate their firms outside the home country. According to Hymer (1976), MNCs internationalise their production processes by taking advantage of the monopolistic nature of the local firm, and are, therefore, able to compete with local firms who have the knowledge of the domestic markets. However, MNCs have more advantages over the local firms, because they bring with them management skills, economies of scale and access to proprietary knowledge. According to this theory, the behaviour of the MNCs determines the structure of the market. In contrast to this line of reasoning, Caves (1971) argued that the market structure determines the location of an MNC. The argument here is that, FDIs will be made in a market where similar or comparable goods are produced. This form of investment is known as horizontal investment (*market-oriented*) and it is often undertaken to make substantial use of monopolistic and oligopolistic advantages, especially in countries with less strict trade restrictions. Further, if there is no product differentiation, then vertical investments (*export-oriented*) will occur. The idea behind this type of investment is to make the production process more cost efficient, by reallocating some stages of production to low



cost locations. According to Brakman et al. (2006), establishing their own network in a host country makes it easier for MNCs to market their own products.

The second line of discussion, which is the *internalisation theory*, was first developed by Buckley and Casson (1976 and 1981). In explaining the reasons for FDI and the growth of MNCs, the authors developed a hypothesis where they considered an imperfect market with high transaction costs, managed by a group of different firms. This imperfection in the market may arise due to externalities (e.g. government regulations and controls, such as tariffs or lack of knowledge). Therefore, in an attempt to overcome these externalities, the theory suggests that MNCs will develop their own capability (internalisation) i.e. taking control over their operations rather than offering a license to foreign agents. Thus, when production and control are located in the home country, the MNCs will export, but when production and control are located abroad or in the host country, then FDI is made.

Both theories were further modified by Dunning (1980, 1993 and 1998). His analysis begins by stating that the location of MNCs is motivated by various factors, which he referred to as ownership, location and internalisation advantage (*OLI theory*). He suggested that when firms possess greater ownership and internalisation advantage, and the location advantage favours the host country (i.e. creating and exploiting these advantages in a location outside the home country), more FDI will be undertaken. Following this, Dunning (1993) outlines four reasons why foreign investors locate abroad; *factor/resource/labour-seeking*, *efficiency-seeking*, *market-seeking* and *strategic asset motivation*.<sup>87</sup> Firstly, the availability of resources, unskilled or semi-skilled labour, or cheaper labour costs drives the *factor/resource/labour seeking* activities of MNCs. This form of investment usually takes place in the manufacturing industries, where MNCs directly invest, in order to exports. This implies that MNCs locate industries or set up firms in areas with surplus natural resources such as countries with raw materials, crude oil and agricultural product solely on exportation basis. An example of *resource-seeking* FDI is *ExxonMobil*, investing in oil production in the North Sea. Nevertheless, to have access to such factors of production, host countries have set up free trade zones (see Dunning, 1993).

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<sup>87</sup> See Dunning (1993) and DeMello (1997) for extensive details on the determinants and motivation of FDI.

Secondly, *market-seeking* investment involves foreign firms or MNCs opening new markets in host countries, in order to boost their sales (Kandiero and Chitiga, 2003). The argument here is that, as firms seek to access markets (through trade restrictions), FDI activity increases with the size of the host country and the level of human development. For example, the General Motors' investment in China can be termed as market-seeking because the cars produced in China are sold in China. The *efficiency-seeking* FDI occurs when firms gain from the common governance of geographically dispersed activities in the presence of economies of scale and scope. Finally, MNCs also seek to pursue the strategic operations of other firms through the purchase of the existing firm, so as to increase their competitive advantage in the global market.

Vernon (1966) presents another line of reasoning. This theory provides a framework for explaining the export oriented production by MNCs. According to this theory, there are four stages in a products life cycle: introduction, growth, maturity and decline. Each stage of production affects the location of the product. Initially, new products are introduced in order to meet national needs and then these products are exported to countries with similar preferences and income groups. Due to growth in demand, production is shifted to other industrial countries for servicing home countries, usually on the basis of production costs. Eventually, production is moved to developing countries that may offer competitive advantage as a production location. This point of production is where the export oriented production takes place. In addition, MNCs move productions abroad in order to allow them use their knowledge and innovating potential in another environment aside from the home country. This is because; MNCs spend a large share of their capital on R&D, because this is not common in developing countries, by moving production abroad, therefore, they are able to increase their specific advantage.

In sum, UNCTAD (2000: 19-20) classifies the determinants of FDI under three main categories, namely: economic factors, government policies and trans-national companies (TNC) strategies. Surrounding these categories is a range of factors that has been discussed previously in the theoretical literature, for instance; market, resources, FDI policies, location, integration and risk perception.

### 5.3.2 Previous Empirical Studies on FDI Determinants

To identify the determinants of FDI, different empirical studies have concentrated on different factors suggested by the theoretical literature. Most of these studies have concentrated more on the economic factors. The main variables normally used include, market size (measured by GDP or per capita GDP), market potential (measured by the annual growth rate of GDP or per capita GDP), the availability of natural resources (measured by the share of fuel and minerals in total exports, see Asiedu, 2003), economic openness (measured by trade volume and import as a percent of GDP), human capital (measured using markers such as; average years of schooling, adult literacy rates and school enrolment (Noorbakhsh et al., 2001 and Ng'ang'a, 2005), and institutions (measured by corruption, weak enforcement of contracts (Gastanaga et al., 1998). The following studies sought to study the determinants of FDI.

Woodward and Rolfe (1993) examined the determinants of the location of export oriented manufacturing FDI in the Caribbean Basin. Their results show that transport costs, quality of infrastructure and size of export processing zones are factors which determine FDI in the countries studied. Cheng et al. (2000) found that FDI is determined by relative profitability. According to the authors, if an investor chooses a certain location as the destination of FDI, then from the investors' point of view, that location must be more profitable than others.

Asiedu (2002) studied the determinants of FDI in 24 countries in Sub-Saharan Africa over the period 1984-2000, and concluded that large markets, natural resources and good infrastructure are significant in promoting FDI in the SSA region. The author also found that regional economic cooperation may promote FDI in SSA.

Campos and Kinoshita (2004) use panel data to estimate the determinants of FDI in 25 transition economies from the Central and Eastern Eurobarometer countries (CEEB) and the Commonwealth of Independent States (CIS) between 1990 and 1998. They found that the determinants of FDI vary across the choice of sample countries. They also found that FDI in these countries are a mixture of *resource, efficiency and market-seeking*. Whilst they found the abundance of natural resources and low level of human capital was the main determinants of FDI in the CEEBs, external liberalisation was important for attracting FDI in CIS.

Ng'ang'a (2005) considered the interaction of infrastructural development and degree of openness on FDI inflow in 95 developing countries over the period 1980 to 2002. Both fixed effects estimator (FEE) and pooled ordinary least squares (POLS) was employed. The results show that FDI is greatly influenced by the quality of infrastructure and openness of the economy to trade. However, these two determinants vary across the sample countries studied.

### **5.3.3 The Impact of FDI on Host Country's Economy: The role of Trade Openness and Human Capital**

An important aspect of globalisation during the last two decades has been the impressive surge of foreign direct investment (FDI) into developing countries. FDI is believed to play an important role in economic development because it may lead to increased employment opportunities, bridge technological gap between developing and developed countries through technology transfer and improve management skills through learning by doing. It may also introduce competition between, and among, domestic and foreign companies, and it may open access to global markets.

In theory, FDI contributes to capital accumulation and technological progress and is an important catalyst for industrial development. Its attractiveness and efficiency in promoting economic growth, however, depend on the degree of spillovers to domestic firms, that is, the extent to which the technology transfers embodied in the FDI are absorbed and diffused, and the value added content of FDI-related production. Some researchers (such as Borensztein et al, 1998) postulate that FDI will interact with the stock of human capital already available in the host country to affect economic growth, and that there is a threshold level of human capital below which FDI contributes little or may even adversely impact economic growth.

The role of technological advancement in promoting sustainable economic growth in developing countries has continued to attract great interest from policy makers and academics. While both domestic and international diffusion of technological knowledge has been recognised as a crucial factor for long-run economic growth, there are still concerns as to which of these methods of technological diffusion (described below) is the most important. In the neoclassical growth theory, long-run economic growth occurs

from technological progress and labour force growth, all of which is assumed to be exogenous. This implies that technology obtained from attracting FDI can only have a short-run effect on output growth.

The technological gap theory proposed by Gerschenkron (1962) suggests otherwise. This theory, which is concerned with the difference between technologically advanced and technologically backward countries, proposes that developing countries can bridge the technological gap between them and the advanced countries by imitating technology brought in by MNCs. The theory assumes that there is a level of absorptive capacity (for example, human capital, i.e. labour that are able to understand and assimilate the foreign knowledge acquired from advanced countries) needed for developing countries to be able to fill the technological gap. According to this theory, there is a huge cost attached to obtaining international knowledge, furthermore, the level of human capital accumulation varies from country to country in the developing world. Therefore, it is obvious from this line of reasoning, that if a country lacks the sufficient funds to be able to invest in such domestic capabilities, then they stand a risk of not being able to catch up with the advanced countries, (Verspagen, 1991).

More recently, the endogenous growth theory argues that, investment in physical and human capital is crucial for economic growth and increasing returns to these forms of investment (Lucas, 1988; Romer, 1986, 1993 and Mankiw et al., 1992). In addition, investment in human capital will lead to increased innovations, which are known to promote long-run economic growth. This theory pays particular attention to the labour input of the factors of production, especially when households invest their savings in both physical and human capital. The new growth theory emphasises the importance of knowledge in economic growth, and according to Jones (2002), knowledge accumulation and its progress has been recognised as the engine of economic growth. In addition, Becker (1993) pointed out that productivity of people in an economy is changed by investments in education, skills and technology, and this development in the endogenous growth theory has encouraged researchers to examine the channels through which FDI promotes economic growth in the long-run (Grossman and Helpman, 1991).

Prominent among the empirical literature on the relationship between FDI and economic growth are the works of Balasubramanyam et al. (1996) and Borensztein et al. (1998). According to Balasubramanyam et al. (1996), the factors noted by the new

growth theory as growth enhancing can be obtained through FDI if the investment climate and trade policies found in the host country support the creation of human capital, therefore, increasing returns to scale and spillover effects, which are crucial factors in promoting economic growth.

The majority of the empirical analysis on the impact of FDI on economic growth presents controversial evidence. Many of these studies argue that the degree of technology transfer or spillovers generating from FDI inflows to the host country depends on the host country's absorptive capacity. The term 'absorptive capacity' takes into account the level of economic openness, human development, infrastructural development, institutions, technology and financial development. These studies show that host country's do indeed pass a certain level of 'threshold' to be able to benefit from FDI.

Economic literature recognises economic openness and the availability of human capital as key determinants of economic growth and that they are an important factor in host country's absorptive capacity. In an earlier research, Grossman and Helpman (1990) argue that an open trade regime is significantly related to good investment climates, technological spillovers and learning effects. The authors argue that trade contributes to knowledge largely through the process of imitation of the knowledge capital embedded in the product. Hence, FDI and trade motivate developed countries to be more innovative and allow developing countries to draw upon the stock of knowledge of more developed countries. In a later research Grossman and Helpman (1991) stressed the role of trade liberalisation as a channel through which output growth can be promoted. They argue that trade liberalisation leads to an increase in market size when countries have access to advance technologies and investment, which tends to enhance the productivity of the country's resources. According to this line of reasoning, both trade and FDI can be included in the production function, besides labour and domestic capital. As a result, a significant empirical literature has evolved on the growth effect of FDI.

Makki and Somwaru (2004) investigate the effect of FDI inflow on economic growth through trade openness by interacting FDI with trade openness in 63 developing countries from 1970-2000. The results indicate both FDI and trade openness are crucial for enhancing economic growth. Olofsdotter (1998) investigate the growth effect of

trade and human capital in a cross-section of 50 developed and developing countries over the period 1980 to 1990. The results of the analysis suggests that the growth effect of FDI on economic growth is not dependent on human capital or trade openness as indicated by the insignificant sign of the coefficient of the interaction terms.

Li and Liu (2005) in a panel data analysis for 84 countries over the period 1970-1999 found that FDI affects growth directly and also indirectly through its interaction with human capital. They also found a negative coefficient for FDI when it is interacted with the technology between home and host economies. This implies that a wide technology gap between the home and host country tends to slow economic growth of the host countries

While focusing on the effect of spillover in host countries, the literature has been inconsistent. Most of the literature which focuses on knowledge spillover has excluded the interaction between openness (trade volume, export or import) and human capital in host countries as a resulting effect of, and a determinant of, FDI. For example, Lipsey (1999) found that there is a positive relationship between FDI inflow and per capita income; however, Jaspersen et al. (2000) found the effect to be negative and Wei (2000) found the effect to be statistically insignificant. Despite these differences, the literature on FDI and economic growth has continued to grow. Overall, the general consensus is that human capital is more significant in promoting the effect of FDI in developing countries and FDI influences growth in developed countries. However, the evidence supporting the hypothesis that the efficiency of FDI depends on a minimum level of human capital is scarce; therefore, the aim of this study is to identify the determinant of FDI focusing on the interaction between human capital and level of openness, and to determine the impact of FDI on economic growth in a sample of 30 developing countries.

#### **5.4 Empirical Model and Data**

The general objective of this chapter is to examine the determinant of FDI and its impact on growth in developing countries, with particular interest in the BRIMC and SSA countries, within the theoretical framework of an endogenous growth model. Therefore, this section specifies the model and proposes the hypotheses concerning

recipient countries. It also provides a simple description of the data set used in the empirical investigation.

Following the general objectives outlines in section (5.1), the specific objectives are:

1. To identify the determinants of FDI in the selected developing countries,
2. To examine if the degree of openness and the level of human capital in a country interact, insofar as the attraction of inward FDI is concerned,
3. To examine the impact of FDI on economic growth, and
4. To examine if the interaction between FDI, openness and human capital promote economic growth among the selected developing countries.

The study could be divided into two parts. The first part will try and investigate the determinant of FDI in developing countries while the second part analyzes the impact of FDI on economic growth in developing countries. The study will carry out quantitative analysis with the use of econometric tool. In this thesis, I rely on previous studies, in particular, Borensztein et al., (1995 and 1998); Asiedu, (2002 and 2003) and Campos and Kinoshita, (2004) to build the relevant variables. Borensztein et al. (1995 and 1998) argued that the following factors are likely to have important effects on the attraction of FDI and its impact on economic growth: (i) the interaction between FDI and human capital; (ii) the annual growth rate of per capita GDP, (iii) the institutional quality, and (iv) the schooling levels, measured by the average years of male secondary schooling. Asiedu (2002) used OLS to examine a range of determinants of FDI and found that the most robust is openness to trade. Higher return on capital and the quality of infrastructure are also determinants of FDI in the non SSA countries in her sample. Lastly, Campos and Kinoshita, (2004) found that lagged FDI (persistence, or the length of time it takes FDI to reach its optimal level), lower cost sites and large GDP accounts for the determinant of FDI. Following this discussion, I adopt an empirical model similar to that used by Asiedu (2002) to explore the determinants of FDI and its impact on economic growth with a specific emphasis on the BRIMC and SSA countries. The model takes the form:

$$FDI_{it} = f(SIZE_{it}, TO_{it}, HC_{it}, TELM_{it}, CPI_{it}) \quad (5.1)$$



Specifically, the regression estimated is:

$$fdi_{it} = \alpha_i + \alpha_1 gdp_{it} + \alpha_2 to_{it} + \alpha_3 hc_{it} + \alpha_4 telm_{it} + \alpha_5 cpi_{it} + \varepsilon_{it} \quad (5.2)^{88}$$

To examine whether the interaction between economic openness and human capital account for the inflow of FDI to developing countries, equation (5.2) is re-written as:

$$fdi_{it} = \alpha_i + \alpha_1 gdp_{it} + \alpha_2 to + \alpha_3 hc + \alpha_4 (to * hc)_{it} + \alpha_5 telm_{it} + \alpha_6 cpi_{it} + \varepsilon_{it} \quad (5.3)$$

where FDI, GDPC, TO, HC, TELM, CPI and  $\varepsilon$  stand respectively for the inflow of FDI, market size, the degree of economic openness, human capital, the level of infrastructure development, inflation and the error term. The subscripts  $i = 1, 2, \dots, N$ , indexes country and  $t = 1, 2, \dots, T$  indexes time. They help distinguish recipient countries and time periods in the panel. All the explanatory variables in this model are in line with previous studies such as Noorbakhsh et al. (2001), Edwards, (1990), Borensztein et al. (1998), Asiedu, (2002), Carkovic and Levine, (2005) and Ng'ang'a, (2005).

From equation (5.3), there are two possible results that can assess the role played by the interactive term in determining FDI inflow in developing countries.

1. If  $\alpha_2$  and  $\alpha_4$  have a positive sign in equation (5.3), then openness have an unambiguously positive effect on FDI, and vice versa. Similarly, If  $\alpha_3$  and  $\alpha_4$  have a positive sign in equation (5.3), then human capital have an unambiguously positive effect on FDI, and vice versa.
2. If  $\alpha_2$  is positive and  $\alpha_4$  is negative, then openness has a positive effect on FDI and this effect diminishes with the improvements in the level of human capital and vice versa. Similarly, if  $\alpha_3$  is positive and  $\alpha_4$  is negative, then human capital has a positive effect on FDI and this effect diminishes with increasing level of economic openness and vice versa.

The partial effect of openness on FDI is as follows:

$$\frac{\partial fdi_{it}}{\partial to_{it}} = \alpha_2 + \alpha_4 hc_{it} = 0 \quad (5.4)$$

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<sup>88</sup> The lower case variables denote the natural log of the respective uppercase variable in the econometric version.

Similarly, the partial effect of human capital on FDI is calculated as follows:

$$\frac{\partial fdi_{it}}{\partial hc_{it}} = \alpha_3 + \alpha_4 to_{it} = 0 \quad (5.5)$$

In relation to equation (5.3), all the explanatory variables are not exogenous. Not only is market size a determinant of FDI, it is also an endogenous variable which can be explained by FDI inflows and other variables such as technological change, government consumption, gross fixed capital formation etc. If the feedback between FDI and market size is not taken into account, this might result in a bias and inconsistent estimate (see for instance, Ramanathan, 2002: 544-6). Hence, the following model is estimated:

$$gdpc_{it} = \beta_i + \beta_1 fdi_{it} + \beta_2 to_{it} + \beta_3 hc_{it} + \beta_4 gc_{it} + \beta_5 gfcf_{it} + \beta_6 cpi_{it} + \varepsilon_{it} \quad (5.6)$$

To test whether the interaction between FDI, openness and human capital promotes economic growth in the sample countries, the following equation is estimated:

$$gdpc_{it} = \beta_i + \beta_1 fdi_{it} + \beta_2 to_{it} + \beta_3 hc_{it} + \beta_4 (fdi * abc)_{it} + \beta_5 gc_{it} + \beta_6 gfcf_{it} + \beta_7 cpi_{it} + \varepsilon_{it} \quad (5.7)$$

where  $GDPC_{it}$  is economic growth,<sup>89</sup> FDI is the net inflow of foreign direct investment as a percent of GDP; TO, refers to the degree of economic openness to the world market (it is measured using trade volume, the total of export and import as a percent of GDP).<sup>90</sup> HC is the stock of human capital, which is measured using adult literacy rate.<sup>91</sup> To control for other factors that determine economic growth other than *FDI*, *TO* and *HC*, I include inflation, physical capital and government consumption. I also account for the interaction between FDI, human capital and economic openness, (FDI\*ABC).<sup>92</sup> The above model can be considered as an extension of the Borensztein et al. (1998)

<sup>89</sup> GDP has been used as an alternative measure for economic growth. I take the natural log of 1 plus GDP (US \$), in order to avoid taking the natural log of zero.

<sup>90</sup> We include the interaction between FDI and Open, so as to test the influence of both variables on economic growth. As a robustness check, two measures of economic openness are used in our regression: trade volume and import as a percent of GDP, and both are included in our empirical investigation simultaneously. The most significant variables will be reported in the final estimation.

<sup>91</sup> Adult literacy rate is the percentage of people ages 15 and above who can, with understanding read and write a short, simple statement on their everyday life.

<sup>92</sup> ABC refers to absorptive capacity and includes OPEN and HC. The analysis includes FDI\*OPEN and FDI\*HC to measure whether the growth effect of FDI is dependent on economic openness or human capital. FDI\*OPEN is the interaction term meant to capture the effect an open economy is likely to have on the absorptive capacity of FDI inflows. FDI\*HC is the interaction term meant to capture the effect a highly literate workforce is likely to have on the absorptive capacity of the inflow of FDI.

model specification. In the empirical analysis, FDI, economic openness and human capital are included separately as well as the interaction between them. The natural logarithm of equations (5.3) and (5.7) has been used in the econometric analysis for ease of interpretation.

From the model specification, there are three possible results that can assess the role played by the interactive terms in determining the contribution of FDI in economic growth.

1. If  $\beta_1$  and  $\beta_4$  have a positive sign in the growth equation, then FDI inflows have an unambiguously positive effect on economic growth and vice versa.
2. If  $\beta_2$  is positive, but  $\beta_4$  is negative, then FDI inflows have a positive effect on growth, and this effect diminishes with improvements in either trade or the level of human capital.
3. If  $\beta_2$  is negative and  $\beta_4$  is positive, then this means that the host country has to achieve a certain threshold level (in terms of either the level of economic openness or human capital development) for FDI inflows to have a positive impact on economic growth.

The threshold of the host country's absorptive capacity is calculated by finding the partial impact of FDI on Growth as follows:

$$\frac{\partial gdp_{it}}{\partial fdi_{it}} = \beta_2 + \beta_4 abc_{it} = 0 \quad (5.8)$$

then the threshold of host country's absorptive capacity =  $-\beta_{2it} / \beta_{5it}$

Equation (5.7) can also be written as:

$$gdp_{it} = \beta_i + \beta_1 fdi_{it} + \beta_2 to_{it} + \beta_3 hc_{it} + \beta_4 (fdi * open)_{it} + \beta_5 (fdi * hc)_{it} + \beta_6 gc_{it} + \beta_7 gfcf_{it} + \beta_8 cpi_{it} + \varepsilon_{it} \quad (5.9)$$

#### 5.4.1 Data

The empirical test is based on 30 developing country recipients of FDI inflows selected from three regions; Asia, Latin America and Sub-Saharan Africa and a sample of five fastest growing economies referred to as the BRIMCs over the period from 1980 to

2007. The choice of countries and the time period is determined by the availability of data. In addition, many of the countries implemented various economic reforms enabling them to manage their economic growth and developmental process during this period. Due to lack of available and accurate statistical data after 2007, the analysis ends in 2007. Three criteria have been considered in the selection process of these countries:

1. Per capita income is within the range described by the World Bank as low income, low and middle income and upper middle income countries for the period of study.
2. For comparison, the selected countries from Asia and Latin America achieved somewhat higher growth performances, compared to the countries in Sub-Saharan Africa.
3. The BRICs economies, alongside Mexico, have also been included in the sample of developing countries.<sup>93</sup> This is because, these economies, in recent times, have emerged as an important economic power, as well as FDI recipient.

The data consist of real GDP per capita income, (which is used to proxy market size), openness measured using trade flows (imports and exports of goods and services) as a ratio of GDP,<sup>94</sup> and finally, human capital (*HC*, adult literacy rate). I account for differences in macroeconomic policies and the size of government in the host countries by including inflation rate (*CPI*) and government consumption (*GC*) as control variables. I also include physical capital, measured using gross fixed capital formation (*GFCF*), as a control variable. The rationale is that, FDI is determined by sound and stable macroeconomic environments and its impact on economic growth is influenced by sound macroeconomic policies and institutional quality. As is standard in the literature, the ratio of FDI to GDP (net FDI inflows) is used as the dependent variable.

The data used in the regressions have been retrieved from (World Bank's *World Development Indicators* (WDI) online database, UNCTADs' *World Investment Report* (WIR), Penn World Table versions 6.3, International Monetary Statistics, *International Financial Statistics* and UNESCO *UIS data*). In addition to being authoritative sources, these data sets are readily accessible. A list of the economies integrated in the sample,

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<sup>93</sup> The BRIMCs are the fastest growing economies and they include Brazil, Russia, India, Mexico and China.

<sup>94</sup> As an alternative measure of openness, I include export as a ratio of GDP.

the variables used in the empirical test and the data sources themselves are presented in Appendix V.

#### **5.4.2 Economic Assumptions Underlying the Models and Testable hypothesis**

*Market Size:* The size of a host market, which also represents the host country's economic conditions and the potential demand for their output as well, is an important element in FDI decision-makings. In market-seeking FDI, the primary objective of MNCs is to serve the domestic market. Therefore, market demand in a host country plays an important in attracting this sort of FDI. According to the literature, this sort of FDI usually flows to host countries with high incomes and large markets such as countries with a 2007 GNI between US \$2,936 – US \$9,075 which the World Bank refers to as Upper middle countries.<sup>95</sup> The importance of market size has been confirmed in many previous empirical studies (Schneider and Frey, 1985; Wheeler and Mody, 1992; Tsai, 1994; Wei, 2000). Although there is no precise measure of economic size, economists tend to use GDP to proxy it (see Johanson and Wiedersheim-Paul, 1975 and Lipsey, 2000). According to Root and Ahmed (1979), the use of total GDP as an indicator of a host country's market size and potential is relatively poor because this measure reflects the size of the population and not the income level. Moreover, Chakrabarti (2001) found evidence to show that GDP per capita is a more robust measure than total GDP. Therefore, this study uses real GDP per capita.<sup>96</sup> The coefficient of market size is expected to be either positive or negative depending on whether FDI is market-seeking or non market-seeking.

*Openness:* Globalisation has increased the access to goods and services and has led to most developing countries generating policies that are conducive to foreign trade and investments which are favourable to foreign investors. The parameter  $\alpha_2$  captures the influence of the degree of openness of the host country on the flows of FDI it receives. In the literature, the ratio of trade to GDP (exports plus imports over GDP) is often used to proxy the degree of openness (see Asiedu, 2002). This ratio suggests how a country is being integrated into the new economic order and it is also important for foreign direct

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<sup>95</sup> As shown in Appendix V, the countries included in the sample are mostly low and lower middle income countries with a 2007 GNI of US \$735 and US \$2,935, respectively. These incomes are not particularly high, suggesting that FDI is less likely to be market-seeking in these countries.

<sup>96</sup> As a measure of robustness, this study uses GDP growth to measure market size (GGDP)

investors who are motivated by the export market. Empirical evidences (Edwards, 1990 and Gastanaga et al., 1998) found that economic openness positively affects FDI inflow. This study therefore includes the ratio of trade to GDP as a measure of openness. A priori, the coefficient  $\alpha_2$  is expected to be positive.

*Human Capital:* Foreign investors are concerned with the quality of the labour force in addition to its costs. In fact, the cost advantages accrued by lower wages in developing countries can well be mitigated by low skilled workers. The abundance of an educated labour force is important to be able to absorb foreign technologies and educated labour force increases productivity and therefore stimulates FDI.<sup>97</sup> A high level of human capital indicates the availability of skilled labour force and vice versa, which, along with cheap labour can significantly promote the location advantage<sup>98</sup> of a host country. Root and Ahmed (1979), Schneider and Frey (1985), Borensztein et al, (1998), Noorbakhsh et al. (2001) and Asiedu (2002) found that the level of human capital is a significant determinant of the location advantage of a host country and plays a key role in attracting FDI. Following the literature, this study uses adult literacy rate<sup>99</sup> as a proxy for the level of human capital. I expect the sign of the coefficient to be positive.

*Infrastructure*<sup>100</sup>: Good infrastructure provides the potential for investors to access distant location and to exploit scope economies. According to Morisset (2000), good infrastructure increases the productivity of investments and, therefore, stimulates the inflow of FDI. The quality of infrastructure, however, is an important determinant of FDI in developing countries (Asiedu, 2002). Availability of infrastructures such as roads, communication facilities and electricity should increase productivity and also increase the attraction of FDI inflow. This study uses the natural log of the number of telephone and mobiles available per 1,000 people (TELM) as a proxy for the quality of

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<sup>97</sup> Asiedu (2003) found a positive relationship between human capital and FDI in SSA.

<sup>98</sup> See Dunning (1997).

<sup>99</sup> Although most previous studies used secondary school enrolment and average years of schooling as a measure of human capital, the unavailability or limited data for SSA countries makes it difficult for meaningful econometrics exercise. Hence, this thesis uses adult literacy rate. According to Miyamoto (2003), Adult literacy is a good indicator to capture some extent of human capital for least developed countries where a large number of the population lacks basic education. Following UNESCO (2008), Adult literacy rate equals 100 minus illiteracy rate.

<sup>100</sup> I take the natural log of 1 plus telephone subscribers, in order to avoid taking the natural log of zero. Widely used in the literature to proxy the quality of infrastructure is telephone mainlines (per 1000 people), however, this measure of infrastructure only accounts for the total number of fixed lines available, whereas, telephone subscribers account for a total of both fixed lines and mobiles available. Another alternative measure for quality of infrastructure is the percentage paved roads in a country. This variable can be misleading for developing countries, that is, if there is one main road in the country and it is paved, then the value for this will be 100. Thus, only large values may not necessarily indicate better infrastructure.

infrastructure.<sup>101</sup> The motivation underlying this proxy is that countries with ‘large number of telephone lines are more likely to have better roads, modern airport/seaports, internet access, and water/electricity supply’ (Onyeiwu, 2003: 6). It is worthy to note that, as well as the availability of the infrastructure, the reliability<sup>102</sup> of the infrastructure (for instance, the frequency of power or telephone outages) is also a key indicator of the overall quality of infrastructure. Unfortunately, qualitative data is not readily available, for most developing countries, to assess this infrastructure reliability. TELM is expected to be positively correlated with FDI, as good infrastructure augments the efficiency of investment, and therefore attracts FDI, especially efficiency-seeking FDI.

*The interaction between Openness and Human Capital*<sup>103</sup>: There is a strong empirical evidence of a positive relationship between openness and the level of educational attainment of the labour force. It is argued that to be able to absorb the new technology and skills that come along with locating an MNC in a developing country, there is a need for a significant level of human capital. This is because, the availability of skilled workers is important for attracting FDI because it can boost the international competitiveness of a host country. Therefore, the interaction between economic openness and human capital is derived by multiplying trade as a ratio of GDP with average literacy rate. There is no a priori to make about the sign of the coefficient of the interaction term in the FDI equation. Meanwhile, the interaction term is expected to be positive in terms of the impact of FDI on economic growth.

*Inflation*: One indicator of a stable macroeconomic environment is the record of price stability. During the 1980s and 1990s, many developing countries exhibited high inflation rates and excessive budget deficits. High inflation rates reduce the level of uncertainty encountered by investors and increases the level of confidence in the economy, which encourages FDI. However, the literature suggests that economies with low inflation histories signal to investors how committed and credible the government is. The implication here is that high inflation rates will be a deterrent to would be investors. Thus, countries have embarked on stabilisation programs in order to bring

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<sup>101</sup> The number of telephones available per thousand people can also be used to proxy the quality of infrastructure. This study uses the number of telephones available per thousand people as an alternative.

<sup>102</sup> According to Adenikinju (2003), poor services from government owned Power Holding Company of Nigeria (PHCN) causes severe problems for manufacturing companies in Nigeria.

<sup>103</sup> TO\*HC is an interaction term meant to capture the effect a highly literate work force is likely to have on economic openness. It is also used to capture the effect a highly skilled workforce is likely to have on the absorptive capacity of economic openness (technology, knowledge, etc.).

inflation rapidly under control. According to the literature, on average, the lower the average inflation rate is in a host country, the more successful the stabilisation program and the faster GDP growth returned to positive levels. Several empirical studies have supported the view that macroeconomic instability is unfavourable to FDI attraction (for instance, Asiedu, 2003). Following the literature, I use the annual change in the consumer price index (CPI) to proxy inflation and the expected sign of the coefficient is negative, *ceteris paribus*.

The dependent variable, *FDI*, is measured as the net inflow of FDI<sup>104</sup> expressed as a percent of GDP. The dependent variable, *FDI*, is measured as the net foreign direct investment inflow as a percentage of GDP and is a widely used measure (see Asiedu, 2002; Goodspeed et al, 2006).

In terms of the relationship between FDI and growth, theoretical literature shows that FDI has a positive impact on economic growth because it serves as a channel through which technological knowledge is transferred from one country to another, thus, it increases output growth and GDP in the host country. Previous empirical studies have also found a positive relationship between economic growth and FDI in developing countries (see Blomstrom et al., 1994); therefore, I expect a positive relationship between economic growth and FDI. Openness to international trade allows developing countries to benefit from technology spillovers, such as through the stock of knowledge embedded in trade or FDI and this is likely to increase the number of specialised input, thereby increasing output growth in the long-run. Previous studies have debated that the degree of openness positively affects economic growth. However, *a priori*, the sign of the coefficient of  $\beta_2$  depends on whether the host country is open to trade or not.

The stock of human capital in a host country is critical for absorbing foreign knowledge and an important determinant of whether potential spillovers will be realised. Previous empirical studies suggest that the impact of human capital on growth is positive therefore, the coefficient  $\beta_3$  is expected to be positive in advancing growth. I also

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<sup>104</sup> According to Borensztein et al. (1998), the choice of FDI variable depends on the type of FDI effect a researcher is trying to uncover. Thus, when trying to analyse the impact of technology transfer and knowledge spillover, it is assumed that the use of FDI net inflow will provide a more detailed analysis, as opposed to net FDI outflow. For this reason, FDI net inflow has been used in the regression.



account for the interaction of FDI with trade and human capital. Past evidence show that FDI, trade and human capital have a positive impact on economic growth in developing countries. Maki and Somwaru (2004) suggest that the flow of technology brought in by FDI can lead to a positive growth in a country if FDI interacts with the country's trade. Accordingly, the positive impact of the interaction of FDI and trade on economic growth may result from FDI being attracted to countries that are expected to growth faster and that also follow open trade policies. Therefore, studying the interaction between FDI and openness is important especially in developing countries. The expected sign of the coefficient of  $\beta_4$  is positive. I also expect the sign of the coefficient of  $\beta_5$  to be positive.

I account for the type of institution available in the host country by using government consumption. It includes: spending on defence, administration and goods and services provided from outside suppliers. (Sala-i-Martin, 1995) note that the spending on goods such as housing and the salaries of public employees may directly, or indirectly, crowd out private consumption and thus, have a negative impact on output growth. However, if the spending is on education, this may in the long-run lead to a positive spillover into domestic investment, in the form of a better educated workforce which is required to absorb the benefits of FDI, and, thus, positively affect growth. Hence, the sign of the coefficient of  $\beta_6$  depends on whether government consumption crowds out or crowds in foreign investment. The coefficient of  $\beta_7$  is expected to be positive. According to the literature, investment plays an important role in the impact of FDI on economic growth. As a result, studies try to answer whether FDI crowds in or crowds out domestic investment. In this study, gross fixed capital formation is used to proxy domestic investment. The expected sign of the coefficient of  $\beta_7$  depends on whether FDI is a complement or supplement of domestic investment.

According to the literature, the rate of inflation is a key indicator of monetary policies in a country. A lower inflation rate implies a good investment climate while a higher inflation rate suggests poor investment climate. The sign of  $\beta_8$  is expected to be negative.

### 5.4.3 Empirical Strategy

The methodology used in this chapter is based on the panel data techniques. The use of panel data techniques allows us to determine the temporal evolution of groups of countries rather than analyzing the temporal behaviour of each of them. Panel data takes into account the individual/country heterogeneity, allows a larger number of data points and improves the efficiency of the estimates. Panel data may have group effects, time effects, or both. These effects are either fixed effect (FE) or random effect (RE). A fixed effect model assumes differences in intercepts across groups or time periods, whereas a random effect model explores differences in error variances. In panel data analysis, if the unobserved country-level effects are correlated with the vector of explanatory variables, the fixed effects is the appropriate estimation technique. Otherwise random effects will suffice.

In equation (5.2 and 5.3),  $\alpha_1$  is included to control for unobserved (country level) effects across countries i.e. to account for country heterogeneity in the sample. In estimating the equation, there is a need to take into account that some of the explicative variables might be correlated with country-specific or region-specific effects. This might imply the presence of endogeneity. If endogeneity is found, the FE estimation will give a consistent estimate and the RE estimation will not. This can be accessed through the Hausman test of no-correlation between the vector of explanatory variables and  $\alpha_1$ . The Hausman specification test compares the fixed versus random effects under the null hypothesis that the individual effects are uncorrelated with the other regressors in the model (Hausman 1978). If the null hypothesis is rejected ( $H_0$  is correlated), the Hausman test would show that some of the explicative variables in equation (5.3) are correlated with the error term  $\varepsilon_{it}$ . That is to say, a random effect model produces biased estimators, violating one of the Gauss-Markov assumptions; so a fixed effect model is preferred. However, non-rejection of random effects implies that both approximate each other and either can be used (Wooldridge, 2006). The results of the Hausman test<sup>105</sup> recommend the use of fixed effects model.

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<sup>105</sup> The Hausman specification test compares the fixed versus the random effects under the null hypothesis that the coefficient estimated by the efficient random effects estimators are the same as the ones estimated by the consistent fixed effects estimators. More clearly,  $H_0$ : difference in coefficients not systematic.  $\text{Chi2}(6) = (b-B)'[(V_b - V_B)^{-1}](b-B) = 23.06$  and  $\text{Prob} > \text{chi2} = 0.0008$ . Thus, the significant p-value suggests using the fixed effect estimator.

## **5.5 Empirical results and interpretation**

To empirically assess the determinant of FDI and its impact on economic growth, equations (5.3) and (5.7) will be estimated using the appropriate econometric technique. The empirical investigation will first cover the determinants of FDI, and then the impact of FDI on economic growth will be considered.

### **5.5.1 Basic statistics**

Table 5-5, panel A-C gives summary statistics of the variables included in the regression and panel D shows the correlation matrix for all the explanatory variables and net inflow of FDI, the dependent variable. The correlation matrix in Table 5-5d gives a first but crude approximation of the relationship between FDI and its determinants. The essence is to identify potential sources of multicollinearity in the estimation model. The Table shows that FDI is positively correlated with indicators of market size (LNGDPC), the ratio of trade to GDP, human capital, the interaction term, infrastructure quality and inflation. In addition, the Table also shows that the relationship between FDI and indicators of interaction is particularly strong. It indicates that the correlation between FDI and market size (LNGDPC) is fairly strong. The same applies to trade and human capital. The correlation between infrastructure quality and inflation is not that strong, as shown by the size of the coefficient. The correlations between FDI and the variables included in equation (5.3) are further illustrated in Figure 5-3. The low value of the correlation coefficient is not sufficient to conclude about the lack of a strong relationship between two variables under consideration. Therefore, I present some regression specifications to confirm that there is a link between FDI, openness and human capital, specifically, when human capital interacts with openness and likewise the link between economic growth and FDI.

**Table 5-1: Descriptive statistics and correlation matrix for the period 1980 - 2007**

Panel A: Full Sample							
	FDI	GDP	TO	HC	TO*HC	TELM	CPI
Mean	-0.13	6.96	3.82	4.17	0.01	12.93	2.55
Std. Dev	1.69	1.26	0.62	0.39	0.20	2.27	1.25
Min	-8.73	3.50	2.21	2.88	-0.59	8.56	-2.81
Max	2.49	9.01	5.36	4.60	0.79	19.72	10.10
Panel B: Differences between region and the five fastest growing economies							
ASIA	-0.48	6.75	3.83	4.05	0.15	13.70	2.48
BRIMC	-0.17	7.66	3.24	4.34	-0.06	14.87	2.42
LAC	0.51	8.36	3.56	4.48	-0.07	14.81	2.77
SSA	-0.25	6.39	3.94	4.09	-0.04	11.50	2.49
Panel C: Differences between income group							
LIC	-1.40	5.43	3.71	3.93	0.07	11.89	2.32
LMIC	-0.07	6.51	3.85	3.96	-0.02	12.06	2.55
UMIC	0.48	8.12	3.84	4.46	0.00	14.16	2.68
Panel D: Correlation matrix of the variable in the benchmark							
FDI	1.0000						
GDP	0.4475*	1.0000					
TO	0.3803*	0.1400*	1.0000				
HC	0.3716*	0.5181*	0.0422	1.0000			
TO*HC	-0.1081	* -0.1071	* 0.2414*	-0.0614	1.0000		
TELM	0.2490*	0.3411*	-0.0939*	0.4275*	0.1029*	1.0000	
CPI	-0.0329	0.0060	-0.0670	0.1790*	-0.1481	* -0.0691*	1.0000

Notes: FDI data are taken from the UNCTADs' *World Investment report (2009)*, estimated data were updated with World Banks' *World Development Indicator*, Inflation (CPI), is taken from *ERS International Macroeconomic Dataset and International Monetary Funds' International Financial Statistics prepared by Dr Shane (2008)*, TO is obtained from *Penn World Tables version 6.3 and 7)* and Literacy is taken from *UNESCO, UIS and UND (2009)*. *Intels* is calculated from *World Development Indicator*. Unless otherwise stated, all other data were taken from the World Banks' *World Development Indicator*.

\* indicates that the coefficient is significant at the 5% level.

### 5.5.2 Determinants of FDI: empirical results

The empirical analysis of the determinants of FDI was conducted for the full sample of 30 developing countries, as well as separately for Asia, Latin America and Sub-Saharan Africa (SSA) which accounts for cross regional effects and for different levels of economic development: low income, lower middle income and upper middle income countries. Since the purpose of this section is to examine if the degree of trade openness and the level of human capital in a country interact insofar as the attraction of FDI is concerned, the study focuses on these. Real GDP per capita and annual change in consumer prices is only used as control variables.

Table 5-6 reports the pooled cross-section (POLS), fixed (FE) and random effects (RE) models results. Across the three estimation methods only four variables are consistently significant determinants of FDI – TO, HC, TO\*HC and TELM – and all have the expected sign. The implication of this is that, countries with higher trade volumes, high level of human capital and better infrastructure are likely to attract more FDI. The result of the interaction term suggests that increase in openness and human capital leads to smaller increase in FDI inflows. The significant but negative sign of the coefficient of the interaction term suggests that both trade openness and human capital are substitutes. GDPC also appears significant and the correct positive sign as expected (POLS and RE estimates). The evidence provided in Table 5-6 suggests that trade openness is the major determinant factor.

**Table 5-2: Determinants of FDI in developing countries**

Dependent variable: FDI/GDP

Variables	POLS	FE	RE
GDPC	0.364*** (0.00)	0.406 (0.19)	0.235** (0.06)
TO	1.135*** (0.00)	1.441*** (0.00)	1.475*** (0.00)
HC	0.567*** (0.01)	1.767*** (0.00)	1.242*** (0.00)
TO*HC	-1.979*** (0.00)	-2.079*** (0.00)	-2.077*** (0.00)
TELM	0.119*** (0.00)	0.286*** (0.01)	0.252*** (0.00)
CPI	-0.057 (0.14)	-0.038 (0.44)	-0.066 (0.16)
F	72.520		
<i>No of Countries</i>	30	30	30
<i>Observation</i>	677	677	677
R-sq	0.384		
within		0.315	0.312
between		0.501	0.503
overall		0.352	0.361

*Notes: P-values are in parenthesis. \*, \*\*, \*\*\* indicate 10%, 5% and 1% significance level, respectively. Pooled OLS estimates are based on robust standard error. All specifications include a constant term. All variables are in logarithm form*

Table 5-7 reports the result of the FE model since the Hausman (1978) test suggests using fixed-effects instead of a random-effects model. To identify the determinants of FDI, variables are included in the model using a stepwise approach. In Specification 1, I estimate only three variables: GDP per capita, openness and human capital. The estimated model shows that the coefficients of all the three variables are as expected, positive and significant.<sup>106</sup> In specification 1, a 1 percent increase in per capita GDP in the developing countries leads to about 0.76 percent increase in FDI. This is an indication that FDIs flowing to the countries in our sample are indeed market-seeking. The finding is in line with the postulation by Chakrabarti (2001), Al Nasser and Gomez (2009) and also confirms the earlier findings by Schneider and Frey (1985). Similarly, a 1 percent increase in the level of trade openness increases FDI by about 1.56 percent. This supports the hypothesis that trade openness has a significantly positive impact on the flow of FDI. The result is consistent with the earlier findings of Asiedu (2002), Onyeiwu (2003) and Anyawu (2011) who all demonstrate that countries that are highly open are more likely to attract greater proportion of FDI. The findings also indicate that a 1 percent increase in human capital leads to a 2.70 percent increase in FDI. This supports the hypothesis that literacy rate has a significantly positive impact on the flow of FDI. This is an indication that countries with an educated labour force that is skilled in the operation of recent production technologies tend to attract larger share of FDI. The finding is in line with the postulation by Miyamoto (2003) that the level of human capital is a crucial factor for MNCs when making location decisions as it reduces the costs of training employees. Noorbakhsh et al. (2001) and Nunnenkamp (2002) find human capital to be a significant determinant of FDI inflows confirming previous study by Schneider and Frey (1985) and Root and Ahmed (1979). By implication, countries with a familiar environment and a high human capital, which is also open to economic integration, are more likely to be successful in attracting FDI.

Specification 2 includes the interaction between openness and human capital. The result indicates that the coefficient of the interaction term is negative but statistically significant. The negative sign of the coefficient indicates that openness and human capital are substitute rather than complements. Specification 3 includes the measures for infrastructure development (TELM) and macroeconomic stability (CPI). Here, the result suggests that the effect of infrastructural development is statistically significant and the

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<sup>106</sup> A similar result was obtained when GDP was used in the regression.

coefficient is positive and confirms previous findings.<sup>107</sup> The coefficient of inflation is negative, however it is statistically insignificant. The result in specification 4 indicates that all variables with the exception of GDP per capita are consistently significant in determining FDI. In Specification 5, all the variables have the correct sign. The main implication from the results obtained in Table 5-7 is that, countries with high level of human capital that are open to the world and with a better infrastructure attract more FDI. The interaction between openness and human capital suggests lower level of FDI in developing countries.

**Table 5-3: Determinants of FDI in developing countries**

Dependent variable: FDI/GDP

Variables	Spec (1)	Spec(2)	Spec (3)	Spec (4)	Spec (5)
GDP	0.755*** (0.00)	0.871*** (0.00)	0.324 (0.30)	0.401 (0.20)	0.406 (0.19)
TO	1.559*** (0.00)	1.703*** (0.00)	1.326*** (0.00)	1.474*** (0.00)	1.441*** (0.00)
HC	2.703*** (0.00)	2.686*** (0.00)	1.850*** (0.00)	1.804*** (0.00)	1.767*** (0.00)
TO*HC		-1.952*** (0.00)		-2.011*** (0.00)	-2.079*** (0.00)
TELM			0.272*** (0.02)	0.296*** (0.01)	0.286*** (0.01)
CPI			-0.002 (0.97)		-0.038 (0.44)
Constant	-22.666*** (0.00)	-23.916*** (0.00)	-18.761*** (0.00)	-19.955*** (0.00)	-19.471*** (0.00)
<i>No. of Countries</i>	30	30	30	30	30
<i>Observation</i>	684	684	677	683	677
R-sq					
within	0.284	0.308	0.288	0.314	0.315
between	0.517	0.556	0.430	0.513	0.501
overall	0.328	0.349	0.310	0.353	0.352

*Notes: P-values are in parentheses. \*, \*\*, \*\*\* indicate 10%, 5% and 1% significance level, respectively. All results derived using fixed effects model estimation. All variables are in logarithm form.*

<sup>107</sup> See Asiedu (2002) and Ng'ang'a (2005).

**Results of the regional and five of the fastest growing economies:**

The results presented above assume that the countries across the three developing regions and the fastest growing economies can be pooled.<sup>108</sup> Table 5-8 presents the regional fixed effects models for foreign direct investment (FDI). The results reveal significant differences in the determinants of FDI in the four sub sample. These results must be interpreted with care as a few of the countries included in the samples for each region may not fully represent all characteristics of the relevant region. Nevertheless, a number of differences in the results are noteworthy and could explain the varying FDI performance across these regions.

**Table 5-4: Determinant of FDI by Region, 1980-2007**

Variables	ASIA	BRIMC	LAC	SSA
GDPC	2.028*** (0.00)	1.554*** (0.01)	-0.971*** (0.03)	1.315* (0.08)
TO	1.203*** (0.00)	0.950 (0.13)	-1.314* (0.06)	1.590*** (0.00)
HC	1.551*** (0.02)	4.372 (0.25)	3.677 (0.32)	1.902*** (0.02)
TO*HC	-4.232*** (0.00)	-3.453*** (0.01)	4.394*** (0.02)	-1.090 (0.27)
TELM	-0.314* (0.07)	-0.292 (0.25)	0.797*** (0.00)	0.314* (0.10)
CPI	-0.067 (0.36)	-0.271*** (0.00)	-0.159*** (0.00)	0.071 (0.53)
Constant	-19.772*** (0.00)	-28.878*** (0.03)	-14.280 (0.32)	-26.500*** (0.00)
<i>No. of Countries</i>	9	5	7	14
<i>Observation</i>	202	111	169	306
R-sq				
within	0.669	0.720	0.589	0.194
between	0.598	0.529	0.557	0.203
overall	0.554	0.435	0.068	0.136

*Notes:* P-values are in parenthesis. \*, \*\*, \*\*\* indicate 10%, 5% and 1% significance level, respectively. All results derived using fixed effects model estimation. All variables are in logarithm form.

In assessing the regional effects, while the coefficient of GDPC is positive in Asia, BRIMC and SSA countries in the LAC countries, the sign of the coefficient of GDPC is negative, albeit significant. Although, I hypothesised a positive relationship between FDI and GDPC, it is mostly true in the case that FDI is market-seeking. The negative

<sup>108</sup> They include; ASIA, BRIMC, LAC and SSA.



effect of GDPC in the LAC could imply that the flow of FDI towards this region is non-market-seeking and more likely to be resource or efficiency-seeking. The ECLAC 2003 report gives a thorough explanation of the current trends and investment environment in Latin America, and explains the reason as to why current corporate strategies and national policies used are hindering growth and development in the region.

Farrel (2004) makes the argument that both, incentives used to attract foreign direct investment and the restrictions placed on it, are largely ineffective. This particular research demonstrates that regardless of policy regime or the industry, FDI can benefit developing countries greatly. To make the most of it, however, these countries must strengthen the foundation of their economies, including infrastructure, their legal and regulatory environments, and the level of competition in their local markets. On the contrary, Amal et al., (2010) found a a positive and significant relationship between GDP per capita and FDI inflows to Latin American countries.

The results indicating the effect of openness on FDI have also been found to be mixed. While the relationship shows that FDI and openness are complementary in Asia and SSA, they are substitutes in the LAC countries. The coefficients are statistically significant in the three regions. The effects of human capital, as measured by adult literacy rates, is positive across the region, however it is only significant in Asia and SSA. The result of the positive and significant effect of human capital on FDI in Asia and SSA countries is similar to that of Ghura and Goodwin (2000), who also reports a positive and significant effect, however the result obtained for the LAC contradicts Ghura and Goodwin (2000), who finds a negative and statistically significant effect.

The interaction between openness and human capital is positive and statistically significant in LAC. In the LAC countries, the estimated parameter of openness is negative, whereas the interaction term of openness with human capital is significant and positively related to FDI. These facts suggest that a minimum level of human capital is required for openness to contribute positively to FDI inflows. From the table, the human capital threshold required equals 1.35.<sup>109</sup> This suggests that all economies with adult literacy above 1.35 will benefit positively from trade openness. The estimated parameter

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<sup>109</sup> By taking the derivative of the FDI equation with respect to trade openness (TO), setting them equal zero. By solving it for the level of human capital (LNHC) required, the total effect of TO on FDI is positive. This is yielding the human capital threshold, equal to 0.30. By taking the exponential of this value, the certain level of human capital will equal 1.35.

in Table 5-8 suggests that increase in openness and human capital leads to a decrease in FDI inflows in Asia. This column shows that the human capital variable appears to have a significant positive impact on FDI. This implies that a high level of human capital tend to be important determinant of FDI in Asia as suggested by a number of empirical studies.

Although trade openness and human capital have a positive impact on FDI in BRIMCs, the coefficient is statistically insignificant. With regards to the effect of the interaction term, the coefficient is negative and significant, all else being equal. The relationship between infrastructure development and FDI varies across the regions. The results indicate the effect of telephone and mobile subscribers is positive and significant in determining FDI inflows to LAC and SSA countries. This finding is supported by Kolstad and Villanger (2008), who use mobile phones to measure infrastructure and find a positive influence on FDI in the Caribbean. In Asia however, the relationship is negative and its effect, is significant. A positive effect was expected; therefore, this negative relationship cannot be explained. Regarding the macroeconomic stability variable, inflation was significant (at 1 percent in BRIMC and LAC countries) and registered its expected sign, which is negative. For the case of BRIMC and LAC countries, increases in inflation results in decreases in the attraction of FDI. This result is as expected because some of the countries in this region have been characterised by high inflation. The results also show that inflation has a statistically significant effect on the attraction of FDI in both regions. The result indicates that the impact of inflation on FDI is positive, but insignificant in SSA. The positive sign of the coefficient is contrary to the expectation. Although a positive sign of inflation is quite surprising, the result provides support to theoretical vagueness regarding the impact of inflation on FDI. According to the literature, countries with low inflation rates are expected to attract more FDI because macroeconomic risks are much lower in these countries.

Comparing the estimated parameters of the interaction terms as among Asia, BRIMCs, Latin America and SSA countries, one can see that in most cases the results provide support for the economic theory. The reported results indicate that the slope coefficients of the interaction of trade openness and human capital in Asian countries, which is negatively signed and significantly different from zero at the 1 percent significant level, have lower value (negative value) than those of BRIMC and SSA countries which are

all negatively signed. Considering LAC countries, the interaction term is positive and highly significant and has a higher value than in Asia, BRIMC and SSA countries.

I can therefore conclude that the marginal gain of FDI from increased economic openness and a high level of human capital are higher in LAC countries than in Asia, BRIMC and SSA countries. The lowest gain of all is in Asian countries. The magnitudes of the respective slope coefficients are reasonably robust to various specifications. The specific magnitude of the value obtained on the coefficient indicates that the effect obtained from the interaction term is higher in LAC countries than other regions.<sup>110</sup>

### *Income groups results*

The results in table 5-9 presents the parameter estimates for 7 low income countries, 10 low and middle income countries and 13 upper middle income countries.

**Table 5-5: Determinant of FDI by income group, 1980-2007**

Variables	LIC	LMIC	UMIC
GDPC	1.919 (0.34)	2.475*** (0.00)	0.188 (0.53)
TO	2.072*** (0.01)	1.025*** (0.00)	1.582*** (0.00)
HC	1.304 (0.43)	2.042*** (0.00)	-4.604*** (0.01)
TO*HC	0.007 (1.00)	-2.028*** (0.00)	-3.210*** (0.00)
TELM	0.404 (0.34)	0.113 (0.47)	0.550*** (0.00)
CPI	-0.175 (0.40)	0.236*** (0.02)	-0.106*** (0.02)
Constant	-29.119*** (0.01)	-30.182*** (0.00)	5.863 (0.41)
<i>No. of Countries</i>	7	10	13
<i>Observation</i>	154	227	296
R-sq			
within	0.305	0.445	0.388
between	0.049	0.636	0.217
overall	0.120	0.462	0.211

*Notes: P-values are in parenthesis. \*, \*\*, \*\*\* indicate 10%, 5% and 1% significance level, respectively. All variables are in logarithm form.*

<sup>110</sup> This conclusion is based on the selected sample of developing countries in this analysis.

The table indicates that GDPC, TO, HC and TO\*HC have a positive coefficient, however only trade openness is statistically significant. In this survey, trade openness seems to be the most important determinant of all in low income countries. The results of the determinant of FDI for the low and middle income countries indicate that market size, human capital and economic openness are important for the attraction of FDI whereas the interaction between open and human capital discourages FDI. The result also indicates that a stable macroeconomic environment encourages the inflow of FDI. In upper middle income countries, openness is more important in determining FDI inflow as compared to infrastructural development. The level of human capital, its interaction with openness and macroeconomic stability (high inflation) discourages FDI. The results obtained in the table shows that trade openness is significantly and positively related to economic growth, confirming empirical studies such as Balasubramanyam et al. (1996) and Makki and Somwaru (2004). The degree of openness is an indicator that reflects how open the local market is, so that a higher level of openness is often associated with greater market discipline and additional outlets for goods and services produced by domestic firms (Elboiashi, 2011:147). The results show that, in upper middle income countries, trade openness and human capital are substitutes where the attraction of FDI is concerned.

### **5.5.3 Impact of FDI on economic growth: empirical results**

I note that the FDI equation might suffer from the simultaneity bias problem, probably because a large size of GDP per capita not only attracts FDI, but FDI inflow also affects the size and growth of GDP as well as trade openness. Thus, it is necessary to estimate the economic growth equation. Table 5-10a-d provides a summary statistic of the variables used in the growth equation. Table 5-10d presents the correlation matrix for all the explanatory variables and growth as dependent variable. The correlation matrix provides a first crude expectation of the relationship between these variables. The table indicates that growth has a weak linear relationship between real GDP per capita and each explicative variable. The low value of the correlation is not sufficient to conclude about the lack of a strong relationship between two variables under consideration, as such, I provide some regression specification to confirm that there is a link between real GDP per capita and FDI.

**Table 5-6: Impact of FDI on economic growth: Descriptive statistics**

Panel A: Full Sample									
	GDP	FDI	OPEN	HC	FDI*HC	FDI*TO	GC	GFCF	CPI
Mean	6.96	-0.13	3.82	4.17	0.24	0.40	2.54	3.03	2.55
Std. Dev	1.26	1.69	0.62	0.39	0.83	1.04	0.39	0.33	1.25
Min	3.50	-8.73	2.21	2.88	-3.10	-2.56	1.09	0.93	-2.81
Max	9.01	2.49	5.36	4.60	7.90	5.92	3.46	3.85	10.10
Panel B: Differences between region and the five fastest growing economies									
ASIA	6.75	-0.48	3.83	4.05	0.57	0.82	2.31	3.09	2.48
BRIMC	7.66	-0.17	3.24	4.34	0.22	0.40	2.65	3.27	2.42
LAC	8.36	0.51	3.56	4.48	0.20	0.12	2.60	3.02	2.77
SSA	6.39	-0.25	3.94	4.09	0.05	0.28	2.68	2.98	2.49
Panel C: Differences between income group									
LIC	5.43	-1.40	3.71	3.93	0.49	0.48	2.44	2.99	2.32
LMIC	6.51	-0.07	3.85	3.96	0.17	0.38	2.54	2.90	2.55
UMIC	8.12	0.48	3.84	4.46	0.17	0.37	2.61	3.13	2.68
Panel D: Correlation matrix of the variable in the benchmark									
GDP	1.00								
FDI	0.4475*	1.00							
OPEN	0.1400*	0.3803*	1.00						
HC	0.5181*	0.3716*	0.0422	1.00					
FDI*HC	-0.0881*	-0.2891*	-0.0578	-0.3983*	1.00				
FDI*TO	-0.0493	-0.3077*	0.1513*	-0.1058*	0.2536*	1.00			
GC	0.0999*	0.1488*	0.0513	0.2362*	-0.2301*	-0.1888*	1.00		
GFCF	0.1743*	0.1335*	0.0018	0.2866*	-0.1387*	0.1462*	0.1120*	1.00	
CPI	0.0060	-0.0329	-0.0670	0.1790*	-0.1509*	-0.0177	-0.0068	-0.1891*	1.00

Notes: GPCAP, TO, GFCF and GC are taken from World Banks' World Development Indicator, (2010) and Penn World Tables Version 6.3 and 7.0. FDI is taken from UNCTAD website (2009). Human capital is obtained from UNESCO UIS website (2008); CPI is taken from ERS International Macroeconomic Dataset, (2008) compiled by Matthew Shane. The data are in logarithm form.

Table 5-11 report the results for estimating equation (5.7) using POLS, FE and RE estimation method. The result in the POLS estimates indicate that FDI is positive and statistically significant in promoting economic growth in the sample of countries. The positive relationship is consistent with the literature (see De Gregorio, 1992; Borensztein et al., 1995 and 1998). From these results, trade has a negative and insignificant relationship with economic growth. This is contrary to previous research such as Li and Liu (2004) who report a positive influence of trade on economic growth in 84 developed and developing countries. Further, the result indicates that the coefficient of the interaction terms (FDI\*TO and FDI\*HC) are positive and statistically significant. In theory, trade openness and the quality of human capital are important for host country in absorbing the spillovers from FDI. According to table 5-11, the positive effect of FDI on economic growth in our sample is motivated by an open economy. The interaction between FDI and human capital indicate a positive and significant

coefficient, while the variable for FDI has a positive and significant sign. The result suggests that FDI has an unambiguously positive effect on economic growth in the sample of countries. This result is similar across various estimation methods. Government consumption and investment are correctly signed; however they are both statistically insignificant. In the POLS estimates, inflation has a positive but insignificant impact on growth in our sample.

**Table 5-7: Impact of FDI on economic growth**

Dependent variable: GDPC			
Variables	POLS	FE	RE
FDI	0.296*** (0.00)	0.019*** (0.01)	0.019*** (0.01)
TO	-0.086 (0.24)	0.282*** (0.00)	0.278*** (0.00)
HC	1.400*** (0.00)	0.362*** (0.00)	0.388*** (0.00)
FDI*TO	0.073* (0.06)	0.000 (0.97)	0.001 (0.95)
FDI*HC	0.250*** (0.00)	0.020* (0.08)	0.021* (0.06)
GC	-0.149 (0.16)	-0.031 (0.37)	-0.027 (0.44)
GFCF	0.158 (0.22)	0.088*** (0.00)	0.087*** (0.00)
CPI	0.005 (0.91)	-0.028*** (0.00)	-0.027*** (0.00)
F	73.480		
<i>No. of Countries</i>	29	29	29
<i>Observation</i>	638	638	638
R-sq	0.38		
within		0.357	0.357
between		0.221	0.233
overall		0.186	0.196

*Notes: P-values are in parenthesis. \*, \*\*, \*\*\* indicate 10%, 5% and 1% significance level, respectively. Pooled OLS estimates are based on robust standard error. All specifications include a constant term. All variables are in logarithm form.*

The FE and RE estimates show that FDI, trade openness, human capital and investment have a positive and significant impact on economic growth. The result highlights the importance of FDI, trade openness and investment in the growth process of these

economies.<sup>111</sup> In addition, government consumption has a negative but insignificant impact on economic growth. Inflation has the correct sign and it is statistically significant. The implication of this finding is that trade openness has a positive overall effect on economic growth. The proxy for inflation is also negatively and significantly related to economic growth, where high level of inflation leads to lower economic growth. It can therefore be concluded from Table 5-11 that FDI not only directly promotes economic growth by itself, but also indirectly does so via its interaction terms.

I further present the impact of FDI on growth using our preferred method of analysis. Specification 1 of Table 5-12 shows that all the variables are correctly signed, however government consumption is insignificant. Specifically, the coefficient of FDI suggests that a one percent change in FDI, leads to an increase in economic growth by approximately 2 percent. Specification 2 tested the growth effect of FDI through the effect of the level of economic openness by including the interaction between FDI and economic openness proxy (FDI\*TO) in the growth equation. While FDI and trade by themselves positively and significantly affect economic growth, the interaction term is positive but insignificant. The implication of this is that the positive impact of FDI on economic growth in developing countries does not depend on openness to trade. Specification 3 shows that the impact of FDI on economic growth is dependent on the level of human capital development in the host country. According to the results, the growth effect of FDI depends on the level of human capital, confirming the results of Borensztein et al. (1998). The implication of this is that FDI has an unambiguously positive impact on growth.

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<sup>111</sup> The same results are obtained for Borensztein et al. (1998) for developing countries, and Li and Liu (2005) for developed and developing countries.

**Table 5-8: FDI's impact on economic growth**

Variables	Spec (1)	Spec(2)	Spec (3)	Spec (4)
FDI	0.016*** (0.01)	0.017*** (0.01)	0.018*** (0.00)	0.019*** (0.01)
TO	0.289*** (0.00)	0.290*** (0.00)	0.282*** (0.00)	0.282*** (0.00)
HC	0.325*** (0.00)	0.326*** (0.00)	0.362*** (0.00)	0.362*** (0.00)
GC	-0.031 (0.37)	-0.031 (0.37)	-0.031 (0.37)	-0.031 (0.37)
GFCF	0.084*** (0.00)	0.082*** (0.00)	0.088*** (0.00)	0.088*** (0.00)
CPI	-0.030*** (0.00)	-0.030*** (0.00)	-0.028*** (0.00)	-0.028*** (0.00)
FDI*TO		0.003 (0.78)		0.000 (0.97)
FDI*HC			0.020*** (0.07)	0.020*** (0.08)
Constant	4.379*** (0.00)	4.377*** (0.00)	4.228*** (0.00)	4.229*** (0.00)
<i>No. of Countries</i>	29	29	29	29
R-sq				
within	0.353	0.354	0.357	0.357
between	0.198	0.198	0.221	0.221
overall	0.168	0.168	0.186	0.186

*Notes: P-values are in parenthesis. \*, \*\*, \*\*\* indicate 10%, 5% and 1% significance level, respectively. All results derived using fixed effects model estimation. All variables are in logarithm form.*

The variables in Specification 4 all have the expected signs, but the most significant variable in this regression is openness, followed by human capital and investment. The regression results also indicate that the interaction between FDI, trade openness and human capital is positive with the coefficient of the interaction between FDI and human capital statistically significant at the 10 percent level.

Overall investment, human capital, openness, the interaction between FDI and human capital and FDI are the most important variables in promoting economic growth in this sample.



***Cross regional results:***

Table 5-13 presents regression results for comparative analyses between the three regions and the BRIMCs. In Asia, FDI, economic openness and human capital are important determinants of economic growth. While the interaction between FDI and human capital is positively related to economic growth, its coefficient is statistically significant at the 1 percent level. The positive impact of FDI and the proxy for human capital, and the positive impact of the interactions between FDI and human capital imply that both FDI and human capital are complements. The result also indicates that the sign of the coefficient of inflation is positive although insignificant. The positive sign of the proxy for inflation is unexpected; but might be an indication of the low level of inflation rate in this region. The significant and positive sign of the coefficient also indicate that a stable environment is important to promote economic growth.

**Table 5-9: FDI's impact on regional economic growth**

Variables	ASIA	BRIMC	LAC	SSA
FDI	0.065*** (0.00)	0.253*** (0.00)	-0.301*** (0.00)	0.008 (0.16)
TO	0.718*** (0.00)	-0.380*** (0.00)	0.169*** (0.00)	-0.052 (0.12)
HC	0.768*** (0.00)	3.750*** (0.00)	-0.576 (0.17)	0.118* (0.07)
GC	-0.04 (0.52)	0.076 (0.46)	-0.001 (0.98)	0.018 (0.67)
GFCF	-0.029 (0.57)	0.338*** (0.00)	0.139*** (0.00)	0.067*** (0.02)
CPI	0.011 (0.44)	-0.012 (0.51)	-0.013 (0.11)	-0.030*** (0.01)
FDI*TO	-0.003 (0.87)	0.223*** (0.00)	0.045*** (0.02)	-0.026*** (0.03)
FDI*HC	0.162*** (0.00)	0.161*** (0.02)	1.232*** (0.00)	0.010 (0.36)
Constant	0.925* (0.07)	-8.788*** (0.00)	9.814*** (0.00)	5.831*** (0.00)
<i>No. of Countries</i>	9	5	7	13
R-sq				
within	0.732	0.743	0.711	0.116
between	0.020	0.525	0.011	0.006
overall	0.033	0.529	0.118	0.014

*Notes: See Table 5-12.*

Turning to the countries under the BRIMC sample, the results indicate that the level of human capital, investments, FDI, the interaction between FDI and trade and FDI and human capital are important for economic growth. The sign of the coefficient of government consumption is positive, however it is statistically insignificant. In the BRIMCs, the result indicates that FDI and trade are substitutes, while FDI and human capital are complements.

In Latin American countries, FDI has a negative and significant impact on economic growth. This implies that Latin American countries tend, *ceteris paribus*, to grow more slowly than the other regions by approximately 30 percent. Government consumption, investment and inflation all have the expected sign, although only investment is significant at the 1 percent level.

Finally, in the SSA countries, the results indicate that investment and human capital variable is significantly and positively related to economic growth. The interaction between FDI and trade is significantly and negatively related to economic growth, while FDI has a positive impact on growth. This suggests that SSA countries must pass a minimum threshold of trade openness to gain the most from attracting FDI.<sup>112</sup> This suggests that in a scenario where trade openness is lower than or equal to the threshold value, FDI will exert a negative effect on economic growth. In addition, the result shows that inflation has the expected negative sign and the coefficient is significant at 1 percent.

***Income group results:***

Table 5-14 presents the comparative results for 7 low income countries; 9 lower and middle income countries and 13 upper middle income countries respectively. According to the table, economic growth in low income countries is determined by human capital, trade openness and investment. I find that the interaction between FDI and trade openness is negative and statistically significant, while the indicator of economic openness by itself is positive and statistically significant at 10 percent, FDI has a negative and insignificant impact on growth. The positive impact of the interaction term suggests that FDI and trade are substitutes in low income countries. The proxy for inflation has the correct sign and the coefficient is statistically significant.

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<sup>112</sup> By taking the derivative of the growth equation with respect to LFDI, setting them equal to zero. By solving it for the level of trade openness (LTO) required, the total effect of FDI on growth is positive. Similar calculation is applied where it applies.

**Table 5-10: FDI's impact on different level of economic growth**

Variables	LIC	LMIC	UMIC
FDI	-0.003 (0.48)	0.040*** (0.00)	0.049* (0.08)
TO	0.080* (0.07)	0.101*** (0.030)	0.209*** (0.00)
HC	0.144*** (0.03)	0.137* (0.08)	3.038*** (0.00)
GC	0.006 (0.91)	0.023 (0.60)	-0.125*** (0.01)
GFCF	0.063* (0.08)	-0.009 (0.79)	0.267*** (0.00)
CPI	-0.056*** (0.00)	-0.029* (0.06)	-0.023** (0.05)
FDI*TO	-0.031*** (0.02)	-0.017 (0.21)	0.038* (0.06)
FDI*HC	-0.011 (0.15)	-0.121*** (0.00)	-0.067 (0.50)
Constant	4.461*** (0.00)	5.619*** (0.00)	-6.761*** (0.00)
<i>No. of Countries</i>	7	9	13
R-sq			
within	0.481	0.453	0.637
between	0.000	0.604	0.012
overall	0.003	0.406	0.063

*Notes: See Table 5-12.*

Turning to lower and middle income countries, the table reports that FDI is positively linked with economic growth. The level of economic openness and human capital development seem to be important for economic growth in this region. The result also shows that the interaction between FDI and human capital is negative and the coefficient is statistically significant. The implication of this is that there is a certain level of threshold of human capital for the positive impact of FDI on economic growth. It appears that investment has a negative sign, however the coefficient is insignificant.

In the upper middle income countries, the level of human capital, investment and the level of economic openness seem to be the major determinants of economic growth. Government consumption has a negative impact on growth, and the coefficient is statistically significant. The interaction between FDI and openness also has a positive and significant impact on growth in this region. The implication of this is that FDI and openness are complements in the sample of upper middle income countries in our

sample. The interaction between FDI and human capital does not affect economic growth, given the insignificant coefficient.

From the table, I can conclude that FDI plays a more important role on economic growth in upper middle income countries and low and middle income countries than in low income countries.

#### **5.5.4 Sensitivity Analysis**

The study undertook two robustness checks. First, the analysis checks whether the results obtained is sensitive to changes in the period of estimation by accounting for the effect of business cycle. Hence, equation (5.3) and (5.7) is re-estimated using four year period averages, meaning that I have seven observations per country (1980-1983, 1984-1987, 1988-1991, 1992-1995, 1996-1999, 2000-2003 and 2004-2007). The results are quite close to the baseline, with the exception that the sign of the coefficient of human capital in Asia is negative and significant; in the BRIMCs it is positive and significant while in the SSA it is negative and has lost its statistical significance. Second, the equations are re-estimated to examine whether the results is sensitive to changes in variables. To this end, the analysis uses FDI in millions, GDP, exports, total labour force and number of telephone subscribers per thousand people.<sup>113</sup> Overall the results are robust.

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<sup>113</sup> All the variables are in natural logarithm form.

**Table 5-11: Determinant of FDI, Sensitivity analysis**

Variables	Full Sample	ASIA	BRIMC	LAC	SSA
GDP	0.888 *** (0.00)	1.573 *** (0.00)	0.966 ** (0.05)	0.498 (0.18)	1.116 *** (0.03)
XGDP	0.760 *** (0.00)	0.388 * (0.08)	0.626 *** (0.03)	-0.066 (0.87)	1.246 *** (0.00)
HC	-0.306 (0.48)	-2.309 *** (0.00)	4.556 ** (0.06)	1.335 (0.53)	-0.201 (0.76)
X*HC	-0.018 *** (0.00)	-0.059 *** (0.00)	-0.024 *** (0.02)	-0.004 (0.81)	0.022 ** (0.05)
TELS	0.191 *** (0.00)	-0.009 (0.94)	-0.084 (0.66)	0.327 *** (0.03)	0.106 (0.30)
CPI	-0.047 (0.23)	0.063 (0.37)	-0.238 *** (0.00)	-0.168 *** (0.00)	0.055 (0.53)
Constant	-18.831 *** (0.00)	-20.071 *** (0.00)	-39.136 *** (0.00)	-18.985 *** 0.10	-22.569 *** (0.00)
No. Of Countries	30	9	5	7	14
R-sq					
within	0.360	0.620	0.718	0.549	0.274
between	0.046	0.126	0.899	0.479	0.000
overall	0.092	0.136	0.708	0.018	0.049

Notes: See Table 5-12.

**Table 5-12: Impact of FDI on Economic growth: Sensitivity analysis**

Variables	Full Sample	ASIA	BRIMC	LAC	SSA
FDI	0.148 *** (0.00)	0.254 *** (0.00)	0.130 * (0.10)	0.193 *** (0.00)	0.106 *** (0.00)
X	0.137 ** (0.05)	0.275 (0.12)	0.276 (0.28)	0.092 (0.56)	0.037 (0.73)
LF	-0.065 *** (0.01)	-0.041 (0.38)	0.118 (0.27)	-0.050 (0.35)	-0.117 *** (0.02)
GC	-0.268 *** (0.00)	-0.233 (0.26)	0.203 (0.47)	0.039 (0.72)	-0.253 * (0.10)
GFCF	0.065 (0.45)	0.012 (0.95)	0.498 (0.15)	0.322 *** (0.02)	0.052 (0.65)
CPI	0.022 (0.12)	0.115 *** (0.00)	0.002 (0.95)	0.030 (0.41)	0.029 (0.41)
FDI*X	-0.019 *** (0.02)	0.004 (0.85)	-0.072 * (0.09)	0.004 (0.76)	-0.017 (0.33)
FDI*LF	-0.066 *** (0.00)	-0.075 (0.10)	0.039 (0.37)	0.012 (0.69)	-0.094 *** (0.02)
Constant	16.708 *** (0.00)	16.597 *** (0.00)	15.626 *** (0.00)	15.944 *** (0.00)	16.158 *** (0.00)
<i>No. of Countries</i>	30	9	5	7	13
R-sq					
within	0.675	0.861	0.892	0.860	0.559
between	0.753	0.754	0.386	0.560	0.606
overall	0.575	0.646	0.629	0.456	0.378

Notes: See Table 5-12.

## 5.6 Conclusions

The objective of this chapter has been to find out the determinant and impact of FDI inflows in developing countries. Specifically, the chapter focused on the interaction between economic openness and human capital in determining FDI, and the interaction between FDI, human capital and openness in promoting economic growth. For this purpose, the study used a sample of panel observations for 30 countries over the period 1980 to 2007. The data are obtained from the *World Development Indicators* (WDI, 2008), UNCTAD FDI database, (2008 and 2009), Penn World Tables, Version 6.3 and 7.0 (2009 and 2011), ERS International Macroeconomic Dataset, (2010) and UNESCO UIS, (2008). The main estimation technique is the fixed effects method. A number of conclusion can be drawn which are summarised as follows.

- The study finds that a host country with a highly literate workforce, an open economy with better availability of infrastructure attracts the inflows of FDI.
- In line with the literature, this study finds that large market size with a well skill labour force and greater trade openness boost the inflow of FDI to Asian countries.
- The findings indicate that FDI to the BRIMC countries is mainly as a result of the large market size,
- Highly skilled workers and better infrastructure attracts FDI to Latin American countries and in SSA,
- The result suggests that the level of human capital and economic openness seem to be the main determinants of FDI inflows.
- For the income groups, the flow of FDI seem to favour lower and middle income countries in that a large market size, with the abundance of literate workforce and an open economy which is stable boost foreign investors' confidence in the economy.
- The positive and significant coefficient of FDI and its interaction with trade openness and human capital in the BRIMC, suggests that FDI has a positive impact on economic growth, however the magnitude of its impact depends on its interactions with economic openness and the level of human capital.

The analysis also examined the impact of FDI on economic growth, taking into account whether the growth effect of FDI is dependent on economic openness and human capital. The empirical research examined the direct and indirect effect of FDI in different regions and income groups. In particular, the effect of FDI in the BRIMCs and SSA was focused on. The findings indicate that FDI is a strong contributor to economic growth and that this relationship is not dependent on its interactions with economic openness or human capital. In Latin American countries, the result suggest that FDI has a negative impact on growth in the short run, however, the effect of FDI on growth becomes positive with improvement in both the level of economic openness and human capital. This result is similar to that of Borensztein et al. (1998), who find that there is a negative, and sometimes insignificant, effect of FDI on economic growth in developing countries with low levels of human capital.

In the SSA region, the inference to be drawn is that, while growth effects of FDI may be augmented by human capital and economic openness, they are not prerequisites as current thinking suggests. However, the absence of evidence in support of conditional effects may also suggest that the countries in our sample have not attained the threshold level of human capital below which interaction effects do not affect growth.

The policy implications that are offered are:

- It is critical and important to maintain a sustainable and high level of economic growth and development as evidence shows that sustainable level of economic growth attracts FDI.
- It is also important to invest in human capital in order to benefit from the externalities of FDI.



## Appendix V

**Table 5-13: Variables, definition and source**

<i>Variable</i>	<i>Description</i>	<i>Source</i>
FDI	Foreign direct investment as a percent of GDP. It is a composite bundle of capital stock and technology.	UNCTAD, (2009)
GDPC	Market Size: real GDP per capita	World Bank's World Development Indicators (2008), PWT version 6.3 and USDA/ERS (2010)
TO	Economic openness: Sum of imports plus exports as a percent of GDP	World Bank's World Development Indicators (2008), PWT version 6.3 and USDA/ERS (2010)
HC	Human capital: Adult literacy, percent of adult age 15 and over who can read and write, with understanding, a short simple statement on his or her everyday life.	UNESCO UIS database and calculated using 100 minus illiteracy rate
TELM	Infrastructure: Number of telephone and mobile subscribers	World Bank's World Development Indicators (2008), PWT version 6.3 and USDA/ERS (2010)
CPI	Consumer price index, inflation	World Bank's World Development Indicators (2008)
GC	Government consumption	World Bank's World Development Indicators (2008)
GFCF	Gross fixed capital formation as a percent of GDP	World Bank's World Development Indicators (2008)
Interaction Terms		
TO*HC	Interaction between economic openness and human capital	Authors' Calculation
FDI*TO	Interaction between FDI and economic openness	Authors' Calculation
FDI*HC	Interaction between FDI and human capital	Authors' Calculation
Alternative Measures		
gGDP/gGDPC/ GDP	growth rate of GDP, growth of real GDP per capita and GDP in millions of US\$	World Bank's World Development Indicators (2008), PWT version 6.3 and USDA/ERS (2010)
X	Export as a percent of GDP	World Bank's World Development Indicators (2008), PWT version 6.3 and USDA/ERS (2010)
M	Import as a percent of GDP	World Bank's World Development Indicators (2008), PWT version 6.3 and USDA/ERS (2010)
TELMPC	Number of telephone subscribers per thousands	World Bank's World Development Indicators (2008), PWT version 6.3 and USDA/ERS (2010)
LFG	growth rate of people age 15 and over who are economically active population including employed and unemployed. It is obtained using $[Y_{\text{present}} - Y_{\text{past}}] / Y_{\text{present}} * 100$	World Bank's World Development Indicators (2008), PWT version 6.3 and USDA/ERS (2010)

**Table 5-14: List of countries in sample**

Argentina	Ghana	Senegal
Bangladesh	India	South Africa
Benin	Kenya	Sri Lanka
Botswana	Malawi	Sudan
Brazil	Malaysia	Swaziland
Cameroon	Mexico	Tanzania
Chile	Nepal	Thailand
China	Nigeria	Venezuela
Colombia	Pakistan	Zambia
Costa Rica	Russia	Zimbabwe

**World Bank classification of countries by geographic region:** Economies are classified according to World Bank geographic region classification

**Table 5-15: Countries by geographic region**

ASIA	BRIMC	LAC	SSA	
Bangladesh	Brazil	Argentina	Benin	Sudan
China	Russia	Brazil	Botswana	Swaziland
India	India	Chile	Cameroon	Tanzania
Malaysia	Mexico	Colombia	Ghana	Zambia
Nepal	China	Costa Rica	Kenya	Zimbabwe
Pakistan		Mexico	Malawi	
Russia		Venezuela	Nigeria	
Sri Lanka			Senegal	
Thailand			South Africa	

**The World Bank classification of countries by income groups:** economies are divided among income groups according to 2007 gross national income (GNI) per capita, calculated using the World Bank Atlas method. The groups in this classification are: (Income per capita: low income, \$735 or less; Low and middle income, \$736-\$2,935; Upper middle income, \$2,936-\$9,075).

**Table 5-16: Countries by income group**

LIC	LMIC	UMIC
Bangladesh	Cameroon	Argentina
Benin	Ghana	Botswana
Kenya	India	Brazil
Malawi	Nigeria	Chile
Nepal	Pakistan	China
Tanzania	Senegal	Colombia
Zimbabwe	Sri Lanka	Costa Rica
	Sudan	Malaysia
	Swaziland	Mexico
	Zambia	Russia
		South Africa
		Thailand
		Venezuela

## Appendix V: IV

The results of multicollinearity test among explanatory variables

```
. collin lngdpc lnopen lnhc interact2 lnadm lnapi brimc lac ssa, corr
```

Collinearity Diagnostics

Variable	VIF	SQRT VIF	Tolerance	R- Squared
lngdpc	2.40	1.55	0.4164	0.5836
lnopen	1.70	1.31	0.5868	0.4132
lnhc	1.91	1.38	0.5230	0.4770
interact2	1.54	1.24	0.6500	0.3500
lnadm	2.36	1.54	0.4239	0.5761
lnapi	1.17	1.08	0.8562	0.1438
brimc	1.79	1.34	0.5581	0.4419
lac	2.93	1.71	0.3413	0.6587
ssa	2.83	1.68	0.3538	0.6462

Mean VIF 2.07

	Eigenval	Cond Index
1	3.1067	1.0000
2	1.4761	1.4508
3	1.3821	1.4993
4	0.9275	1.8302
5	0.7197	2.0777
6	0.5669	2.3411
7	0.4342	2.6748
8	0.2039	3.9031
9	0.1828	4.1224

Condition Number 4.1224  
Eigenvalues & Cond Index computed from deviation sscp (no intercept)  
Det(correlation matrix) 0.0388

```
. collin lnfdi lnopen lnhc interact5 fdlopen lnapi lngfcf lngc brimc lac ssa, corr
```

Collinearity Diagnostics

Variable	VIF	SQRT VIF	Tolerance	R- Squared
lnfdi	1.81	1.35	0.5521	0.4479
lnopen	2.07	1.44	0.4829	0.5171
lnhc	2.22	1.49	0.4501	0.5499
interact5	1.43	1.20	0.6973	0.3027
fdlopen	1.44	1.20	0.6961	0.3039
lnapi	1.17	1.08	0.8561	0.1439
lngfcf	1.40	1.18	0.7162	0.2838
lngc	1.41	1.19	0.7113	0.2887
brimc	1.84	1.36	0.5431	0.4569
lac	2.48	1.57	0.4036	0.5964
ssa	2.16	1.47	0.4623	0.5377

Mean VIF 1.77

	Eigenval	Cond Index
1	2.2994	1.0000
2	1.8450	1.1164
3	1.4522	1.2583
4	1.3234	1.3181
5	1.2248	1.3702
6	0.7771	1.7201
7	0.6741	1.8469
8	0.5501	2.0445
9	0.3577	2.5356
10	0.3201	2.6800
11	0.1760	3.6144

Condition Number 3.6144  
Eigenvalues & Cond Index computed from deviation sscp (no intercept)  
Det(correlation matrix) 0.0580

## Endogeneity test between FDI and Growth

```
. reg lnfdi lngdpc lnopen lnhc interact2 lnintlncpi
```

Source	SS	df	MS	Number of obs =	677
Model	770.397602	6	128.3996	F( 6, 670) =	69.62
Residual	1235.71954	670	1.84435752	Prob > F =	0.0000
Total	2006.11714	676	2.96762891	R-squared =	0.3840
				Adj R-squared =	0.3785
				Root MSE =	1.3581

lnfdi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lngdpc	.3642994	.0503951	7.23	0.000	.265348 .4632508
lnopen	1.134849	.0914927	12.40	0.000	.9552023 1.314496
lnhc	.5670427	.1764899	3.21	0.001	.2205029 .9135824
interact2	-1.979417	.2974408	-6.65	0.000	-2.563446 -1.395389
lnintlncpi	.1191521	.0288632	4.13	0.000	.062479 .1758252
lnncpi	-.0569377	.0440738	-1.29	0.197	-.143477 .0296016
_cons	-10.78372	.6633568	-16.26	0.000	-12.08623 -9.481212

```
. predict fdi_res, res
(163 missing values generated)
```

```
. reg lngdpc lnfdi lnopen lnhc interact5 fdiopen lnncpi lngfcf lngc fdi_res
```

Source	SS	df	MS	Number of obs =	637
Model	789.621157	9	87.7356841	F( 9, 627) =	223.29
Residual	246.363587	627	.392924381	Prob > F =	0.0000
Total	1035.98474	636	1.62890683	R-squared =	0.7622
				Adj R-squared =	0.7588
				Root MSE =	.62684

lngdpc	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnfdi	1.578348	.0454746	34.71	0.000	1.489047 1.667649
lnopen	-1.32912	.0585668	-22.69	0.000	-1.444131 -1.21411
lnhc	-.8016398	.1104824	-7.26	0.000	-1.0186 -.5846796
interact5	-.0763743	.0363594	-2.10	0.036	-.1477752 -.0049733
fdiopen	.2361347	.0270534	8.73	0.000	.1830084 .289261
lnncpi	.0827279	.0217287	3.81	0.000	.0400581 .1253977
lngfcf	-.1228818	.0808938	-1.52	0.129	-.2817374 .0359738
lngc	-.150344	.0663307	-2.27	0.024	-.2806012 -.0200868
fdi_res	-1.508594	.0482591	-31.26	0.000	-1.603363 -1.413825
_cons	16.15936	.6379643	25.33	0.000	14.90655 17.41216

```
. test fdi_res
```

```
( 1) fdi_res = 0
```

```
F( 1, 627) = 977.20
Prob > F = 0.0000
```

The small F statistics of residual test indicates that OLS is not consistent.

## **6 The link between Foreign Direct Investment, Financial Development and Economic Growth: A Panel Co-Integration approach**

### **Abstract**

The purpose of this chapter is to investigate whether foreign direct investment (FDI) can stimulate financial development or not. Despite the positive impact of finance on growth, many developing countries still have poor developed financial sector. Although the role of FDI and financial development on economic growth has been studied extensively, no research has examined the combined effect of foreign investment on financial development up to now. Therefore, this chapter investigates the causal relationship between FDI and financial development using annual data for a panel of sixty developing countries consisting of twelve from Asia, eleven from Latin America and Caribbean and thirty-seven from the SSA region during the period of 1980 to 2007. The empirical estimations also include the fastest growing emerging economies, denoted as BRIMCs. Using panel co-integration approach, the chapter finds that foreign direct investment; financial development and economic growth are co-integrated, indicating the continuation of long run equilibrium relationship between them. The findings clearly indicate that there is strong evidence of a long-run relationship for all regions as a group, and in each of the four regions individually. The findings from causality tests provide little support for the hypothesis that the inflows of FDI can contribute to the development of the domestic banking sector in developing countries.

### **6.1 Introduction**

The increasing role of foreign direct investment (hereafter, FDI) to economic growth has created much research interest among the development economists. Many authors argue that FDI plays a very important role in supplying investment resources in modern conditions of the global economy (Abrazi, Zarei and Esfahni, 2011). FDI is usually recognised as a growth enhancing factor in the host country and it is especially noticeable in developing countries. FDI is very useful for developing countries because it could fill the technological gap, savings-investment gap and tax-revenue gap (for

example, Mankiw et al., 1992; Feenstra and Hanson, 1997 and Zhang, 2001a and b). Furthermore, the literature has advanced on the explanation of the links between FDI and financial development, in developing and developed countries. Whilst empirical studies suggests that FDI can positively affect economic growth indirectly via technology transfer and spillover efficiency (Blomstrom et al., 1994; Kokko, 1994; Kokko and Blomstrom, 1995, Johnson, 2005 and Hussein, 2009) on the one hand, other studies show that the consequence of FDI on economic growth depends on the absorptive capability of the host country, which includes initial development, openness, level of human capital development and financial development (Blomstrom et al., 1992; Balasubramanyam et al., 1996; Borensztein et al., 1998; Hermes and Lensink, 2003; Alfaro et al., 2004 and Adeniyi, 2008). The most important is financial development. It is generally believed that the development of the financial system of the recipient country is an important pre-condition for FDI to have a positive impact on economic growth. For instance, Hermes and Lensink, (2003) suggests that well developed financial systems are important in influencing the positive impact of FDI on economic growth. According to the authors, well-functioning financial markets are important because they promote capital formation, technological innovation and economic development. Alfaro et al. (2004) also come to a similar conclusion that countries with well-developed financial markets tend to be more developed in terms of their growth rate. Specifically, the authors note that a one percent increase in FDI leads to four times more growth. Moreover, the financial system enhances the efficient allocation of resources and improves the absorptive capacity of a country with respect to FDI inflows. In particular, a more developed system may contribute to the process of technological diffusion associated with FDI (Levine, 1997; Levine, 1991; Greenwood and Jovanovic, 1990).

While the literature amply covers the linkage between FDI and economic growth in both developed and developing countries, the specific strand that demonstrates a role for financial development in the FDI-growth nexus is at best rudimentary. Furthermore, most of these typically scant empirical literature attempts were conducted either purely for developed countries or with samples of countries that include a few from Africa. Although a lot of attention has been devoted to the impact of FDI on a host country's economic growth, the role of financial markets in the FDI-growth nexus and their long-relationship, as well as causality, has received little or no attention, especially in

developing countries, and in particular, those in Sub-Saharan Africa (SSA). The studies by Adeniyi (2008) and Lee and Chang (2009) are an exception. Adeniyi (2008) examined the relationship among FDI, economic growth and financial development in five small open developing countries from the SSA region, during the 1970-2005 period, using a vector error correction framework. The author reports that the development of domestic financial markets is a prerequisite for a positive impact of FDI on growth. Lee and Chang (2009) analysed the complementary impact for 37 developed and developing countries using a multivariate framework in a panel co-integration and panel error correction test. The study reports a long-run relationship and bi-directional causal linkage among FDI, financial development and economic growth. Hence, this chapter hopes to add to the literature by examining the long-run and causality between FDI, financial development and economic growth in the developing ASIA, LAC, and SSA regions. I also include the fastest growing emerging economies of the BRIMCs, a group of countries that have seen some of most rapid economic growth over the last decade.

The objective of this chapter is to examine the long-run between economic growth, FDI and financial development. The empirical analysis based on a sample of 60 developing countries for a twenty-eight year period (1980 to 2007), reports the following results: a panel data co-integration analysis confirms a long-term relationship between FDI, economic growth and financial development for the whole sample; ASIA, LAC, and SSA countries.

The remainder of this chapter is organised as follows: the next section begins with the trends of FDI flows, financial development, and recent economic growth in developing countries in the past two decades, as well as comparing the individual circumstances in the three main geographical regions (ASIA, LAC and SSA). Section 6.3 briefly discusses the relevant empirical literature. Section 6.4 discusses the data used and econometric technique employed in the study. In Section 6.5, the results and discussions from estimating the relationship between FDI, financial development and economic growth are presented. Section 6.6 presents results on the sub-sample and 6.7 conclude the chapter.

## **6.2 Stylised facts on FDI, financial development and economic growth: brief descriptive analysis**

The past two decades have witnessed a remarkable increase in foreign capital flow especially to developing countries, of which FDI has played a significant role. In 1980, the world FDI outflow represented approximately 5 percent of the world gross domestic product. The percentage almost tripled to 14 percent by the end of the 1990s (UNCTAD, 2000). By 2000, the absolute amount of FDI was to the tune of over US \$1.3 trillion.<sup>114</sup> In 2005, total FDI inflows to both developed and developing countries amounted to US \$619 billion and US \$332 billion, respectively. Total FDI flow in the whole world reached a record US \$1970 billion in 2007, of which only 29.07 percent went to developing countries and the rest went to the developed countries (UNCTAD, 2010). It was noted that developing countries' share in FDI has been declining since 1990-94. The last column in Table 6-1 highlights that during 1990-94, the overall share of developing countries FDI was approximately 30 percent, which has reduced to 29 percent in 2007. In absolute terms, however, FDI inflows to developing countries have witnessed a significant increase.

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<sup>114</sup> UNCTAD, *World Investment Report 2006*.



**Table 6-1: Global foreign direct investment inflows (in billions of US \$) during 1980-2007**

Years	World	Developed countries	Developed countries' share of FDI to the world in %	Developing countries	Developing countries' share FDI to the world in %
1980-84	57.76	39.14	67.76	18.62	32.23
1985-89	128.04	105.45	82.36	22.58	17.64
1990-94	201.35	138.34	68.71	61.58	30.58
1995-99	602.90	420.96	69.82	174.54	28.95
2000-04	834.18	593.56	71.15	224.97	26.97
2005	982.59	619.17	63.01	332.31	33.82
2006	1461.86	977.89	66.89	429.46	29.38
2007	1970.94	1306.82	66.30	573.03	29.07

Source: Author's calculations from UNCTADstat online database (2010).

Table 6-2 below shows that the share of FDI inflow, as a percentage of GDP, in developed countries is insignificant compared to developing countries, which is significant, but not visible in levels. The low level of FDI, in absolute terms, received in developing countries might be reflective of the small size of many of the countries.

**Table 6-2: Comparative inward FDI (percent of GDP) during 1980-2007**

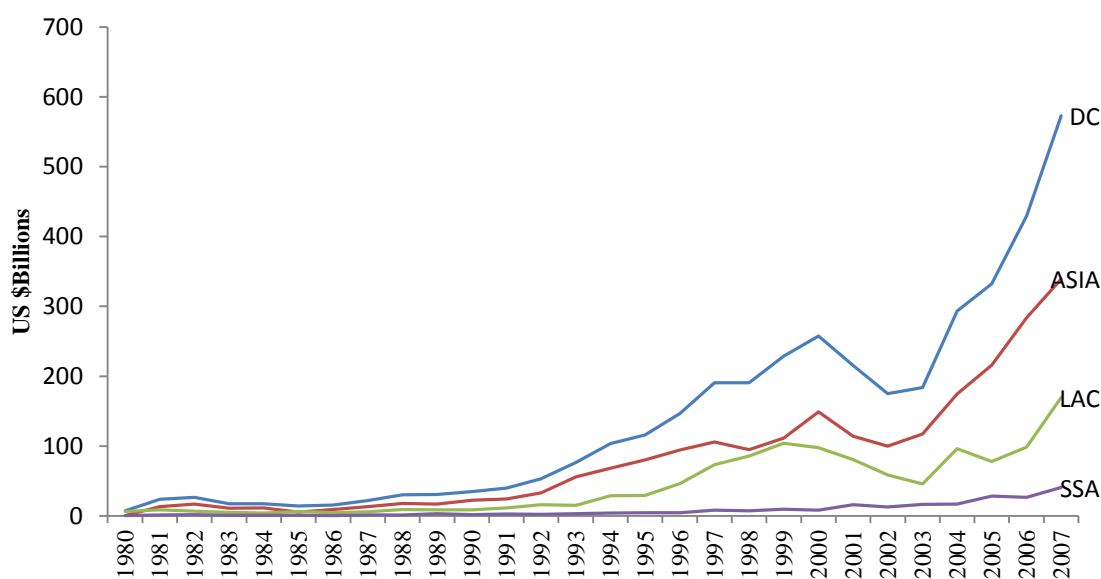
Year	World	Developed countries	Developing countries
1980-84	0.52	0.47	0.71
1985-89	0.76	0.77	0.76
1990-94	0.82	0.72	1.33
1995-99	1.97	1.77	2.73
2000-04	2.42	2.26	2.97
2005	2.15	1.83	3.08
2006	2.95	2.75	3.42
2007	3.54	3.35	3.85

Source: Author's calculations from UNCTADstat online database (2010).

## Regional inflow of FDI

Although, FDI flows into various regions have grown significantly in the past two decades, there are regional disparities (see Figure 6-1). On a regional scale, the share of FDI inflow to African countries, particularly those in the SSA region, is less compared to other regions.<sup>115</sup> Despite the increase in FDI flow to SSA, this is still less than 7 percent of the FDI flow to developing countries and 2 percent of global FDI inflows. Udo and Obiora (2006) note that the SSA countries seem to be unattractive to foreign investors because they consider the potential cost of investing before making an investment decision. Foreign investors find that overdependence of many countries on primary commodities, macroeconomic and political instability<sup>116</sup> and most importantly, the lack of a well-functioning financial system, make Africa a ‘high risk investment’ destination (Morrissey, 2003; Alfaro et al., 2004 and 2006; Dupasquier and Osakwe, 2005 and Udo and Obiora, 2006).

Figure 6.1: Trend in FDI inflows, 1980-2007



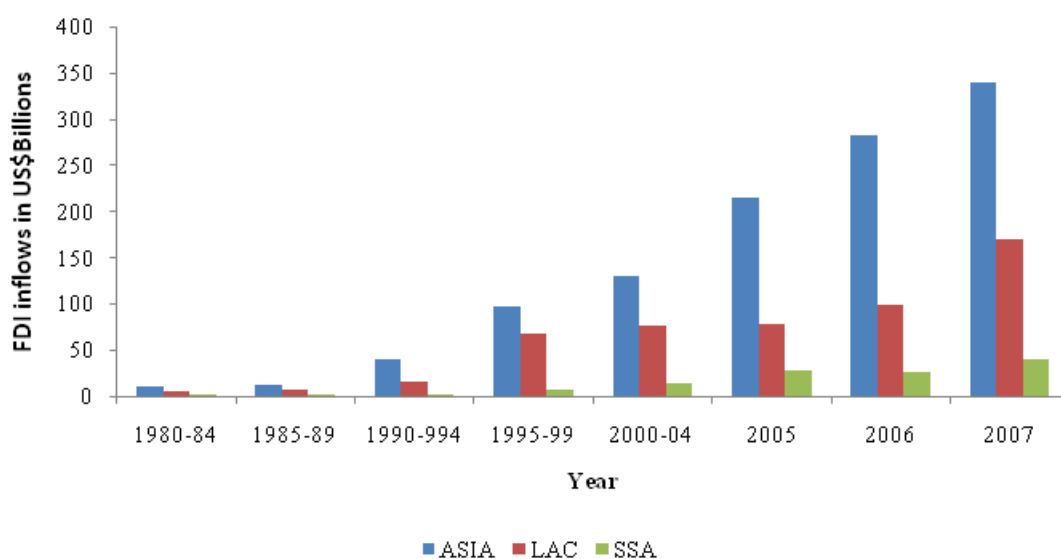
Source: UNCTADstat online database (2010).

<sup>115</sup> As of 2007, the total FDI inflow to developing economies reached \$499 billion, of which the share to Asia and Latin America was \$361 and \$103 billion dollars, respectively, and SSA received approximately \$33 billion. See the United Nations Conference on Trade and Development <[www.unctad.org/fdistatistics](http://www.unctad.org/fdistatistics)> for more information.

<sup>116</sup> According to Rodrik (1998), this discouraged FDI flow and, hence, led to the slow growth and the poor standard of living observed in the region.

Unlike the SSA region, Asian and Latin American countries received fairly the same amount of FDI between 1980 and 2007 (Figure 6-2 and 6-3). This share has been roughly constant until the early 2000s when Asian countries became the preferred destination for FDI flows. As of 2005, it became clear that foreign investors favoured Asian countries, with China becoming the favourite destination for FDI. The figure suggests that African countries, and in particular the SSA region, have been less favoured by foreign investors. In fact, during the entire sample period, FDI captures the smallest share in SSA, compared to Asian and Latin American countries.

**Figure 6.2: FDI inflows by region, 1980-2007**

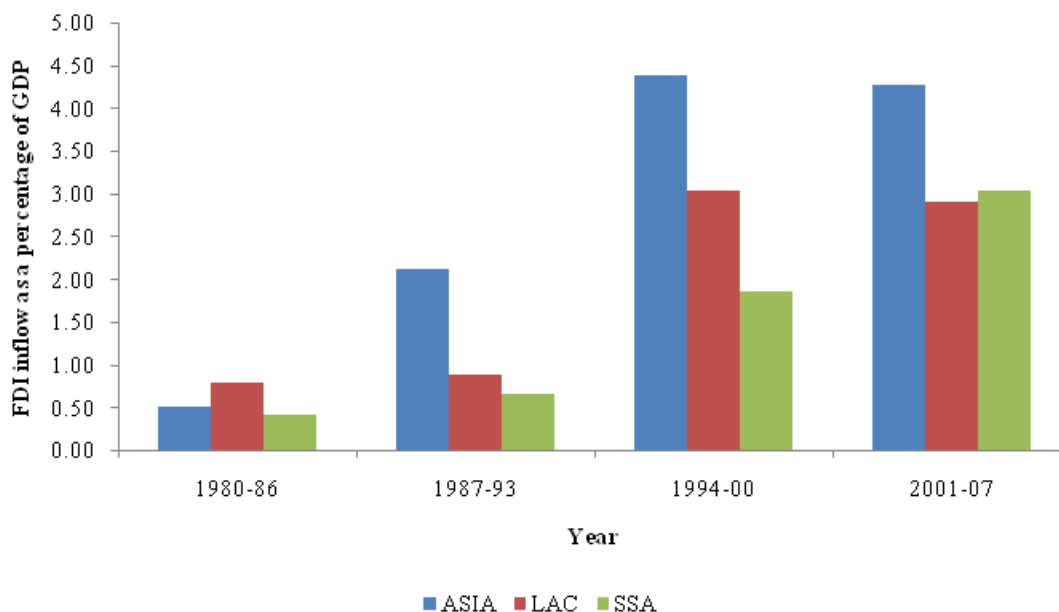


Source: UNCTADstat online database (2010)

Surprisingly, the inflow of FDI as a share of regional GDP depicts a different picture (Figure 6-3, below). I noticed that the average volume of FDI inflow to all the developing regions exhibit a similar pattern during the sample period. In the period 2001-2007, FDI flow to Latin American countries grew an average of approximately 3 percent, in comparison to other developing regions. While FDI inflow increased rapidly in Asia and Latin American countries between 1980 and 2000, SSA's share of FDI was rather small (Figure 6-3). Nevertheless, between 2001 and 2007, the average share of FDI in GDP grew dramatically in SSA countries, reaching approximately 3 percent of the total GDP. Jenkins and Thomas (2002) attribute these inflows to a small number of large transactions, which tends to occur in countries where natural resources are unexploited.

According to the World Bank (1999), Asia experienced the fastest rate of growth in FDI inflows, but also the greatest volatility. The continued increase in FDI to Asia and other developing regions, aside from SSA, largely reflects on their strong economic prospects, openness and their high volume of human capital accumulation (which was confirmed in the previous chapter), as a result of improvements in policies and regulatory environment, which is attractive to foreign investors.

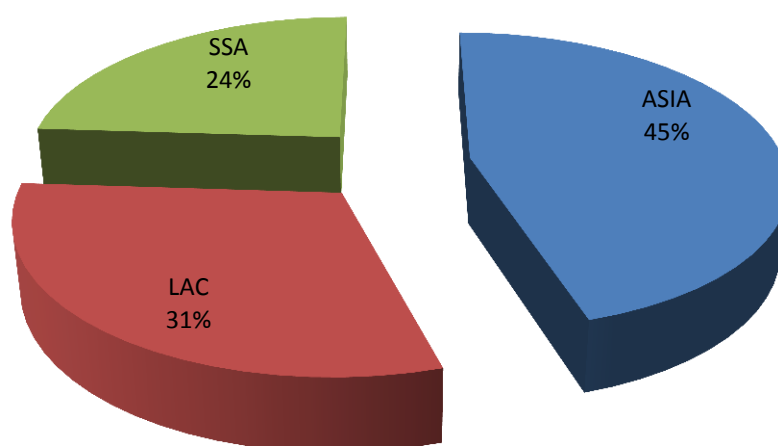
**Figure 6.3: Inflow of FDI in developing regions, 1980-2007**



Source: UNCTADstat online database (2010).

Figure 6-4 depicts the fact that the SSA countries are lagging behind in attracting FDI compared to other developing countries. It indicates that during the entire sample period, only approximately 24 percent of the total inflow of FDI to developing countries reached the SSA countries. Since the beginning of 2000, Nigeria remains the top destination of FDI to SSA, accounting for 16 percent of the region's stock (Adams, 2009 and World Investment Report, 2009).

**Figure 6.4: Regional distribution of FDI inflows to developing countries (1980-2007)**



Source: UNCTADstat online database (2010).

### ***Trends in financial development in developing countries***

According to the literature, the development of the financial sector of the host country is important for the absorptive capacity of the country in its ability to benefit from FDI spillovers. Therefore, I examine the extent to which the financial system is developed in our sample. Table 6-3 illustrates the key indicators of the banks in the sample countries, measured by credit to the private sector and credit provided by the banking sector. A trend analysis of financial development reveals that the performance of banking sectors in developing countries has been impressive in the recent past. Table 6-3 indicates that the experiences of developing countries, with regard to financial development, are varied. It can be observed that credit to the private sector as a percentage of GDP, over the period 1980-84, ranged from 33.8 to 66.1 in LAC and Asia, respectively. While total domestic credit, provided by the banking sector, for Asia significantly increased from a five year average of 90.2 percent in 1980-84 to 174.3 percent in 2007, the same indicator grew only marginally in LAC from 48.6 in 1980-84 to 58.4 percent in 2007.

Following multitudes of banking crises in Latin American countries in the 1990s, private credit and bank credit declined considerably. During this period (1990-2000), the annual percent growth rate of private credit, as a share of GDP, was negative (-0.01 percent). The sharp decline in credit or the scarcity of private credit seems to account for the decline in the level of GDP during the same period (Figure 6-5). For instance,

after the 1994 crisis, bank credit to the private sector in Mexico halved, from over 30 percent of GDP to less than 15 percent in the three subsequent years.

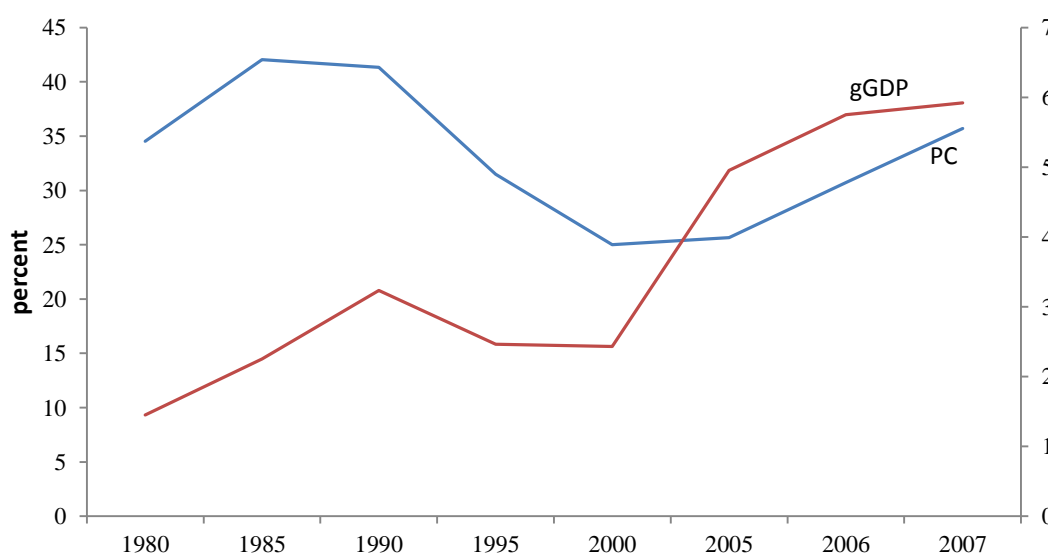
In the SSA region, private credit and bank credit shows a significant increase during the period under study. Misati and Nyamongo (2011) attributed the increase to reforms in the financial sector. Contrary to the observations in Table 6-3, financial development in SSA varies considerably between the economies. For example, the financial systems in the larger economies tend to register impressive growths, while those in struggling countries, for example, Zimbabwe, register poor performance after financial development.

**Table 6-3: Trends in financial development in sample countries, 1980-2007**

Region/group	Credit to private sector							
	1980	1985	1990	1995	2000	2005	2006	2007
ASIA	66.09	87.13	101.71	120.21	133.31	137.76	138.00	139.35
LAC	34.52	42.03	41.34	31.48	25.01	25.67	30.71	35.72
SSA	33.84	39.66	44.19	59.65	56.79	62.39	65.06	67.22
Credit provided by banking sector								
ASIA	90.18	116.70	128.91	147.47	175.43	176.31	176.04	174.32
LAC	48.66	72.47	62.23	47.06	47.85	48.35	54.00	58.39
SSA	50.97	56.72	57.45	72.80	74.68	79.40	77.17	77.90

Source: World Banks, World Development Indicators, (2010).

**Figure 6.5: Trends of private credit and annual growth of GDP in Latin America, (1980-2007)**



Source: World Banks, World Development Indicators, (2010).

### *Trends in economic growth in developing countries*

The African region, as well as the Sub-Saharan sub-region, has been one of the least developed regions of the world, with most SSA countries still heavily dependent on primary commodities. Nevertheless, relative to the 1980s and 1990s, there has been an improvement in economic growth in the region. For example, over the twenty year period 1980-99, the average real per capita GDP growth was negative (-0.7 percent). The growth performance indicators also reveal that, during the period 1990-94, the region was as poor as it was in the 1980s. Since 2000, the region has had positive real per capita GDP growth, reaching a peak of 3.7 percent in 2007. The poor economic performance of SSA countries, in the 1980s, was attributed to failure in domestic policies, such as constraints on business environment, and lack of openness to trade and good governance, which makes international trade and investment very costly (Collier and Gunning, 1999). Similarly, Latin America, in the 1980s, was also characterised by a negative per capita growth, with an annual average growth of approximately -0.2 percent during the period 1980-1989. The most remarkable success stories are in developing Asia, where real per capita GDP growth doubled between 1980 and 2007.

Investment is an essential element of economic growth in developing countries. The share of investment in GDP was highest in Asian developing countries and lowest in LAC and SSA developing countries (Table 6-4). In 1980-84, the average ratio of gross fixed capital formation to GDP in Asia was 47.01 percent, compared to 20 and 22 percent in LAC and SSA, respectively. In the six months after the beginning of the new millennium, the ratio of investment to GDP in the LAC and SSA countries deteriorated significantly, reaching a record low of 17.65 and 16.79 percent, respectively. While investment deteriorated in the LAC and SSA countries, it soared in Asia from 47 to 56 percent.

Asian growth performance has been encouraging. The World Bank (2010) indicates that Asian countries had registered a six-fold increase in their GDP, from an average of \$666 billion in 1980-84 to over \$4200 billion in 2007. There are signs that openness to trade welcomed private investment and macroeconomic stability (IMF, 1997). Compared to Asia, SSA's growth performance in the mid-1990s was particularly encouraging because real GDP increased by approximately 5 percent, despite the poor growth in the 1970s. The literature points to the implementation of stronger macroeconomic and

structural policies and improvements in governance as factors that have contributed to this growth. In the case of developing Latin American countries, real GDP increased by approximately 0.02 percent during the sample period. Despite this slow growth rate, real GDP in LAC seems to be significantly higher than SSA.

**Table 6-4: Trends in economic growth in developing countries, 1980-2007**

Region	Investment							
	1980-84	1985-89	1990-94	1995-99	2000-04	2005	2006	2007
ASIA	47.01	48.78	52.99	54.48	55.93	63.64	65.02	65.04
LAC	20.64	19.79	19.04	18.78	17.65	18.63	19.55	20.42
SSA	22.16	18.10	16.97	17.17	16.79	18.13	18.82	20.24
GDP (constant US \$, billions)								
ASIA	666.59	940.14	1337.88	1964.60	2685.65	3414.27	3768.54	4202.48
LAC	1320.00	1448.47	1619.97	1891.41	2097.58	2334.60	2468.87	2615.04
SSA	232.62	253.78	274.82	312.16	369.42	426.87	453.84	482.50
GDP growth								
ASIA	12.86	13.67	14.15	12.91	13.64	18.51	19.58	21.31
LAC	1.45	2.25	3.23	2.46	2.43	4.95	5.75	5.92
SSA	1.67	2.64	0.65	3.42	4.12	5.69	6.32	6.32

Source: World Bank's World Development Indicator, (2010).

### 6.3 Review of pertinent literature

There have been considerable studies on the effect of either FDI or financial development on economic growth in developing countries. Many argue that FDI has played an increasingly important role in the overall capital flow to developing countries. This is partly due to the fact that portfolio investment and cross border bank lending, which were both important sources of capital, declined significantly in the 1990s (Hirano, 2003). Due to the fact that many developing countries do not have sufficient resources to finance their investment needs, the majority of them depend on foreign capital from either official or private capital sources. Developing countries, especially in the SSA region, depend on official development assistance (ODA) and foreign aids, in order to finance their investments. For most of these countries, investment declined systematically (Oshikoya, 1994) and in general, growth rates of real GDP per capita also declined. However, the increasing importance of FDI is notable in Asian countries, and in particular, India and China (Vadlamannati et al., 2009; Wang, 2009; Pradhan, 2006). Compared to the different forms of foreign capital flows, FDI provides a relatively less volatile, and potentially plentiful, source of capital (Bandyopadhyay,



2006), because the other types of foreign capital flows are susceptible to reversals (Becker and Noone, 2008). In the mid-1990s, portfolio investment in emerging countries reached its peak, but declined sharply after a series of crises in Korea, Brazil, Argentina, Mexico and Russia. The enthusiasm for this form of investment did not last because these crises prompted investors to re-evaluate the risk involved in investing in emerging markets, and as such, this led to a quick reversal of these inflows. According to Noorbakhsh et al. (2001), cited in Bandyopadhyay (2004 and 2006), FDI serves to balance loan and equity capital in private investment, without the heavy drag of debt service. Hence, Bandyopadhyay (2004 and 2006) concludes that FDI seems to perform better following a debt crisis.

Many developing countries have viewed foreign direct investment (FDI) as a potential source of capital.<sup>117</sup> It benefits recipient countries by improving financial deficit, providing technological knowledge, creating jobs and developing managerial skills (de Mello, 1997; Romer, 1993 and Balasubramanyam, 2001 and Campos and Kinoshita, 2002). In addition, FDI has the potential to transfer foreign skills and technology and contribute to long-term economic development. Thus, many developing countries have written policies and relaxed trade restrictions to favour the inflow of FDI, since the early 1980s. Many of these countries were successful in attracting a considerable amount of FDI (as shown above). Unfortunately, not all developing countries have been able to attract a significant amount of FDI, or reap from the benefits. For instance, Africa, and in particular, the SSA countries, still lag behind other developing regions, in terms of reaping the benefits of FDI. Unsurprisingly, the reasons for these uneven flows of FDI to developing regions include the prevalence of weak policies (repressive tax regimes, foreign exchange controls, etc) that exist in many of these countries.

The different channels through which FDI promote the economic host country's economic growth have been discussed, (Borensztein et al., 1998; Bosworth and Collins, 1999 and Dhakal et al., 2007). However, the major concern is that there is a need to better understand the channels through which FDI promotes economic growth positively (Lemi and Asefa, 2003). Grima (2003) argues that FDI positively promotes economic growth based on the existence of an adequate absorptive capacity in the host country.

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<sup>117</sup> Capital is scarce in many developing countries because of the low levels of domestic savings, and as such, FDI is a vital source of capital. For an overview of the literature, see Smith (1997) and Pradhan (2008).

The absorptive capacity of an economy includes; the stock of human capital, financial development and the extent of the technology gap between foreign and local firms. The literature highlighted financial development as the single most important factor between these capacities.

The pioneering work of Bagehot (1873) and Schumpeter (1911) emphasised the role of the financial market in the economy. Schumpeter (1911) argued that financial intermediaries are important in economic growth, in that well-functioning banks spur technological innovation. Shaw (1973) presented a similar idea, emphasising the role of financial intermediation in enhancing investment, and consequently, boosting economic growth rates. In this line of thinking, later studies acknowledged that financial development stimulates economic growth by improving resource allocation (King and Levine, 1993a and Rousseau and Wachtel, 2000). This implies that a good financial system allocates capital to projects that yield high returns by lowering transaction costs.

The intuition, which appears fairly clear, is that the efficiency of the financial system in reallocating resources to the most productive areas of the economy (industries, firms and projects) is often considered an important driving force to technological change, innovation and growth (Loof, 2004). Therefore, an economy with a more developed financial system may contribute to the process of technological diffusion associated with FDI, by collecting and analysing information from firms and markets. Using the cost of innovation as a function of FDI, Hermes and Lensink (2003) argued that a fall in costs leads to an increase in FDI inflows. According to this study, financial development increases the speed of innovation and technology spillovers from FDI. The study concludes that financial development is a precondition for FDI to have a positive impact on growth. Alfaro et al. (2004) and Shahbaz and Rahman (2010) have provided empirical evidence to support this proposition.

Finally, there is substantial research efforts geared towards investigating the role of financial development in FDI-economic growth nexus. Hermes and Lensink (2003) seem to have pioneered the notion that well developed financial systems are important for the positive impact of FDI to register on growth. In a study of 67 developing countries, the authors argued that the financial system efficiently allocates resources and this improves the absorptive capacity of a host economy, with respect to inflows of FDI.

Omran and Bolbol (2003) empirically examine the complementary impact by focusing on Arab countries. Saibu (2011) examined the complementary effect between FDI and stock market development on growth in Nigeria. Their results showed that the effect was negative and significant.

### **6.3.1 Relationship between FDI and economic growth: Empirical literature**

Several empirical studies tried to confirm the relationship between FDI and its impact on economic growth in developing countries (Balasubramanyam et al., 1996; Ayanwale, 2007; Adams, 2009 and Zhang, 2009). Most of these studies suggest a positive and significant relationship between FDI and growth (see for instance Balasubramanyam et al., 1996 and Borensztein et al., 1995 and 1998), while several others found no significant impact (Akinlo, 2004). Until recently, this has been a subject of disagreement among economists. Recently, however, research has questioned the empirical results, pointing to the type of econometric method used and the countries considered.

Using a cross-sectional Ordinary Least Squares (OLS) analysis and dynamic panel data procedure, Carkovic and Levine (2002) estimate the effect of FDI on economic growth in 72 countries during the period 1960 to 1995. Their results were two-fold: (1) controlling for inflation and government size, they found FDI had a positive impact on economic growth, and (2) controlling for trade and financial development, they also found that FDI had a negative impact on growth. According to their findings, the authors concluded that local conditions limit a country's capacity to benefit from FDI. They also found that, in the long-term, there was no robust link between FDI and economic growth. Sharma and Abekah (2008) found that FDI had a positive impact on economic growth in Africa using the OLS method. However, one of the problems associated with the technique used by Carkovic and Levine (2002) and Sharma and Abekah (2008) is that OLS assumes that each country's intercept value is identical, and it does not control for country-specific characteristics. Therefore, one needs to be cautious when interpreting these results.

There are several papers undertaken on individual country study to establish the direction of causality from FDI to economic growth. The result of these studies have shown varied conclusions, some indicating that FDI causes economic growth, others showing the reverse relationship, and in some cases, no relationship at all was found.

Zhang (1999) found evidence of a two-way Granger causality in the relationship between FDI and China's economic growth.

Chakraborty and Nunnenkamp (2008) examined the impact of FDI and economic growth in India. They tested for the long-run and short-run relationship between FDI and growth using a panel co-integration framework. They found that FDI stock and output are co-integrated in the long-run for the overall sector of the Indian economy. They also tested for Granger causality in the long-run using an error correction model. Their results show that there is a strong bi-directional causality between FDI stock and output in the short-run. However, they did not find a causal link between FDI stock and output in the long-run. Anwar and Nguyen (2010) found a bi-directional link between FDI and economic growth in a panel of 61 provinces in Vietnam during the period 1996-2005. According to the authors, investment in education and financial development increased the impact of FDI on economic growth.

For studies of a group of countries or regions, Zhang (2001) using an error correction model for 11 countries from South East Asia and Latin America found evidence of a strong long-run relationship and causal linkage between FDI and growth. In this study, the author found no co-integration between FDI and growth in six countries and found that only one country exhibited Granger causality, which runs from FDI to growth. Zhang (2001) found that the Granger causality test showed that there is a strong causal relationship between FDI and economic growth using data from 11 countries from Latin America and Asia. In an endogenous growth framework, Al-Iriani and Al-Shami (2007) examined the relationship between FDI and growth in the six countries comprising the Gulf Cooperation Council (GCC) using both heterogeneous panel analysis and GMM estimation technique. Their results indicate a bi-directional causality from FDI to economic growth, and vice-versa. Samad (2009), taking a slightly different route, used co-integration technique, Granger causality test and error correction model (ECM) to examine the direction of causality between FDI and economic growth in 19 developing countries from South East Asia and Latin America. Their results show that six countries (five from Latin America and one from South East Asia) have unidirectional causality running from GDP to FDI. Seven of the countries, five of which are from South East Asia exhibit a bi-directional short-run causal link between GDP and FDI. Their results

also show that only Sri-Lanka exhibits a long-run causal relationship with causality running from GDP to FDI.

In sum, the main conclusion from the above literature survey is that there seems to be a strong relationship between FDI and economic growth. Although the relationship is highly heterogeneous across countries, there is a consensus that FDI on average has an impact on growth, in the Granger causal sense.

### **6.3.2 Previous empirical studies on FDI, financial development and economic growth literature in developing countries**

Hermes and Lensink (2003) proposed the notion that countries with well-developed financial systems tend to promote the growth enhancing attributes of FDI. This study demonstrates that the benefits of FDI are strongly dependent on how well developed a host country's financial system is. Alfaro et al. (2004) tests the validity of this claim in an endogenous growth framework, using both banking and stock market indicators. The authors conclude that countries with well-developed financial systems tend to gain significantly from FDI.

To capture the complementary link between FDI and financial development on economic growth, Alfaro et al. (2006) proposed a theoretical model where financial development promotes the growth enhancing attributes of FDI in host economies via backward linkages. The authors note three main ways in which domestic financial development enhances an economy's capacity to gain from FDI. Specifically, a developed domestic financial system; (1) eases credit constraints allowing entrepreneurs to start their own firms, thus, (2) increasing positive spillovers to the final goods sector, and (3) facilitating FDI in creating backward linkages.

In a more recent study, Azman-Saini et al. (2010), using 91 countries, examined whether financial development is a precondition for FDI to positively impact on economic growth, using a threshold regression model on data from the period 1975-2005. The results suggested that there is a minimum threshold level of financial development required for the positive effect of FDI on growth. The authors conclude that policy framework that includes financial development and attracting FDI should go hand in hand.

Although the above literature suggests the relationship between financial development and FDI is complementary, several others posit that no such linkage exists. For example, Carkovic and Levine (2002 and 2005) found that financial development was not significant in promoting the growth enhancing effect of FDI.

The literature shows that the positive impact of FDI on economic growth also depends on the type of financial indicator used. Using Johansen maximum likelihood approach and vector error correction model (VECM), Adeniyi (2008) analysed the complementary impact of FDI and financial development on economic growth in five ECOWAS countries (Cote d'Ivoire, Gambia, Ghana, Nigeria and Sierra Leone). The study showed that FDI would only have a positive effect on economic growth depending on the financial indicator used, and the extent of development of the financial system. Saibu et al. (2011) also report a similar finding for Nigeria. In particular, the authors find that FDI was significant using stock market indicators. They also found that liquidity in the financial market is important in the economic growth process in Nigeria.

Considering the importance of financial development and FDI for economic growth, and its implication for policy formulation, several empirical studies have attempted to examine the existence and direction of causality between FDI, financial development and economic growth. For example, Kholdy and Sohrabian (2005) used panel data consisting of 25 countries, over the period 1975 to 2002, to study the link between financial markets, FDI and economic growth. They used a Granger causality model and found that there is a bi-directional causality between financial markets and economic growth. They also found that countries with low GDP per capita stimulate financial development. However, the direction of causality reverses in countries with higher GDP per capita. Their result also shows that countries with more developed financial markets exhibit a bi-directional causality between the financial market and FDI.

In sum, the review of the selected literature shows that finance, through its interaction with FDI in the long-run promotes economic growth, although the mixed results suggest the need for further research. This study, therefore, will re-examine the relationship between economic growth, FDI and financial development in sixty developing countries, in the three main geographical regions (ASIA, LAC and SSA) and a group of fast growing emerging countries referred to as BRIMCs.

## 6.4 Empirical Model, Data and econometric technique

In this section, I discuss the measures adopted for FDI, financial development and economic growth. I also provide details of the econometric technique employed in the econometric analysis.

### 6.4.1 Data

In this chapter, I use a panel of sixty developing countries,<sup>118</sup> from 1980 to 2007, to analyse the dynamic relationship between FDI, financial development and economic growth. In keeping with standard practice, I use growth of real GDP per capita to proxy economic growth while the share of FDI in GDP is used as a proxy for FDI inflows.

#### *Measures of financial development*

In the case of financial development, this is conventionally viewed as a process of improvement in the quality, quantity and efficiency of financial services (Calderon and Liu, 2002 and Adeniyi, 2008). As such, it is often difficult to choose an appropriate measure of financial development, because of the various services provided by financial systems. Thus, the standard practice in the literature is to use a number of variables as proxies for financial development. Due to underdeveloped financial markets in many of the developing countries in this study, particularly in countries belonging to the SSA region, and the lack of consistent and up-to-date stock market data, this chapter employs measures only relating to the banking sector.

To capture the variety of channels through which finance can affect growth, I use three variables to proxy financial development. Following other studies, (King and Levine, (1993a; b); Adeniyi, 2008 and Bangake and Eggoh, 2011), the financial development indicators include; domestic credit provided by the banking sector as a ratio of GDP, the ratio of deposit money bank assets to GDP and domestic credit to the private sector credit as a ratio of GDP. The ratio of bank credit to GDP includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. Deposit money bank assets to GDP refer to the claims on domestic real non-financial sector by deposit money banks as a share of GDP. It indicates the general size of the bank sector with respect to the economy of the country (Lakstutiene, 2008).

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<sup>118</sup> These countries are classified under Asia, LAC and SSA according to the World Bank geographical region classification and a list of countries is provided in the Appendix. We also include a group of countries referred to as BRIMCs, to represent the fastest growing emerging economies as indicated by Jim O'Neil, (2003).

Private sector credit to GDP ratio assesses the extent of the involvement of the deposit money banks in extending credit to the private sector. It excludes the public sector and, therefore, reflects more efficient resource allocation in the economy because the private sector is able to utilise funds in a more efficient and productive manner, as compared to the public sector.

The data were converted into natural logarithms for statistical purposes.<sup>119</sup> All data were sourced from the financial structure database provided by Beck et al. (2010), the World Bank's *World Development Indicators* (2010) compiled by Economic and Social Data Services, (2010) and Penn World Table, PWT version 6.3 and 7.0 provided by the QoG database (2010) and Hestons, Summers and Aten, (2011). Country list is presented in the appendix.

The aim of this chapter is to investigate empirically the relationships between FDI, financial development and economic growth in the short and long run and to examine whether the development of the financial sector is a precondition for FDI to benefit economic growth. To gain the aim of this chapter, a dynamic model is used which consist of three equations using three endogenous variables FDI, FD and GDP. In this chapter, I employ the Panel data co-integration techniques using data from Asia, Africa and Latin American countries for the period 1980 to 2007. The rationale for using panel data co-integration technique is that it can reflect the lagged changes, first difference and the differences in the level of variables which enables the short-run and long-run effects and the feedback that might exists between the variables that have been ignored in previous empirical studies.

This chapter attempts to find an answer to the question: how does foreign direct investment affect economic growth in the host country via financial development.

#### **6.4.2 Econometric technique**

Using an aggregate production framework in which the level of financial development enters as an 'input' in the production function, Odedokun (1996) examined the link between financial development and economic growth. This relationship can be depicted as follows:

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<sup>119</sup> Following Lee and Chang (2009) FDI is not transformed into logarithm, because FDI is minor in some sample countries and taking the natural logarithm would obtain a negative value.



$$\text{Growth} = f(\text{financial development}) \quad (6.1)$$

Following Lee and Chang (2009), this study examines the relationship between FDI, financial development and economic growth based on the modified version of the Odedokun's (1996) theoretical framework. This takes the following form:

$$\text{Growth} = f(\text{FDI, financial development}) \quad (6.2)$$

The regression model for this study takes the following form:

$$\ln gPCAP = \alpha_i + \beta_i FDI_{it} + \beta_i \ln FD_{it} + \varepsilon_{it} \quad (6.3)$$

Since the focus of this chapter is to establish the relationship between FDI, financial development and economic growth, an appropriate technique is to adopt co-integration analysis. In theory, two or more variables are considered to be co-integrated if they share a common trend. If co-integration exists, this implies that causality runs in at least one direction (Granger, 1988). Following the lead of Christopoulos and Tsionas (2004), Apergis et al. (2007), Alper (2008), Adeniyi (2008), Lee and Chang, (2009) and Fowowe (2010), it is possible to analyse the relationship between FDI, financial development and economic growth in 60 developing countries, by appealing to the panel co-integration approach.

Prior to testing for co-integration relationship, it is important to test for the stationarity of the variable, in order to avoid spurious regression. This is done using unit root tests developed for panel data. Testing for panel unit root has become conventional in panel co-integration analysis. In principle, each variable need to be integrated in the same order  $\delta \geq 1$  before I can proceed to test for co-integration. Recent literature suggests that panel unit root tests have a higher power than unit root test based on time series data and have proposed several methods for testing the presence of a unit root under panel data setting. Therefore, to check the stationarity of our data, I consider the appropriate unit root tests for panel data, which is designed to control for cross-sectional dependencies<sup>120</sup> and to improve on the power of the estimation by exploiting the commonalities of the countries under investigation.<sup>121</sup> Since panel data unit root tests may yield different testing results, I use three types of panel unit root tests which consider two different null hypotheses, the Levine, Lin and Chu (LLC hereafter, 2002),

<sup>120</sup> Cross-sectional dependence implies that the time series in the panel are contemporaneously correlated.

<sup>121</sup> See Bai and Ng, (2010) and Oteng-Abayie (2011).

Im, Pesaran and Shin (IPSHIN hereafter, 1995, 2002 and 2003) and Fisher type (Choi 2001) test to perform the panel data unit root test and compare their results (Christopoulos and Tsionas, 2003).<sup>122</sup> The LLC test is based on the assumption that each individual unit in a panel share a common unit root, which is to say that the persistent parameters are common across cross-sections. The IPSHIN and Fisher type tests are based on the assumption that each individual unit in a panel have individual unit root processes.<sup>123</sup> Due to the unbalanced nature of our dataset, I employ the Maddala and Wu (1999) and Choi (2001) fisher-type unit root test because it does not require a balanced panel and it also allows for gaps in individual time series.

Provided that the variables are integrated in the same order, the next step is to proceed to test for co-integration. In this study, I use three types of panel co-integration test. Pedroni (1999) introduced the first test, the second type of test is by Kao (1999) and the third test is the Johansen Fisher type test (Choi 2001).<sup>124</sup> If co-integration does exist, I can then proceed to examine the direction of causality by using a panel-based vector error correction model.

## **6.5 Results and discussions**

### **6.5.1 Panel unit root tests results**

As a preliminary test, I ascertain whether mean reversion is a characteristic of each variable using a panel unit root. The test is conducted with intercept and trend on the levels, and first difference on the variables. The estimation deals with the presence of unit roots in the full sample and sub-sample (Asia, BRIMC, LAC and SSA countries) and the result is reported in Tables 6-7 and 6-8. As can be seen in the table 6-7, the LLC, IPSHIN and Fisher test fail to reject the null hypothesis of the presence of unit root in level of the series; BC, DMBAGDP and PC are hence non-stationary variables. However, the same LLC, IPSHN and fisher tests strongly reject the null hypothesis of unit root at 1 percent for both gPCAP and FDI. In addition, when the variables are transformed in first difference (Table 6-8); the tests reject the null hypothesis of the presence of a unit root in all variables. Thus, it can concluded that the variables are stationary, and are thus integrated of order one,  $I(1)$ .

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<sup>122</sup> Since each test has its own weaknesses, it is now a standard practice to use a combination of test statistics for the unit root tests.

<sup>123</sup> Appendix VI.I contains a full description of the process.

<sup>124</sup> See Appendix VI.I for description of test.

Tables 6-7 and 6-8 also report the panel unit root tests result in the sub-sample. The results clearly show that the results for Asia, BRIMC, LAC and SSA of the panel unit root in the level of the series cannot be rejected. Therefore, the results indicate that FDI, financial development and economic growth variables are non-stationary at levels by applying the LLC, IPSHIN, ADF-Fisher and PP-Fisher tests. Table 6-8 presents the results of the tests at the first difference. It can be seen that for all series the null hypothesis of unit root test is rejected at 1 percent significant level. This indicates that the panel unit root tests provide strong evidence that all the series are in fact integrated of order 1 ( $I(1)$ ) in all variables across regions.

**Table 6-5: Panel unit roots tests results by regions (levels)**

Area/All Region	LLC	IPSHIN	FISHER		Decision
			ADF	PP	
gPCAP	-11.973***	-3.038***	250.247***	283.018***	<i>I</i> (1)
FDI	-1.969***	-4.259***	274.343***	359.301***	<i>I</i> (1)
BC	1.846	0.334*	139.385	117.495	inconclusive
DMBAGDP	-0.331	-1.761***	162.738***	92.813	inconclusive
PC	-0.436	-2.220***	172.603***	97.289	inconclusive
ASIA					
gPCAP	-6.441***	-3.592***	74.887***	89.678***	<i>I</i> (1)
FDI	-1.348*	-1.984***	53.032***	50.072***	<i>I</i> (1)
BC	-0.951	-0.676	26.017	15.470	inconclusive
DMBAGDP	0.192	0.139	26.023	12.073	inconclusive
PC	0.048	-1.053	30.915	13.729	inconclusive
BRIMC					
gPCAP	-5.581***	-2.201***	29.449***	35.320***	<i>I</i> (1)
FDI	0.280	0.445	6.986	6.898	inconclusive
BC	-0.606	-0.407	9.902	11.500	inconclusive
DMBAGDP	0.692	-0.400	11.294	11.476	inconclusive
PC	0.019	0.103	13.487	5.814	inconclusive
LAC					
gPCAP	-4.519***	-1.013	38.802***	38.228***	<i>I</i> (1)
FDI	-1.667**	-1.920**	41.879***	37.494**	<i>I</i> (1)
BC	1.654	-0.754	22.026	19.484	inconclusive
DMBAGDP	-0.247	0.371	29.606	16.183	inconclusive
PC	0.133	-0.755	25.424	12.779	inconclusive
SSA					
gPCAP	-9.426***	-1.675**	136.558***	155.112***	<i>I</i> (1)
FDI	-1.186	-3.306***	179.432***	271.735***	<i>I</i> (1)
BC	1.697	1.181	91.343**	82.541	inconclusive
DMBAGDP	-0.256	-2.580***	107.110***	64.557	inconclusive
PC	-1.043	-1.822**	116.264***	70.781	inconclusive
M3	15.533	-0.249	47.848	38.915	inconclusive

Notes: \*\*\*, \*\*, \* indicates that the results are significant at the 1, 5 and 10 percent significance level. In the analysis, Akaike Information criteria's automatic selection of lags is used. Null hypothesis: LLC: assumes common unit root process. IPSHIN and Fisher ADF and PP: assumes individual unit root process. All the variables are in natural log with the exception of FDI. The models have been specified with intercept and trend. gPCAP represents growth of real GDP per capita, FDI is the share of FDI in GDP, BC is ratio of Bank credit to GDP, DMBAGDP is the ratio of deposit money bank assets to GDP and PC represents ratio of private credit to GDP.

**Table 6-6: Panel unit roots tests results by regions (first difference)**

Area/All Region	LLC	IPSHIN	FISHER		Decision
			ADF	PP	
gPCAP	-108.528***	-13.735***	366.292***	1283.320***	<i>I</i> (1)
FDI	-19.862***	-26.582***	956.165***	4824.370***	<i>I</i> (1)
BC	-18.536	-16.868***	541.359***	840.307***	<i>I</i> (1)
DMBAGDP	-13.60***	-11.233***	355.932***	390.429***	<i>I</i> (1)
PC	-16.784***	-18.508***	543.229***	1282.710***	<i>I</i> (1)
ASIA					
gPCAP	-11.453***	-6.523***	132.382***	658.796***	<i>I</i> (1)
FDI	-8.198***	-9.419***	127.770***	758.673***	<i>I</i> (1)
BC	-8.056***	-8.125***	105.297***	126.211***	<i>I</i> (1)
DMBAGDP	-6.202***	-4.053***	68.708***	59.321***	<i>I</i> (1)
PC	-6.014***	-5.522***	71.815***	88.016***	<i>I</i> (1)
BRIMC					
gPCAP	-7.751***	-3.015***	52.142***	559.078***	<i>I</i> (1)
FDI	-5.121***	-6.883***	57.059***	95.612***	<i>I</i> (1)
BC	-5.039***	-3.681***	34.485***	66.906***	<i>I</i> (1)
DMBAGDP	-5.382***	-3.026***	23.907***	29.066***	<i>I</i> (1)
PC	-3.133***	-2.890***	27.906***	47.813***	<i>I</i> (1)
LAC					
gPCAP	-15.575***	-4.113***	82.093***	125.667***	<i>I</i> (1)
FDI	-11.361***	-12.721***	162.127***	607.540***	<i>I</i> (1)
BC	-8.373***	-7.899***	99.508***	182.117***	<i>I</i> (1)
DMBAGDP	-4.995***	-4.564***	58.433***	77.514***	<i>I</i> (1)
PC	-7.584***	-7.187***	93.899***	110.776***	<i>I</i> (1)
SSA					
gPCAP	-114.347***	-11.738***	151.817***	498.855***	<i>I</i> (1)
FDI	-15.271***	-21.528***	666.268***	3458.160***	<i>I</i> (1)
BC	-15.155***	-12.675***	336.554***	531.980***	<i>I</i> (1)
DMBAGDP	-11.167***	-9.622***	228.790***	253.594***	<i>I</i> (1)
PC	-13.632***	-16.475***	377.515***	1083.920***	<i>I</i> (1)

Notes: See table 6.7

Following on from the results of the panel unit root tests, which indicate that the variables are integrated in the region of the same order, it is possible to continue with co-integration tests. Hence, to test for the relationship between FDI, financial development and economic growth, the study uses panel co-integration technique, as discussed in the previous section. Therefore, I can proceed to test for the long-run relationship.

### 6.5.2 Panel co-integration tests results

Given that the results from the unit root test suggests that all of the variables are of the  $I(1)$  process, that is, integrated of order one, then I proceed to test for co-integration to determine if there is a long-run relationship between the variables in the sample.

To test the co-integration relationship, I apply panel co-integration tests by Pedroni (1999, 2004) and Kao (1999) which extend the Engle-Granger framework to tests involving panel data that allow for heterogeneous intercepts and trend coefficients across cross-sections. I also use the Johansen Fisher (2001) test which is a combined Johansen test that uses the results of the individual independent tests for each country in the panel.

Pedroni (1999, 2004) constructs seven statistics for testing unit roots in the residuals of the postulated long-run relationship. Of these seven statistics, the first four are referred to as panel co-integration statistics, the last three are known as group mean co-integration statistics. In the presence of a co-integrating relation, the residuals are expected to be stationary. According to the author, the null hypothesis of no co-integration is rejected if the first statistics has a large positive value and the remaining six statistics have large negative value.

The panel statistic by Pedroni (1999, 2004), Kao (1999) and Johansen Fisher (2001) are presented in Table 6-9 - 6-11, where the null hypothesis is that there is no co-integration between FDI, financial development and economic growth, while the alternative hypothesis is that FDI, financial development and economic growth are co-integrated. The tests are done for the full sample and the sub-sample (Asia, BRIMC, LAC and SSA countries) to investigate the appropriateness of the models for different types of countries.

For the full sample, the results show that all the test statistics but panel ADF and group rho-statistics, strongly reject the null hypothesis of no co-integration at 1 percent. Results from the Kao co-integration tests provide support for the result of no co-integration as indicated by the strong rejection of the null hypothesis at the 1 percent significance level. Similarly, results of the Johansen fisher panel co-integration tests indicate that the variables have a long-run relationship and this is supported by the highly significant p-value. In the individual countries, the Johansen test shows that

I, thus, reject the null hypothesis of no co-integration. The results thus suggest there is a stable long run co-integration relationship between FDI, financial development and economic growth. These results support earlier findings from studies by Lee and Chang (2009) and Adeniyi, (2008).

**Table 6-7: Panel Co-integration tests between FDI, BC and Real gPCAP**

Pedroni residual Co-integration Test	Full Sample	ASIA	BRIMC	LAC	SSA
Panel v-stat	4.595***	4.219***	0.493	6.256***	12.619***
Panel rho-stat	-2.199***	-5.162***	-2.786***	-4.864***	-5.579***
Panel pp-stat	-6.022***	-5.735***	-3.499***	-5.641***	-5.016***
Panel ADF-stat	-0.087	-4.631***	-2.569***	-1.689*	-2.539***
Group rho-stat	1.528	-3.753***	-0.894	-3.295***	-2.902***
Group pp-stat	-9.452***	-9.709***	-3.575***	-6.424***	-8.215***
Group ADF-stat	-1.827***	-3.474***	-2.853***	-1.469*	2.802
Kao residual Co-integration Test					
ADF	-11.098***	-7.472***	-2.235***	-4.230***	-7.155***
Johansen Fisher Panel Co-integration Test					
Fisher stats (trace)	72.750***	20.020	4.471***	3.445	18.480
Fisher stats (max-eigen)	72.750***	20.020	4.471***	3.445	18.480

*Notes:* The first test is a right-tail test, while other tests are left-tail tests. All test statistics are asymptotically normally distributed. However, for the Panel v statistic, only the right tail of the normal distribution is used to reject the null hypothesis because it diverges to positive infinity under the null hypothesis of no co-integration. \*\*\*, \*\*, \* denote rejection of null hypothesis of no co-integration at the 1, 5 and 10 percent significance level. Values in [] are probabilities. Null Hypothesis: No co-integration. Trend Assumption: Pedroni test: deterministic intercept and trend, Kao test: no deterministic trend, Johansen Fisher test: linear deterministic trend. Automatic lag length selection based on SIC with a maximum lag of 5.

**Table 6-8: Panel Co-integration tests between Real gPCAP, FDI and DMBA GDP**

Pedroni residual Co-integration Test	Full Sample	ASIA	BRIMC	LAC	SSA
Panel v-stat	3.563***	2.500***	0.642	6.540***	10.469***
Panel rho-stat	-1.366***	-2.765***	-1.547**	-4.450***	-5.194***
Panel pp-stat	-5.771***	-3.360***	-1.966***	-5.429***	-4.586***
Panel ADF-stat	-4.357***	-1.176	-1.869***	-1.978***	-1.759***
Group rho-stat	2.070***	-1.898***	0.146	-2.560***	-2.737***
Group pp-stat	-11.534***	-7.090***	-1.211	-6.194***	-9.917***
Group ADF-stat	-6.023***	-3.078***	-1.604**	-1.572*	4.206
Kao residual Co-integration Test					
ADF	-11.197***	-5.783***	-0.361	-5.397***	-7.676***
Johansen Fisher Panel Co-integration Test					
Fisher stats (trace)	89.330***	11.250	-	3.390	26.230
Fisher stats (max-eigen)	89.330***	11.250	-	3.390	26.230

Notes: See Table 6-9. The Pedroni (2004) statistics are one sided tests with a critical value of -1.64 (statistic < -1.64 implies rejection of the null), except the v-statistic that has a critical value of 1.64 (statistics > 1.64 suggests rejection of the null).

**Table 6-9: Panel Co-integration tests between Real gPCAP, FDI and PC**

Pedroni residual Co-integration Test	Full Sample	ASIA	BRIMC	LAC	SSA
Panel v-stat	3.163***	3.013***	0.010	6.452***	11.889***
Panel rho-stat	-2.337***	-5.131***	-2.782***	-4.723***	-5.864***
Panel pp-stat	-6.124***	-5.577***	-3.424***	-5.468***	-5.424***
Panel ADF-stat	-0.737***	-5.222***	-2.878***	-1.734***	-3.607***
Group rho-stat	1.092***	-3.668***	-0.940	-3.110***	-3.185***
Group pp-stat	-10.416***	-9.884***	-3.981***	-6.115***	-8.240***
Group ADF-stat	-3.339***	-7.896***	-2.995***	-1.505*	0.617
Kao residual Co-integration Test					
ADF	-11.821***	-7.516***	-2.713***	-4.258***	-8.260***
Johansen Fisher Panel Co-integration Test					
Fisher stats (trace)	72.590***	18.890	5.500***	7.890	19.350
Fisher stats (max-eigen)	72.590***	18.890	5.500***	7.890	19.350

Notes: See Table 6-9.

There is a need to apply caution when using Pedroni (1999 and 2004) tests for sub-samples. This is because, according to Pedroni (1999 and 2004), the tests statistics are less reliable in small samples like this one, where  $T=28$ , but the panel ADF and group-ADF based tests perform best. Hyun (2006) also find that the group ADF test statistics is the most powerful in small samples, followed by the panel variance  $v$  statistics, and Rachdi and Mbarek, (2011) provide a similar submission that ADF-statistic estimated by the between model is the most robust for a small sample. For this reason, I, therefore, consider mainly the Panel ADF-statistic and Group ADF-statistic tests in the Pedroni



(2004) panel co-integration analysis. I, thus, report results for both panel ADF and group ADF statistics with no deterministic intercept or trend. The results presented in the table indicate that a stationary long-run relationship exists between economic growth, FDI and our measures of financial development in all the sub-groups. Since the result indicates that co-integration exists between these variables, I can then proceed to a Granger causality test.

## **6.6 Panel Causality test**

In order to know the nature and the direction of causality between the variables, Granger causality tests are used. The main idea of Granger causality test (Granger, 1969) is that a cause cannot come after its effect. A variable X is said to Granger cause another variable Y, if the current value of Y is conditional on the past values of X, that is, if the history of Y is likely to help predict Y better than the history of Y only (Konya, 2004). Thus, in Granger sense, causality analysis implies finding what is the cause and what is the effect between two variables.

Prior to testing for causality between FDI, financial development and economic growth, I first test for panel unit root so as to establish the order of integration of series and panel co-integration to check if there is any stable long-run relationship between the variables. Once these variables are co-integrated, the next step is to implement the causality tests. Here, panel Granger causality tests are conducted by taking into account the heterogeneity dimension which might be present between the cross section units. This is because, failure to analyse the presence of that heterogeneity in panel Granger causality could easily lead to faulty conclusions, inferring a casual relationship in all the cross-section units yet it is only present in a subset of cross-section units or rejecting the presence of a causal relationship for all the cross-section units yet it is present at least in a subset of the cross-section units (Kidd et al., 2006). I therefore use a method which takes into account the heterogeneity dimension of the cross-sections; as such I follow Pesaran, Shin and Smith (1999) and use the “Pooled Mean Group (PMG)” estimator. A recent paper by Asteriou (2009) used a panel dataset for five South Asian countries to investigate the aid-growth relationship. Using both panel Mean Group (MG) and Pooled Mean Group (PMG) approaches, Asteriou found a positive aid-growth relationship in this region.

Since the variables in the panel are non-stationary but co-integrated, it is appropriate to use an error correction model to examine the causal link between the variables. There are two procedures involved; the Mean Group (MG) estimation of Pesaran and Shin (1995) or the Pooled Mean Group (PMG) estimation of Pesaran et al. (1999). The PMG estimation is basically a dynamic error correction model that allows the short-run parameters and error variances to differ across the cross-section units (i.e. countries) while restricting long-run coefficients to be identical across the cross-section units, whereas, the Mean Group (MG) estimator involves simply the estimation of separate equations for each country and the computation of the mean estimates, without imposing any constraint on the parameters, (Huang .Y, 2006). Because the two estimators are different, there is a need to choose between both by testing the homogeneity of the long-run coefficients using the Hausman test. This test is based on the null hypothesis that the two set of coefficients generated by the PMG and MG estimators are not statistically different. Under the null hypothesis, the PMG estimators are consistent and more efficient than the MG estimators (Pesaran et al. 1999).

Following Pesaran et al. (1999), the long run equation takes the following form:

$$\ln gPCAP = \alpha_{it} + \delta_{it} + \gamma_{1i} FDI_{it} + \gamma_{2i} \ln FD_{it} + \varepsilon_{it} \quad (6.4)$$

where gPCAP, FDI and FD stand for economic growth, foreign direct investment and our measures of financial development, respectively. Estimating equation (6.4), I obtain the estimated residual (error correction term, ECT hereafter).

The following are the error correction forms of the equation:

$$\begin{aligned} \Delta gPCAP_{it} = & \sum_{j=1}^p \phi_{ij} \Delta gPCAP_{it-j} + \sum_{j=1}^p \alpha_{ij} \Delta FDI_{it-j} + \sum_{j=1}^p \beta_{ij} \Delta FD_{it-j} \\ & + \lambda_i (gPCAP_{it-1} - \varphi_{0i} - \varphi_{1i} FDI_{it-1} - \varphi_{2i} FD_{it-1}) + \varepsilon_{it} \end{aligned} \quad (6.5)$$

$$\begin{aligned} \Delta FDI_{it} = & \sum_{j=1}^p \sigma_{ij} \Delta FDI_{it-j} + \sum_{j=1}^p \vartheta_{ij} \Delta gPCAP_{it-j} + \sum_{j=1}^p \mu_{ij} \Delta FD_{it-j} \\ & + \delta_i (FDI_{it-1} - \partial_{0i} - \partial_{1i} gPCAP_{it-1} - \partial_{2i} FD_{it-1}) + \varepsilon_{it} \end{aligned} \quad (6.6)$$

$$\Delta FDI_{it} = \sum_{j=1}^p \omega_{ij} \Delta FDI_{it-j} + \sum_{j=1}^p \rho_{ij} \Delta FDI_{it-j} + \sum_{j=1}^p \theta_{ij} \Delta gPCAP_{it-j} + \psi_i (FD_{it-1} - \gamma_{0i} - \gamma_{1i} FDI_{it-1} - \gamma_{2i} gPCAP_{it-1}) + \varepsilon_{it} \quad (6.7)$$

where  $\Delta$  denotes first difference and  $k$  is the lag length.  $gPCAP$  is real GDP per capita growth,  $FDI$  the indicator of foreign direct investment and  $FD$ , the measures of financial development,  $\lambda_i, \delta_i$  and  $\psi_i$  are the error correction terms, showing the speed of adjustment towards the long-run equilibrium. In equations (6.5 – 6.7), the part in the parenthesis represents the long-run equations, and the other part represents the short-run.

For the case of PMG, the long run coefficients are constrained to be homogeneous across the cross-sections while the short-run coefficients and the speeds of adjustment ( $\lambda_i, \delta_i$  and  $\psi_i$ ) are left to vary across the cross-sections. For the MG however, no constraints are put on coefficients whether in short or long run.

The result of the PMG estimator (using the three variables) show that causality running from  $gPCAP$  to financial development ( $\ln PC$ ) was found only in the short run for Argentina; it was found only in long-run in Burkina Faso, Botswana, Central African Republic, Cape Verde, Chile, Colombia, Congo, Gabon, Ghana, India, Madagascar and Mauritius. It was found to be both short and long run in Lesotho, Pakistan, Russia, Sierra Leone, Tanzania, Thailand, Uruguay and Zimbabwe only. In addition, causality running from economic growth to financial development was found to be strong in Burkina Faso, Cape Verde, Chile, Colombia, Congo, Costa Rica, Gabon, Ghana, India, Lesotho, Mauritius, Pakistan, Rwanda, Russia, Sierra Leone and Zimbabwe.

The tests also indicate causality running from economic growth to  $FDI$  was found only in short run for Pakistan and Philippines; it was found only in long-run in Benin, Cameroon, Colombia, Costa Rica, Ghana, India, Mauritania and Mauritius, it was found to be both short and long run in Peru, Rwanda, Sudan and Thailand. In addition, causality running from economic growth to  $FDI$  was found to be strong in Benin, Cameroon, Mauritania, Mauritius, Pakistan, Peru and Philippines.

## **6.7 Conclusion**

In this chapter, I have examined the relationship between FDI, financial development and economic growth for a panel of 60 developing countries over the period 1980-2007 by using the recently developed panel data unit root tests and Pedroni panel data co-integration technique. The data are based on twelve Asian, eleven Latin American and Caribbean, and thirty-seven SSA countries. Three different types of proxies were used for financial development (Bank credit, private credit and deposit money bank asset). The LLC, IPSHIN and Maddala and Wu panel unit root test results show that the series in the panel are integrated of the order one. Using Pedroni, Kao and Johansen Fisher panel co-integration method to test the relationship between FDI, financial development and economic growth, the results indicate that there is a strong long-run relationship between the variables. The results suggest that economic growth, FDI and financial development are significant in the long run and have their expected positive sign. In the short run, the above variables are also correctly signed and significant.

## Appendix VI: Countries used in sample

**Table 6-10: List of countries in sample**

Angola	Colombia	Mali	Senegal
Argentina	Congo Republic	Mauritania	Seychelles
Bangladesh	Costa Rica	Mauritius	Sierra Leone
Benin	Cote d'Ivoire	Mexico	South Africa
Bolivia	Ethiopia	Mozambique	Sri Lanka
Botswana	Gabon	Nepal	Sudan
Brazil	Gambia	Niger	Swaziland
Burkina Faso	Ghana	Nigeria	Tanzania
Burundi	India	Pakistan	Thailand
Cameroon	Indonesia	Papua New Guinea	Togo
Cape Verde	Kenya	Paraguay	Uganda
Central African Republic	Lesotho	Peru	Uruguay
Chad	Madagascar	Philippines	Venezuela
Chile	Malawi	Russia	Zambia
China	Malaysia	Rwanda	Zimbabwe

Source: World Bank, *World Development Indicators* (2010)

**Table 6-11: Countries by geographical classification and economic group**

ASIA	BRIMC	LAC	SSA		
Bangladesh	Brazil	Argentina	Angola	Gambia	South Africa
China	China	Bolivia	Benin	Ghana	Senegal
India	India	Brazil	Botswana	Kenya	Seychelles
Indonesia	Mexico	Chile	Burkina Faso	Lesotho	Sierra Leone
Malaysia	Russia	Colombia	Burundi	Madagascar	Sudan
Nepal		Costa Rica	Cameroon	Malawi	Swaziland
Pakistan		Mexico	Cape Verde	Mali	Tanzania
Papua New Guinea		Paraguay	Central African Republic	Mauritania	Togo
Philippines		Peru	Chad	Mauritius	Uganda
Russia		Uruguay	Congo Republic	Mozambique	Zambia
Sri Lanka		Venezuela	Cote d'Ivoire	Niger	Zimbabwe
Thailand			Ethiopia	Nigeria	
			Gabon	Rwanda	

## Appendix VI. I: Panel unit root and panel co-integration tests procedures

### A. Panel unit root test procedure

As far as unit root tests is concerned, a number of panel unit root tests have been developed, such as Choi (2001); Levin et al. (LLC, 2002); Maddala and Wu, (MW, 1999); Im et al. (IPSHIN, 1995 and 2003) and Hadri, (2000). They can be divided into two groups: one group (LLC, 2002) assumes that there is a common unit root process; the other group (IPSHIN, 1995, 2003 and MW, 1999) assumes that there are individual unit root processes. While all other test procedures evaluate the null hypothesis of unit root, Hadri (2000) tests the null hypothesis of Stationarity.

**Levin, Lin and Chu (LLC, 2002) test:** considered the basic augmented dickey fuller (ADF) test, using the following equation;

$$dA_{i,t} = \alpha A_{i,t-1} + \sum_{j=1}^{pi} \beta_{i,t} dA_{i,(t-j)} + B_{i,t}^* \gamma + \varepsilon_t \quad (6.1.1)$$

where  $dA_{i,t}$  = differenced panel data,  $\alpha = \rho - 1$ ,  $A_{i,t-1}$  = panel data,  $pi$  = the number of lag order for the differenced terms,  $B_{i,t}^*$  = contains the unobserved country-specific and time specific effects, and  $\varepsilon_t$  is the error term which contains all unexplained information in the data.

Equation 1 can be re written as:

$$dA_{i,t}^* = dA'_{i,t-1} + \sum_{j=1}^{pi} B_{i,t}^* dA_{i,t-j} + B_{i,t}^* \gamma + \varepsilon_t \quad (6.1.2)$$

to remove the autocorrelation and the deterministic components.

Where  $A'_{i,t-1}$  is defined as

$$A'_{i,t-1} = A_{i,t-1} + \sum_{j=1}^{pi} B_{i,t}^* dA_{i,t-j} + B_{i,t}^* \gamma \quad (6.1.3)$$

The next step is to divide both equations 1 and 2 by the estimated standard error of the regression from the ADF equation, which is represented by  $S_i$ . Hence I have;

$$dA_{i,t}^* = d A_{i,t}^* / S_i \quad (6.1.4)$$

$$A_{i,t}^* = A_{i,t-1}^* / S_i \quad (6.1.5)$$

Levin, Lin and Chu (2002) show that, under the null hypothesis, a modified t-statistics for the resulting  $\alpha^{\wedge}$  is asymptotically normally distributed and can be written as:

$$t^* = \left[ t - (NT) SN \sigma^{\wedge} - 2Se(\sigma^{\wedge}) \mu m T^* \right] / \left[ \sigma m T^* \right] \sqrt{aN} \quad (6.1.6)$$

where

$t^*$  = the standard t-statistic for  $a^{\wedge} = 0$

$\sigma^{\wedge}$  = the estimated variance of the error term  $\eta$ ,  $T^* = T - \left( \frac{\sum_i p_i}{N} \right) - 1$

$Se(\sigma^{\wedge})$  = the standard error of  $a^{\wedge}$ .

The null and alternative hypothesis for this test may be written as,

$H_0 : \rho_1 = 0$  panel data has unit root (assumes common unit root process)

$H_1 : \rho_1 < 0$  panel data has not unit root

If  $t^*$  is significant, then I reject the conclusion that the panel data has no unit root. Otherwise, if  $t^*$  is not significant, then I accept the null hypothesis that the panel has a unit root.

**Im, Pesaran and Shin (IPSHIN, 1995 and 2003) test:** focused on small sample properties of unit root tests in panels with heterogeneous dynamics; they developed an alternative test based on the group mean statistics. In 2003, IPSHIN proposed a t-bar unit root test that allows for complete heterogeneity units in the dynamic panel framework. The test is based on individual ADF regressions, which can be written as:

$$y_{i,t} = \rho_i \gamma_{i,t-1} + \sum_{j=1}^p \phi_{ij} \gamma_{i,t-j} + z_{i,t} \gamma + \varepsilon_{i,t} \quad (6.2.1)$$

where  $i = 1, \dots, N$ ,  $t = 1, \dots, T$ .

The null hypothesis for equation (7) may be written as,

$$H_0 : \beta_i = 0 \text{ for all } i$$

while the alternative hypothesis is given by:

$$H_a : \beta_i < 0, i = 1, 2, \dots, N, \beta_i = 0, i = N_i + 1, N_i + N$$

In a traditional ADF, the t values are compared to a critical value while in the Ipshin unit root test the sample mean (t-bar) is estimated as

$$\bar{t} = \frac{1}{N} \sum_{i=1}^N (t_{p1}) \quad (6.2.2)$$

$t_{p1}$  is the individual t- statistics for testing the null hypothesis. Whereas LLC (2002) assumes that  $p1$  is the same for all members in the panel as the test is done on a pooled data.

**The Fisher ADF and Fisher PP type tests:** this test was developed by Maddala and Wu (1999) and Choi (2001) who considered the shortcomings of the LLC and IPSHIN and offered an alternative method. In testing whether a panel has unit root, they suggest to use a non-parametric *Fisher-type* test, which is, based on a combination of the *p-values* of the test statistics for a unit root in each cross-sectional unit  $i$  (the ADF test or other non-stationarity tests). Thus, in testing for panel data unit roots, Fisher-type tests conduct the unit root tests for each panel individually and then combine the *p-values* from these tests to produce overall tests. The Fisher type test is similar to the IPSHIN test in that it allows unit root process to vary across countries. However, the main advantage of the Fisher-type test is that it does not require the panel to be balanced and allows for gaps in individual series, unlike LLC (2001) and IPSHIN (2003). The proposed Fisher type test takes the following form:

$$P = -2 \sum_{i=1}^N \ln P_i \quad (6.2.3)$$

which combines the *p-values* from the unit root tests for each cross-section  $i$  to test for unit root in panel data. Under the null hypothesis, p is distributed as:

$$\chi^2(2N) \text{ as } T_i \rightarrow \infty \text{ for all } N.$$



In addition, Choi (2001) proposed a Z-statistic which is given by the following:

$$Z = \frac{1}{2\sqrt{N}} \sum_{i=1}^N -2\ln p_i - 2 \tag{6.2.4}$$

**B. Panel co-integration test procedure**

The analysis in this chapter uses three types of panel co-integration tests. The first one is Pedroni (1999 and 2004), the second, Kao and the third Johansen Fisher type.

**Pedroni co-integration test**

The first type of panel co-integration test used in this chapter was developed by Pedroni (1999 and 2004). The technique was developed to determine if a long-run relationship exists between variables. Pedroni extends the two step residual based strategy of Engle and Granger (1987). The first step is to test for the hypothesis of no co-integration by regressing residuals from the hypothesised co-integration regression. To justify the use of panel co-integration analysis on the set of cross-country data on FDI, economic growth and financial development, let us consider the following theoretical equation of the Pedroni (1999 and 2004) panel co-integration test, which takes the form:

$$y_{it} = \alpha_i + \delta_i t + \beta_1 X_{1,i,t} + \beta_2 X_{2,i,t} \dots \dots \dots + \beta_m X_{m,i,t} + \mu_{it} \tag{6.3.1}$$

for  $t=1, \dots, T$ ;  $n=1, \dots, N$ ,  $m=1, \dots, M$

where  $X_{i,t}$  are the independent variables, T is the number of observations over time, and N is the number of cross-sections. The parameters  $\alpha_i$  and  $\delta_i$  allows for the possibility of country-specific fixed and trend effects, which may be set to zero if desired.

The second step involves computing a regression on the residuals obtained from the previous equation:

$$\mu_{i,t} = \rho_i \mu_{i,t-1} + V_{i,t} \tag{6.3.2}$$

Pedroni (1999 and 2004) co-integration test allows the investigation of heterogeneous panels, in which heterogeneous slope coefficient, fixed effects and individual specific deterministic trends are permitted. This is because there is no reason to believe that the parameters are the same across countries (Lee and Chang, 2009). Pedroni (1999 and

2004) proposes seven different tests based on the assumption that co-integration between variables are heterogeneous. He grouped these tests into two: the first sets are based on the ‘within-dimension approach’ which includes four statistics: *the panel v-statistics, panel rho-statistics, panel pp-statistics and the panel ADF-statistics*. These statistics are based on estimators that pool the autoregressive coefficients across different cross-sectional units for the unit root tests on the estimated residuals. They test for a null hypothesis of no co-integration and alternative hypothesis given as:

$$H_0 : \rho_i = 0 \text{ for all } i$$

$$H_0 : \rho_i = \rho_i < 1 \text{ for all } i$$

The second set, based on the ‘between-dimension approach’ which includes three statistics: *group rho-statistics, group pp-statistics and group ADF-statistics*. These are group mean panel co-integration statistics since they are based on estimators that average the individually estimated coefficients for each cross-sectional unit. The null and alternative hypothesis is given as:

$$H_0 : \rho_i = 0 \text{ for all } i$$

$$H_0 : \rho_i < 1 \text{ for all } i$$

### **Kao co-integration test**

Kao (1999) follows a similar approach to the Pedroni test. Kao (1999) considers a residual based test of co-integration in the context of a panel data and proposes the use of Dickey-Fuller and Augmented Dickey-Fuller type tests. For the DF type test, Kao (1999) considered the following co-integrated regression:

$$y_{it} = \alpha_i + \beta x_{it} + e_{it} \tag{6.4.1}$$

where  $\alpha_i$  are individual constant terms,  $\beta$  is the slope parameter,  $e_{it}$  are stationary disturbance terms, and finally, both  $y_{it}$  and  $x_{it}$  are  $I(1)$  integrated in the order of one and non-cointegrated.

According to Kao (1999) the slope of the equation is assumed to have a common trend for all members in the panel, which implies that there is a common co-integrating relationship. Kao (1999) proposes four DF-type and ADF-type test under the null

hypothesis of no co-integration which can be applied to the residual of the OLS panel estimating in (6.4.1) in the form:

$$\hat{e}_{it} = \rho \hat{e}_{it-1} + v_{it} \quad (6.4.2)$$

To test the null hypothesis of no co-integration amounts to test  $H_0 : \rho = 1$  in equation (6.4.2) against the hypothesis that Y and X are co-integrated (i.e.,  $H_1 : \rho < 1$ ).

The OLS estimates of  $\rho$  is:

$$\hat{\rho} = \frac{\sum_{i=1}^N \sum_{t=2}^T \hat{e}_{it} \hat{e}_{it-1}}{\sum_{i=1}^N \sum_{t=2}^T \hat{e}_{it-1}^2}$$

The null hypothesis is tested by  $\rho = 1$  is tested by:

$$\sqrt{NT} (\hat{\rho} - 1) = \frac{\frac{1}{\sqrt{N}} \sum_{i=1}^N \frac{1}{T} \sum_{t=2}^T \hat{e}_{it-1} \Delta \hat{e}_{it}}{\frac{1}{N} \sum_{i=1}^N \frac{1}{T^2} \sum_{t=2}^T \hat{e}_{it-1}^2}$$

Kao (1999) proposed the following four DF type test by assuming  $x_{it} = \{\mu_i\}$ :

$$DF_{\rho} = \frac{\sqrt{NT} (\hat{\rho} - 1) + 3\sqrt{N}}{\sqrt{10.2}},$$

$$DF_t = \sqrt{1.25t_{\hat{\rho}} + \sqrt{1.875N}}$$

$$DF_{\rho}^* = \frac{\sqrt{NT} (\hat{\rho} - 1) + \frac{3\sqrt{N\hat{\sigma}_v^2}}{\sigma_{0v}^2}}{\sqrt{3 + \frac{36\hat{\sigma}_v^4}{5\hat{\sigma}_{0v}^4}}},$$

and

$$DF_t^* = \frac{t_{\hat{\rho}} + \frac{\sqrt{6N\hat{\sigma}_v}}{2\hat{\sigma}_{0v}}}{\sqrt{\frac{\hat{\sigma}_v^2}{2\hat{\sigma}_{0v}^2} + \frac{3\hat{\sigma}_v^2}{10\hat{\sigma}_{0v}^2}}}$$

where  $\hat{\sigma}_v^2$  and  $\hat{\sigma}_{0v}^2$  are consistent estimates of  $\sigma_v^2$  and  $\sigma_{0v}^2$ . The limiting distributions of  $DF_{\rho}^*$  and  $DF_t^*$  (where it is assumed that both regressors are endogenous) are by construction not dependent on  $\sigma_v^2$  and  $\sigma_{0v}^2$ . It can be shown easily that  $DF_{\rho}^* \Rightarrow N(0,1)$

and  $DF_t^* \Rightarrow N(0,1)$  by the sequential limit theory. Alternatively, he defines a bias-corrected serial correlation coefficient estimate and, consequently, the bias-corrected test statistics and calls them  $DF_\rho$  and  $DF_t$ . In this case, the assumption is the strong exogeneity regressors and the errors.

For the Augmented-Dickey-Fuller (ADF) type test, the following regression is considered:

$$\hat{\varepsilon}_{it} = \rho \hat{\varepsilon}_{it-1} + \sum_{j=1}^p \phi_j \Delta \hat{\varepsilon}_{it-j} + v_{itp} \quad (6.4.3)$$

where  $\rho$  is chosen so that the residuals  $v_{itp}$  are serially uncorrelated. The ADF test statistic here is the usual t-statistic with  $\rho = 1$  in the ADF equation.

#### **Johansen Fisher co-integration test (combined individual test)**

Maddala and Wu, (1999) propose a Fisher co-integration test based on the multivariate framework of Johansen (1988). They suggest combining tests from individual cross-sections to obtain a test statistics for the whole panel.

Johansen (1988) describes two different approaches; one of them is the likelihood ratio trace statistics and the other one is maximum eigen value statistics to determine the presence of co-integration vectors in non-stationary time series. The trace statistics and the maximum eigen value statistics can be written as:

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^n \ln(1 - \hat{\lambda}_i) \quad (6.5.1)$$

$$\lambda_{max}(r, r+1) = -T \ln(1 - \hat{\lambda}_{r+1}) \quad (6.5.2)$$

where T is the sample size, n = 3 variables growth rate of real GDP per capita, FDI and financial development,  $\hat{\lambda}_i$  is the *i*th largest canonical correlation between residuals from the three dimensional processes and residual from the three dimensional differentiate processes.

For the trace test tests the null hypothesis of at most  $r$  co-integration vector against the alternative hypothesis of full rank  $r=n$  co-integration vector, the null and alternative hypothesis of maximum eigen value statistics is to check the  $r$  co-integrating vectors against the alternative hypothesis of  $r+1$  co-integrating vectors.

If  $\pi_i$  is the p-value from an individual co-integration test for cross-section  $i$ , then under the null hypothesis for the whole panel,

$$-2 \sum_{i=1}^N \log_e (\pi_i)$$

(6.5.3)

is distributed as  $\chi^2_{2N}$

The value of the chi-square ( $\chi^2$ ) statistic (reported in EViews) is based on the MacKinnon-Haug-Michelis (1999) p-values for Johansen's (1988) co-integration trace test and maximum eigenvalue test.

## **7 Conclusion and Policy Recommendations**

The difference in economic growth across countries has accelerated over the last century. According to Maddison's (2001) estimates, the level of per capita GDP in Western Europe was the same as that of Africa, but lower than in Asia in the year 1000. Sometime around the late 1990s, per capita GDP in Western Europe had risen to about thirteen times higher than that of Africa and about five times higher than in Asia. Not only has the disparity in the level of incomes in developing and developed countries greatly worsened over time, the level of income in developing countries also experience a similar divergence trend. In the 1960s for instance, Africa and Asia shared almost similar levels of income; however, due to rapid growth episode realised in Asia, it has since outpaced Africa in economic growth. The rapid growth realised in Asia has been linked to their substantial potential for catching up with local investment, development of inward looking policies and creation of sound institutions with a focus on improving economic performance and growth.

To achieve rapid growth, attracting foreign direct investment (FDI) and promoting financial development have been prescribed by international institutions such as the World Bank, United Nations and some analysts, basing it on the rapid growth of the Asian Newly Industrialised Countries (NICs) and the BRIMCs. Hence, it is argued that in order to catch-up with industrialised countries and achieve rapid growth, FDI, with its superior production and organisational methods may be a force of convergence. This is because, FDI is generally seen as a composite bundle of capital stock and technology and can augment the existing stock of knowledge in the host economy through labour training, skill acquisition and diffusion and the introduction of new managerial practices and organisation arrangements. In addition, it is argued that the domestic financial sector plays a significant role in promoting economic growth. A well-functioning financial sector can facilitate economic growth by mobilising savings, allocating these savings to the most productive investment and facilitating the smooth flow of trade in a market driven economy.

To this end, this thesis examined the role of financial development and foreign direct investment in promoting economic growth in developing countries and in particular the BRIMCs and SSA region. The argument behind focusing on the BRIMCs and SSA is simply because, the BRIMCs as a group are the fastest growing developing countries in

the current decade that have succeeded in sustaining long term economic growth in a period of ten years due to changes in policies to reflect a shift to a market-oriented economy. In addition, it is believed that by comparing SSA's economic growth with countries of similar or greater degree of economic development can provide a baseline from which to identify the development gap that the country's authorities face in designing their policies.

The four empirical chapters of this thesis, using different panel econometric techniques, each considered the relationship between financial development, foreign direct investment and economic growth in developing countries, with an emphasis on the emerging economies, which are potentially important in the world of globalisation. The analysis used annual data for a panel of 60 developing countries for the period 1980-2007. Each chapter uses a combination of countries and different time period from the 60 countries in our analysis. The following variables were involved; the ratio of FDI to GDP, the ratio of trade to GDP, adult literacy rate, the ratio of private credit to GDP, the ratio of liquid liabilities to GDP, stock market capitalisation, stock traded value, bank credit, BHL liberalisation dates, KAOPEN, FINDEX, TINDEK, inflation, investment and government consumption. In this chapter, I summarise the major findings and policy implications derived from the empirical chapters in this thesis. This chapter is divided into two sections: Section 7.1 presents the general summary of the findings from the empirical chapters, Section 7.2 presents contributions to the literature and Section 7.3 presents the policy implications from the study.

## **7.1 General summary findings**

The general objective of this study was thus to examine the relationship between finance, FDI and economic growth in developing countries, in particular the BRIMCs and SSA countries using a panel data technique. Specifically, this study attempted to address four questions:

1. Does financial liberalisation lead to financial development in emerging countries? If so, what is the impact of financial liberalisation in the emerging countries of the BRIMCs and frontier markets in the SSA region?

2. Does financial development lead to economic growth in developing countries? In particular, I focus on the role of institutions in the relationship between financial development and economic growth.
3. What determines FDI inflow in developing countries? Does the interaction between trade openness and human capital influence the inflow of FDI? And does FDI promote economic growth in the BRIMCs and SSA regions?
4. Is financial development a precondition for the growth effect of FDI?

The second chapter examined the reasons for the differences in economic growth in developing countries using Brazil, Russia, India, Mexico and China (i.e. BRIMCs) and some selected Sub-Saharan African countries as case studies. For comparison to be more meaningful, this chapter uses countries with similar level of per capita GDP. Seychelles, Gabon, South Africa, Mauritius and Botswana display similar level of per capita GDP to the BRIMC countries, thus making them suitable for a comparative case study. However, there are other differences present to shed light on the divergent growth paths they exhibit. The most obvious difference that may be instrumental in their divergent growth experience is the nature of economic policies. Using the BRIMC countries as a benchmark for growth, some economic projections were made for the SSA countries. The results obtained reveal that if SSA countries should grow at their present rate of 1.15 percent, it would take about 45 years for them to reach a similar status with China; however it would take about 17 years to reach the level of economic development in the rest of the BRIMC countries. The main lessons for SSA countries from the experience of the BRIMCs is for SSA government to develop an environment that is free from excessive government interference, create favourable business environment, promote and encourage a stable environment that would promote financial development and encourage economic growth.

Following the results from Chapter two, the third chapter was set to examine the impact of financial liberalisation on financial development in 11 emerging and frontier markets for the period 1980-2007. In this chapter, I employed various measures of financial liberalisation indicators to capture different aspects of financial reforms in developing countries. The BHL official liberalisation date developed by Bekaert et al. (2000) was



used to capture the date when the financial system was liberalised. KAOPEN, developed by Chinn and Ito, (2002) was used to capture capital account openness. I also use FINDEX, developed by freedom house and is used to capture banking sector efficiency as well as independence from government control in the financial sector. In this section, I examine the impact of financial liberalisation on both banking sector and stock market development in the SSA countries. The results obtained in this section indicate that overall, liberalisation date is important in the development of the financial sector. According to the result, BHL has a significant and positive impact on private credit, market capitalisation and the value of stocks traded in the sample of countries. The results also indicate that too much government intervention, as indicated by FINDEX tends to dampen the development of the financial sector.

A closer look at both the emerging and frontier market indicates that whilst liberalisation dates were important for financial development in emerging countries, too much government control has led to a significant decrease in both the banking sector and the stock markets. A similar result is noted with respect to capital account openness.

In the frontier market, I observe that whilst liberalisation date seem to be important for the development of the stock market, the banking sector, in particular, liquid liability seem to reduce with the date of liberalisation. I find that bank liquidity, stock market capitalisation and the value of stocks traded were constrained by the government. A similar result is noted with respect to capital account openness.

The results in the chapter also indicate that inflation has a positive and significant relationship with financial development (Table 3-5, specification 3c). This result is surprising; however it is possible that the countries in the sample exhibit a stable environment. One of the major findings in Chapter three was that the proxy for institutional development, ICRG\_QoG shows a negative and highly significant sign of the coefficient. This implies that institutions in the form of control of corruption, bureaucratic quality and rule of law does not promote to level of development of liquid liability and private credit. The findings of this chapter suggested that further empirical studies are required to re-examine which type of institution promote financial development in the frontier market. This investigation may help in determining which aspect of institution is responsible for hindering financial development in SSA region. This claim was investigated in Chapter four.

In the fourth chapter, I examined the role of institutions in financial development in SSA countries. The main question was to investigate whether institutions, in particular, economic, political and legal institutions were important for financial development in SSA countries. Here, I found that whilst the quality of institutions was important for the overall development of financial institutions, voice and accountability was equally as important. Due to the heterogeneity of the SSA region, I further examined the role of institution on financial development, according to their level of economic development. As such, I examined the impact of institution on financial development in low income, lower middle income and upper middle income countries. The results indicated that institutions in the form of control of corruption, government effectiveness, and voice and accountability tend to promote financial development in low income countries, whereas regulatory quality seemed to be more important in lower middle income countries. In the upper middle income countries, institutional quality does not appear to be important for financial development, rather I found that the level of economic growth coupled with low inflation was important.

Chapter five examined the determinants of FDI in developing countries, and in particular the BRIMC and SSA countries. I examined whether the interaction between openness and human capital was related to the inflow of FDI. Our results indicated that an increase in the level of openness and human capital led to a slight increase in FDI, and our result was statistically significant for all 30 countries used in the sample. In the BRIMC countries, the result indicates that there is a threshold effect for the positive impact of trade on FDI and vice versa. The implication is that, trade and human capital are substitutes. This study also analysed the impact of the interaction between openness and human capital, and FDI and openness on economic growth. The results showed that the interaction terms are significant in promoting economic growth in the selected developing countries.

Chapter five presents an interesting result in terms of the relationship between inflation and economic growth. I find that inflation has a positive relationship with economic growth in Asia albeit an insignificant coefficient. The positive sign of the coefficient provides support to theoretical vagueness regarding the impact of inflation on economic growth. According to the literature, regions with low and stable rates of inflation are expected to grow faster when compared to other regions with high inflation rate.

The sixth chapter examined the long-run relationship between FDI, financial development and economic growth in developing countries using a sample of 60 developing countries. The main findings from this chapter are that there is a long run relationship between economic growth, FDI and financial development.

## **7.2 Contributions to the literature**

The thesis contributes to the existing literature on finance-growth and FDI-growth relationship by identifying and filling the gap in the literature on this topic and can be summarised in the following aspect:

1. In chapter three, the research extends previous empirical evidence showing that financial development differs along with the type of financial liberalisation policy in place. With this in mind; several questions arise: Does financial liberalisation lead to financial development in emerging countries and does the structure of the financial system matter? Does the simultaneous opening of both the financial and trade sector improve financial development?
2. In Chapter four, I contribute to the literature in several ways: I re-examine the role of institutions in the law-finance, politics-finance and finance-growth relationship by estimating a panel data equation that includes the various facets of governance for 37 countries from SSA region. Recent empirical studies suggest that a well-developed institution is important for the development of an efficient financial sector. This chapter contributes to this debate by presenting a deeper insight into this issue. Due to the low level of institutional quality in the region, it was important to examine which aspect of institution was important for financial development so that suitable policies can be drawn. Although institutional quality has been gaining popularity in recent years, the role of institutions on financial development is scarce. In particular empirical studies on the role of institutions in the development of the financial sector in Africa are scarce. Hence, this chapter contributes to the literature by examining the role of institutions in the development of the financial sector in the SSA. In particular, I try to establish which aspect of institution is important for financial development so that policy makers can focus on such aspect. The main results of this chapter were that rule of law, bureaucratic quality and control of corruptions, if effectively managed, can promote financial development. In addition, the results

also indicate that good quality institutions influence the positive impact of finance on growth in the SSA region. I tackle multicollinearity and endogeneity bias by implementing a two-stage procedure for instrumentation and generalised methods of moment (GMM). Generally, the most important contribution of this thesis was providing a better understanding of the relationship between the various facets of institutional quality and financial development. In addition to examining the role of institutions in the finance-growth relationship.

3. In Chapter five, this thesis contributes to the existing literature on FDI-growth relationship by identifying and filling the gap on this topic by analysing the determinants of FDI and examining whether the level of human capital mediates the positive influence of economic openness. It also contributes to the literature by analysing the absorptive capacity and the growth effect of FDI in developing countries with a particular focus on the BRIMCs and SSA region. The chapter examines the role of both trade openness and human capital and examines the impact of both factors simultaneously on the FDI-growth relationship. The chapter also contributes to the literature by determining the threshold value of absorptive capacity in the host country that positively correlates FDI with growth.
4. Chapter Six contributes to existing economic literature by helping to reduce the inconclusiveness of the empirical evidence regarding the role of financial development in determining the relationship between FDI and economic growth. The thesis also contributes to existing research by applying panel data analysis, which is an important econometric technique for establishing solutions to policy implications with macroeconomic data. In order to obtain consistent parameter estimates, a number of econometric panel techniques were used in various chapters.

### **7.3 Policy implication**

As well as the contributions of the thesis, there are several policy implications that can be drawn from each empirical chapter in this study:

- The results of Chapter three suggest some policy implication for the effect of financial liberalisation on financial development. The findings of this chapter shows that the positive effect of financial liberalisation on financial development

seem to be more pronounced in the stock market than in banking sector. However, I find that banking sector reforms have led to an increase in the level of credit available to the private sector. The negative and significant relationship between FINDEX and private credit indicates that government tend to have a strong control on the activities of banking sector development in emerging markets. Hence, it is important for policy makers to direct policies focusing on reducing government interference in the banking sector. The result obtained in Chapter three also suggests the need to promote capital account liberalisation in order to positively benefit from financial liberalisation. In the frontier markets, the result suggests that to effectively promote stock market development there is a need for policy makers to carefully develop policies that takes into cognisance the importance of institutions in order to benefit from financial reforms. In particular, policy makers need to concentrate on rule of law, bureaucratic quality and control of corruption. It is also important for government of these economies to impose less restrictive regulatory regimes to keep away from poorly functioning financial sectors.

- The results of Chapter four suggest that there is a positive and statistically significant relationship between institutions and financial development. I find that there is a threshold effect for the simultaneous opening hypothesis to promote financial development in SSA countries. The main policy implication according to the study is that enhancing institutional infrastructure and identifying the particular institution that would encourage the development of the banking sector is important.
- The main policy implication of Chapter five was that SSA countries need to implement policies that focus mainly on the promotion of the level of stock of human capital, infrastructural development and economic openness, in order to be attractive to foreign investors. The result also suggests the need to promote a good and stable environment and investment climate, in order to be attractive to foreign investors. Results from this chapter also suggests that not only does FDI promote growth by itself, but the magnitude of its effect depends on the host country's absorptive capacity, confirming the Borensztein et al (1998) and Li and Liu (2005) findings. Hence, it suggests that there is a need for a change in the policy recommendation suggesting that FDI's positive impact on growth is not dependent on other factors.

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