

**EFFECTS OF REGIONAL FINANCIAL INTEGRATION ON  
ECONOMIC GROWTH AND INTRA-REGIONAL TRADE OF  
EAST AFRICAN COMMUNITY MEMBER COUNTRIES**

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the Requirements for the Award of the Degree of Doctor of  
Philosophy in Economics of Kenyatta University.**

**NOVEMBER, 2012**

## DECLARATION

This thesis is my original work and has not been presented for a degree in any other university or any other award.

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## **DEDICATION**

To my dear wife Rose Karagu and my daughter0+

s Sandra and Prudence Karagu for their support and encouragement.

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## **OPERATIONAL DEFINITION OF TERMS**

**Regional financial integration:** A process, market driven and/or institutionalized, which broadens and deepens financial links within a region. At the very least, this process involves eliminating barriers to cross-border investments and differential treatment of foreign investors.

**Intra-regional trade:** Intra-regional trade refers to trade which focuses on economic exchange primarily between countries of the same region or economic zone.

**Financial sector development:** increased provision of financial services with a wider choice of services geared to all levels of society.

**Free trade area:** A group of countries that invoke little or no price control in the form of tariffs or quotas between each other. Free trade areas allow the members participating nations to focus on their competitive advantage and to freely trade for the goods they lack the experience at making, thus increasing the efficiency and profitability of each country.

**Custom union:** A customs union is a free trade area that also establishes a common tariff and other trade policies with non-member countries.

**Common market:** it is an agreement between two or more countries that permits the free movement of capital and labor as well as goods and services.

**Monetary union:** A monetary union is defined as a group of two or more states sharing a common currency or equivalent.

**Political federation:** It is a form of Government or country where there is territorial distribution of power between one central or a common government and subordinate or lower Governments. The elements of a federation therefore include shared powers and responsibilities defined by law and practice.

**Government security rate:** The average interest rate at which national government issues their securities like bonds and treasury bills.

**Banks spread:** It is the difference between the interest rate a bank charges a borrower and the interest rate a bank pays a depositor.

**Financial institution:** An establishment that focuses on dealing with financial transactions, such as investments, loans and deposits. Financial institutions are composed of organizations such as banks, trust companies, insurance companies and investment dealers.

**Common market protocol:** A legal and binding commitment to a deeper and stronger functional integration by Partner States.

**ABBREVIATIONS AND ACRONYMS**

ADB	African Development Bank
ADF	Augmented Dickey Fuller
AEC	African Economic Community
AERC	African Economic Research Consortium
AR	Autoregressive
ARDL	Autoregressive Distributed Lag
AU	African Union
BIS	Bank of International Settlements
BURKT	Burundi, Uganda, Rwanda, Kenya and Tanzania
CBK	Central Bank of Kenya
CDS	Central Depository System
COMESA	Common Market for Eastern and Southern Africa
CU	Custom Union
DFIs	Development Finance Institutions
EAC	East African Community
ECA	Economic Commission for Africa
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
EPA	Economic Partnership Agreement
ERS	Economic Recovery Strategy
FDI	Foreign Direct Investment

FPHU	National Housing Promotion Fund
GDP	Gross Domestic Product
GNP	Gross National Product
ICT	Information Communication and Technology
IMF	International Monetary Funds
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KRA	Kenya Revenue Authority
KUT	Kenya, Uganda, Tanzania
MAC	Monetary Affairs Committee
MDGs	Millennium Development Goals
NBFIs	Non -Banks Financial Institutions
NEPAD	New Partnership for Africa's Development
NSE	Nairobi Securities Exchange
OAU	Organization of African Unity
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
PP	Philips Perrons
RECs	Regional Economic Communities
ROSCAs	Rotating Savings and Credit Associations
SACCOs	Savings and Credit Cooperative Organizations
SACU	Southern African Customs Union
SADC	Southern Africa Development Community

SAPs	Structural Adjustment Programmes
SID	Society for International Development
SSA	Sub Saharan Africa.
WAEMU	West African Economic and Monetary Union
UN	United Nations
UNCTAD	United Nation Conference on Trade and Development
VAR	Vector Auto Regression
VECM	Vector Error Correction Model
WB	World Bank.

## ABSTRACT

The study aimed at establishing the effects of regional financial integration on economic growth and intra-regional trade in East African Community (EAC) Countries. The motivation was based on the conflicting views on the effect of regional financial integration on economic growth and intraregional trade. In order to achieve the objectives of the study, both quantitative and qualitative data were used. Data for the period 2000 to 2009 for Kenya, Uganda, Tanzania and Rwanda were employed. Burundi was not included because of insufficient data. The first objective of the study was to establish the effect of regional financial integration on economic growth in EAC. The second objective of this study was to investigate the effect of regional financial integration on intra-regional trade in EAC. System General Method of Moments dynamic panel model was employed to estimate the cross-country growth and intra-regional trade effects of regional financial integration. Regional financial integration was proxied by the following three measures; squared exchange rate of the four countries. Control variables used in the regression included lagged economic growth rate, inflation, government balance as a percentage of GDP, foreign direct investment as a percentage of GDP, corruption perception index and the Rwandan dummy variable, which took the value of one from the time Rwanda and Burundi joined the EAC and Zero otherwise. The empirical results showed that regional financial integration significantly stimulated the economic growth of the East African Community Countries. Regional financial integration complemented intra-regional trade among the EAC countries. The third objective was to determine whether the effect of regional financial integration on economic growth and trade differed among member countries. The study found out that the effect of regional financial integration on economic growth differed among member countries. However, the effect of regional financial integration on intra-regional trade did not differ among member countries. The study recommends the EAC coordinating committee should ensure there is effective bank supervision in the region so as to have a uniform banks spread across the region, explore ways of issuance of common bond in the region and have secondary markets for financial assets effected.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background to the Study**

Political, economic and regional financial integration has been part of African strategy to overcome fragmentation, marginalization and improve the continent's position in the global political economy. Regional groupings have been part of this integration and there are more of such efforts in Africa just as there are in many parts of the world. Nowadays there is no country in Africa that is not a member of at least one regional economic group.

One such regional grouping is East African Community (EAC), whose goal as an economic and political entity stems from the desire by the governments of Burundi, Uganda, Rwanda, Kenya and Tanzania (BURKT) to improve the standard of living of the population through increased competitiveness, value addition in production, trade and investment. This is aimed at promoting sustainable development in the region, with a view of creating a prosperous, internationally competitive, secure, stable and politically united region. Broadly, EAC countries see regional financial cooperation as a means of promoting intra-regional trade and exploiting economies of scale by pooling small and fragmented domestic markets to support industrialization strategies (Kasekende and Ng'eno, 2000). The five EAC Partner States are aware that by pooling their resources and potential, they are in a better position to realize and sustain common development



goals more easily than through unilateral national efforts. According to the EAC Treaty, the vision of the Community is to be realized in an incremental progression through the stages of a Customs Union, 2005, a Common Market, 2009, a Monetary Union, and ultimately a Political Federation of the East African Community in 2015. The entry point of the integration process of the East African Community was the Customs Union, which commenced in 2005 as set out in the Treaty. The Customs Union was implemented progressively over a period of 5 years from year 2005 and attained a free trade regime in January 2010. The East African Community Common Market Protocol entered into force in July 2010, and the partner states have embarked on the process of negotiation of the protocol for the establishment of the East African Monetary Union.

East African Community attaches great importance to financial sector development in pursuit of their regional integration goal. This is exemplified by their commitment to the creation of an enabling environment within which the private sector can flourish and generate faster growth in individual countries. One of the pillars of this effort as enumerated in Chapter 14 of EAC treaty is the pursuit of financial integration with a view to maximizing the ability of financial sectors to mobilize resources and efficiently allocate them to the most productive sectors of the respective economies. Wakeman-Linn and Wagh (2008) refers to regional financial integration as a process, market driven and/or institutionalized, which broadens and deepens financial links within a region. At the very least, this

process involves eliminating barriers to cross-border investments and differential treatment of foreign investors. Further, deepening of financial links can take the form of harmonizing national policies, laws and institutions. Over time, cohesion of regulatory frameworks, operational structures, information systems, and convergence of prices and risk assessments means that national financial markets within the region effectively function as one. Taking this concept further, a group of countries may set up a regional bond or stock market distinct from and potentially coexisting with national markets, with the specific intention of pooling resources, risks and returns.

A major rationale for the push for regional financial integration centers on the role of the financial sector in promoting the mobilization of saving, facilitating access to credit and enhancing resource allocation (McKinnon, 1973; Shaw, 1973). Through their actions, financial intermediaries increase efficiency in many ways, for example, by decreasing leakages in savings and allowing the development of long term projects with higher returns.

EAC has realized that the progress toward integration of capital markets on a regional basis may actually help spur accelerated economic growth. Articles 85 and 86 of the Treaty for the Establishment of the East African Community (EAC) provide the main framework for integration of the regional capital markets. The provisions of the Articles call for capital market development programs and a

conducive environment for the movement of capital within the EAC; harmonized capital markets policies on cross-border listing, foreign portfolio investors, taxation of capital market transactions, accounting, auditing and financial reporting standards, commissions and other charges; the establishment of a regional stock exchange within the EAC with trading floors in each of the Partner States; adherence by the appropriate national authorities to harmonized stock trading systems and permitting residents of the partner states to freely acquire and negotiate monetary instruments within the EAC; and the unimpeded flow of capital within the EAC. Further, the East African Community is pursuing strategies of financial integration through programmes for the harmonization of regulatory and legislative frameworks and policies, and the promotion of cross-border investments and listing of securities. This regional financial integration is expected to establish stronger links with financial systems and capital markets in more developed countries.

A major gap in the provision of financial services to the EAC private sector is the lack of long-term finance. Financial systems in the EAC are dominated by commercial banks, which typically have not been reliable sources of long-term capital. Non-bank sources of medium to long-term financing for example, leasing, mortgage and contractual savings are also underdeveloped (World Bank, 2002). Hence, a principal component of financial sector development efforts in the EAC

is the expansion of capital markets in the Community, with the objective of developing long-term debt and equity capital for the private sector.

Capital markets in the region have not been able to provide effective support for the private sector because they are small, underdeveloped and have limited activity (World Bank, 2002). Although there are ongoing efforts in individual countries to alter this situation and expand capital markets, all the EAC countries have recognized that a regional financial integration could potentially address several limitations associated with the country-focused approach, and they have placed substantial emphasis on the pursuit of a regional approach. It is expected that a regional market will ensure that capital markets fulfill their potential in providing long-term finance to support private sector activities in the small, fragmented financial markets in EAC region. Regional financial integration has been proposed in the literature as a solution to stock market development in smaller emerging countries (Tahari *et al.*, 2007; Shah *et al.*, 2007; Adelegan, 2008; Demirguic-Kunt *et al.*, 2008). Proponents of this approach have argued that regional integration, including a common trading platform, can confer the following benefits: bring greater efficiency, synergy and economies of scale; attract foreign flow of funds; foster risk sharing and portfolio diversification; act as an impetus to financial sector reforms, thereby broadening the competitiveness of regional financial systems and minimizing the risks of financial instability;

deepen the stock market; and lead to economic growth (Faruqee, 2007; Demirguic-Kunt *et al.*, 2008).

Disparities in economic growth among countries are a subject that has attracted much attention. Political scientists as well as economists have sought answers to the question of why some countries experience economic growth while others do not, and what factors are related to economic growths, (Beck *et. al* 2000). Economic growth is no longer believed to happen for exogenous reasons. Instead, regions through appropriate policies, particularly with regard to financial markets, can influence it. Financial markets were not seen by the economic theory as directly relevant for development as technological progress and population growth were. This has changed with the development of endogenous growth models, which state that investment in research and development, physical capital and human capital are major determinants of economic growth, (Beck *et. al* 2000). How to finance these investments and how financial intermediaries allocate funds has become the real questions, not just for growth, but also in terms of distributional effects. Economic growth may also come from the following two channels: growth in the amount of factors of production; or increases in the efficiency with which those factors are used. In other words, growth is induced by the increase in investment (accumulation of capital) and the efficiency of investment. Theoretical underpinnings suggest that broader spectrum of factors that explain economic growth should be looked at. The concept of capital rather

than simply equipment and buildings should be considered. Human capital, organizational capital and information should also be included, among others.

### **1.1.1 Establishment East African Community**

The history of EAC is often focused on the 1960's, yet the foundation of the community can in earnest be seen as having been laid in 1922 (Zigoni, 2010). Kenya, Uganda and Tanzania (KUT) had previously been British territories, making them have a number of things in common, which were seen as fertile grounds for the formation of an integrated market. Similar political institutions, schools, judicial and government administration systems provided an institutional framework, which would enable the community to be founded. KUT had common services that used to be operated jointly. Prior to East Africa's partner state independence, the region was already operating as a common market without formalization of the structure. Presence of one colonial administration saw post and telecommunications, railways, harbors, airways, customs and excise departments, training research institutions and higher education all being co-ordinated by one authority (Mwase, 1982).

In the 1960s, KUT set out to establish the first East African Community. Up to 1966, all the three countries used the same currency- the East African Shilling (Mvungi, 2002). Though there were some similarities between the countries,

some marked differences could also be noted that later contributed to the abortion of the integration project in 1977.

Failure in the original EAC was due to a number of factors. First, Kenya attracted more private capital inflows relative to the other countries in the region, which led to it becoming more industrialized (Mvungi, 2002). Second, political ideologies that were propagated by the founding fathers of the countries were divergent. While Kenya, for example, towed the capitalist line, Tanzania was socialist oriented under Julius Nyerere's Ujamaa system (Nyerere, 1967). Thirdly, Idi Amin's 1971 military coup was a big blow to the EAC. The Tanzanian government did not recognize Amin's government while Kenya did. A dilemma was fostered due to this impasse as no decisions could be reached pertaining to the community (Mvungi, 2002).

After the collapse of the EAC, the World Bank nominated a mediator to arrive at a permanent and equitable division of the assets and liabilities of the EAC, (Mburu 2006). This led to the 1993 Agreement for the Establishment of the Permanent Tripartite Commission for East African Co-operation. On 29 April 1997, the three countries directed the Permanent Tripartite Commission to convene the process of upgrading the agreement establishing the Commission for East African Co-operation into a Treaty. Following successful negotiations among the member states, the Treaty establishing the East African Community was

signed on 30<sup>th</sup> November, 1999 and the community was officially launched on 15<sup>th</sup> January, 2001. According to the EAC Treaty, the entry point of the integration process was the custom union, a common market, a monetary union and ultimately a political federation of East African states, (Mkenda 2001).

Remarkable progress has been made in liberalizing intra-regional trade by removing a number of non-tariff barriers on cross-border trade and establishing a customs union. The East African Community Customs Union commenced operations on 1 January, 2005 following the signing of the protocol establishing it in March 2004, (Kasaija 2006).

The member countries agreed to apply the principle of asymmetry in the elimination of internal tariff so as to avoid the shortcomings associated with the earlier integration initiatives. Under the program, the goods from Uganda and Tanzania entered Kenya duty-free while the two countries imposed tariffs on reducing level on selected imports from Kenya for a period of five years,(EAC Website).

The partner countries agreed to impose a common external tariff (CET) that applies uniformly on goods imported into EAC. The CET rates are zero percent for raw materials, 10 percent for intermediate goods and 25 percent for finished goods. Rwanda and Burundi signed the EAC Treaty on June 18, 2007 and became



full members from July 1, 2007. BURKT officially entered into the Common Market on the 1<sup>st</sup> of July 2010.

The Common Market is a process where a customs union allows free movement of the factors of production across national borders within the integration area. The East African protocol's main objective is to widen and deepen cooperation among the partner states in the economic and social fields, for the benefit of the partner states (ADB, 2002). The pursuit of a common market transcended both social and economic areas. In order to facilitate the free movement of labour, capital and investment, a number of processes had to be instituted. They include removal of restrictions on movement of labour; harmonization of labour policies; programs, legislation, social services and provision of social security benefits; establishment of common standards and measures for association of workers and employers; establishment of employment promotion centers; and eventual adoption of a common employment policy, (EAC, 2009).

As a basis for the establishment of a monetary union, the second development strategy stressed the need for the partner countries to continue maintaining currency convertibility and coordinating macroeconomic policies with specific emphasis on exchange rate, interest rate, monetary and fiscal policies, while working toward macroeconomic convergence. Furthermore, complete financial

sector reform was expected to be undertaken to guarantee efficiency in their operation consistent with promotion of savings and investment, (EAC 2009).

In the first decade anniversary year of the EAC, and following the progress on other regional integration steps, some of the first stages for monetary union planning are beginning. A study on preparedness for a monetary union that was commissioned by the EAC Secretariat and the European Central Bank working with the EAC central banks was completed in January 2010. The study considered the legal, institutional framework and the monetary union's structure, including the East African Monetary Institute, which would precede creation of an East African central bank.

A mechanism for monitoring and enforcing the macroeconomic convergence criteria and a protocol for negotiations was also considered. Proposals relating to the road map to the establishment of the monetary union are being considered by the relevant EAC organs. It should be noted that the currencies are convertible and some progress has been made in harmonizing banking regulations as well as institutional steps to support a more integrated capital market (IMF, 2009). Finance Ministers conduct pre-and post-budget consultations, there is regular sharing of budget information, and the budget statements are read on the same day.

### **1.1.2 Social Economic Profiles**

Table 1.1 and 1.2 provides selected macroeconomic indicators on the five countries over the period 1970 to 2009, the contribution to GDP of various sectors of the economy over the period 2000 to 2009, respectively. Table 1.2 suggests that these countries are similar in their economic structures. For BURKT, the greatest share of GDP is from service, averaging 42, 39, 50, 56 and 46 percent, respectively, over the period 2000 to 2009. Conversely, the average share of agriculture to GDP is 39, 26, 36, 27 and 32 percent, respectively, over the same period.

Whereas over 80 percent of the workforce of the other countries is in agriculture, a major source of employment in Kenya is the service sector, accounting for 56 percent of total GDP. Tourism is Kenya's most important service industry and generates the country's second largest foreign exchange earnings after agriculture. Given its labor-intensive nature, its expansion generates more employment opportunities than an equivalent expansion in other sectors of the economy. Tourism in Kenya is mainly based on natural attractions, which include wildlife in its natural habitats as well as idyllic beaches.

Considering the industry sector, Uganda has the highest industry value added in East Africa, accounting on average 24.5 percent of GDP a year from 2000 to

2009. Manufacturing contributed, on average, 11 percent of GDP a year during the same period in Kenya, which was the highest value added compared to other EAC members. The country boasts of a comparatively wide range of manufacturing industries that include food processing, refined petroleum and petrochemicals, cements and small-scale consumer goods (plastic, furniture, textiles, soap, cigarettes, flour).

**Table 1.1: Macroeconomic Indicators**

	1970-79	1980-89	1990-99	2000-09
<b>KENYA</b>				
GDP at market prices (constant 1995 US \$bn)	4.07	6.55	9.01	19.8
Real GDP growth (annual %)	7	4	2	3.63
GDP per Capita, PPP (current international \$)	na	702	973	1335.8
Inflation, consumer prices (annual %)	11	12	17	10.9
Private Capital Flow (% of GDP)	na	0.31	0.36	0.38
Foreign Direct Investment, net inflows (% of GDP)	1	0.42	0.27	0.66
Total Debt Service (% of GNI)	4	9	9	2.78
Gross Domestic Savings (% of GDP)	20	16	14	8.66
Trade (% of GDP)	63.03	56.3	58.99	60.13
Population, total (million)	13.6	19.6	26.4	39.8
<b>TANZANIA</b>				
GDP at market prices (constant 2000 US \$bn)	na	na	8.36	14.05
Real GDP growth (annual %)	na	na	3	6.75
GDP per Capita, PPP (current international \$)	na	na	454	1044.58
Inflation, consumer prices (annual %)	11	30	23	6.82
Private Capital Flow (% of GDP)	na	na	1.96	3.51
Foreign Direct Investment, net inflows (% of GDP)	na	na	2	3.09
Total Debt Service (% of GNI)	na	na	4	0.87
Gross Savings (% of GDP)	na	na	8.70	16.91
Trade (% of GDP)	na	na	50.79	48.7
Population, total (million)	15.7	21.5	29.2	43.74
<b>UGANDA</b>				
GDP at market prices (constant 2000 US \$bn)	na	3.05	4.4	8.69
Real GDP growth (annual %)	na	3	7	7.16
GDP per Capita, PPP (current international \$)	na	642	948	914.95

Inflation, consumer prices (annual %)	na	111	16	6.44
Private Capital Flow (% of GDP)	na	na	1.83	0.39
Foreign Direct Investment, net inflows (% of GDP)	0.01	0	2	0.014
Total Debt Service (% of GNI)	1	4	3	1.03
Gross Domestic Savings (% of GDP)	10	2	4	9.51
Trade (% of GDP)	31.5	30.4	30.3	45.6
Population, total (million)	11.1	14.5	20	32.7
<b>RWANDA</b>				
GDP at market prices (constant 2000 US \$bn)	0.94	1.56	3.49	7.71
Real GDP growth (annual %)	5	3	2	7.65
GDP per Capita, PPP (current international \$)	473	860	922	847.65
Inflation, consumer prices (annual %)	12	5	9	8.17
Private Capital Flow (% of GDP)	na	1.03	0.19	0.88
Foreign Direct Investment, net inflows (% of GDP)	0.61	1	0.19	0.01
Total Debt Service (% of GNI)	0.49	0.86	1.15	1.05
Gross Domestic Savings (% of GDP)	6	5	-5	2.40
Trade (% of GDP)	31.2	31.03	32.02	36.73
Population, total (million)	4.33	5.97	6.76	9.998
<b>BURUNDI</b>				
GDP at market prices (constant 2000 US \$bn)	0.48	0.70	0.80	0.80
Real GDP growth (annual %)	4	4	-1	2.69
GDP per Capita, PPP (current international \$)	325	560	667	345.75
Inflation, consumer prices (annual %)	12	7	14	11.06
Private Capital Flow (% of GDP)	na	na	0.34	0.048
Foreign Direct Investment, net inflows (% of GDP)	0.054	0.26	0.05	0.002
Total Debt Service (% of GNI)	1	2	4	4.12
Gross Domestic Savings (% of GDP)	3.3	3.14	-2.88	-12.32
Trade (% of GDP)	28.27	34.18	32.46	46.32
Population, total (million)	3.7	4.69	6.08	8.303

Note: na-not available; bn-billion.

Source of data: World Development (2010), *World Development Indicators*, website.

**Table 1.2: Sectorial Contribution to GDP (%), 2000-2009**

	KENYA	TANZANIA	UGANDA	RWANDA	BURUNDI
Agriculture value added	26.76	31.53	25.64	36.47	39.24
Industry Value added	17.02	22.08	24.51	13.90	19.05
Manufacturing Value added	10.63	8.89	7.55	6.68	8.61
Services value added	56.21	46.4	39	49.62	41.71

Source of data: World Development (2010), *World Development Indicators*, website.

Uganda's manufacturing industry has undergone bad times. Following the abandonment and chaotic confiscation of manufacturing industries belonging mostly to the Asians who were expelled in 1972, the share of manufacturing to GDP declined from an average of 8 percent prior to 1973, to 6 percent between 1973 and 1979. A historically low level of contribution of 2 percent was recorded in 1981. In the late 1980s, the government began to return some nationalized manufacturing firms to the private sector in order to encourage private investment. The government also provided funds for rehabilitation of government-operated corporations. These measures together with other major reforms improved the contribution from manufacturing to an average of 8.6 percent from the early 2000 to 2009. Most manufacturing is based on the processing of agricultural commodities, including cotton, coffee, sugar and food crops. Uganda also produces textiles, tobacco, beverages and construction materials.

A look at the economic trends of the countries shows that Rwandan economy has been the fastest growing in the region since 1990s. The real annual GDP growth averaged 2 percent from 1990 to 1999, and increased to an average of 8.7 percent from 2000 to 2009. Prior to 1995, the country had suffered a steep economic decline following the civil war that began in 1990 that culminated in genocide in 1994, and a subsequent flight of refugees to neighboring countries. The real annual GDP growth dropped to negative 8 percent in 1993, and negative 50 percent in 1994. In the period preceding the war and after 1972, during the reign of Habyarimana, the real annual GDP growth averaged 5 percent, up from 3 percent from 1962 to 1972. Since coming to power in 1994, the Rwandan Patriotic Front (RPF) has restored peace throughout the country and ensured the return of most subsistence farmers to their fields. With the support of international donors, substantial progress has been made in stabilizing and rehabilitating the economy. Inflation has been brought under control, averaging 5 percent a year from 1995 to 2003, compared to 11 percent from 1990 to 1994, 10 percent from 1973 to 1989, and 8.12 percent in the period between 2000 and 2009. However, the savings and investment rates are still low.

Uganda, like Rwanda, has been able to turn around an economy that was rundown by the autocratic regimes of the 1970s and 1980s into a stable and fast-growing economy thereafter. This has been made possible through IMF-backed economic reforms that were started in 1987 with the principle objective of restoring

producer incentives through appropriate pricing policies, improving capacity utilization of industries, increasing efficiency in government and the parastatal sector, and attaining both external and domestic macroeconomic stability through exchange rate reforms, and fiscal and monetary discipline. Average real GDP growth in the 1990s was 7 percent a year, up from 3 percent in the period 1983 to 1989, reaching 5 percent in 2003 and an average of 7 percent between the year 2000 and 2009. Inflation has steadily been reduced from a high of 200 per cent in 1987 to a single digit since 1995, reaching an average of 6.44 percent in the period between 2000 and 2009. The macroeconomic and political stability of the country has also led to increased savings and investment rates. Gross domestic savings as a percentage of GDP averaged 10 percent a year from 2000 to 2009, up from 4 percent and 2 percent a year in the 1990s and 1980s, respectively. As a result of an improved economy, the number of people living in poverty declined from 55 percent of the population in 1993 to 44 percent in 1997 (Mburu, 2006).

Burundi, on the other hand, has exhibited the worst economic performance in the region since 1993, following a war triggered by the assassination of the country's first democratically elected President Melchior Ndadaye, and economic sanctions imposed from 1996 to 1999 by neighboring countries. Real GDP growth averaged negative 3 percent a year from 2000 to 2009 and inflation averaged 11 percent. Net foreign direct investment and gross domestic savings as a percentage of GDP have been the lowest in the region owing to political instability problems. Gross



domestic savings as a percentage of GDP has remained negative since 1990, except in 1996 and 1997, averaging negative 12 percent a year from 2000 to 2009. The economy is largely subsistence-based, with coffee and tea exports accounting for 90 percent of foreign exchange earnings. This makes the economy vulnerable to adverse weather conditions as well as fluctuations in the international prices of these primary export products. The industrial sector consists mainly of agricultural processors.

As for Kenya, the country experienced moderately high growth rates during the 1960s and 1970s, with real GDP growth averaging 7 percent a year in the 1970s. The economic performance has been, however, far below the country's targets as enshrined in the country's policy documents during the last two decades, with the real GDP growth averaging 4 percent a year in the 1980s, but declining to 2 percent a year in the 1990s and marginally increasing to a dismal 4 percent in the 2000s. The sharp deterioration in economic performance worsened the poverty situation, with the number of people living in poverty rising from 42 percent of the population in 1994 to 52 percent in 1997 (Mburu, 2006). The decline in economic performance since 1980 has been accompanied by decreasing levels of savings and investment rates. Net foreign direct investment as a percentage of GDP declined from an average of 1 percent a year in the 1970s to 0.42 percent a year in the 1980s, 0.27 percent in the 1980s and before marginally improving to 0.66 percent between 2000 and 2009. Domestic savings as a percentage of GDP

declined from an average of 20 percent a year in the 1970s to 16 percent, 14 percent and 9 percent a year in the 1980s, 1990s and 2000s, respectively. The unsatisfactory economic performance has been due to the slow pace of structural reform, failure to sustain prudent macroeconomic policies, poor infrastructure, and governance problems such as corruption and inefficiency in the government and parastatal sectors.

Finally, Tanzania committed to pursue an economic recovery program (ERP) in 1986 to alleviate an economic crisis that had emanated from, among other factors, failure of the development policy of Ujamaa and Self-reliance adopted in 1967, which put emphasis on improvement of the agricultural sector, (Nasongo, 2009). Though the sector contributed a large share of export earnings, it suffered major declines in world primary products export prices. The policy emphasis was, however, shifted from agriculture to the manufacturing sector, when Tanzania adopted the basic industry strategy (BIS) in 1974 that emphasized import substitution and simultaneous expansion of heavy producer and consumer goods industries (Tax, 2000). With the decline in export earnings from the few primary products, and a manufacturing sector that was heavily import-dependent but internationally uncompetitive, the country suffered a major shortage of foreign exchange to continue acquiring the necessary inputs for agriculture and manufacturing sector. The economic reforms introduced in 1986 entailed exchange rate adjustments, price decontrols, public sector reforms, and trade

liberalization (Mkenda, 2001). Following these reforms, the economy grew at 7 percent a year from 2000 to 2009, up from 3 percent, on average, in 1990s. Inflation has been at a single digit level since 1999 and averaged 7 percent from 2000 to 2009. The budget deficit as a percentage of GDP remained below 5 percentage of GDP starting from 1987. Recent banking reforms have helped increase private sector growth and investment.

### 1.1.3 Intra-regional Trade in EAC

Table 1.3 and Table 1.4 give the share of intra-EAC commodity exports and imports as a percentage of each country's GDP.

**Table 1.3: Direction of Intra-EAC Export, 2001-2009**

Exports (as a percentage of GDP)								
Export by	Partner	2001	2003	2005	2007	2009	Average	Regional Average Exports
<b>Kenya</b>	Burundi	0.18	0.24	0.16	0.10	0.08	0.152	4.22
	Rwanda	0.34	0.53	0.48	0.50	0.50	0.47	
	Tanzania	1.32	1.29	1.38	1.46	1.35	1.36	
	Uganda	2.94	2.71	2.53	1.66	1.38	2.24	
<b>Tanzania</b>	Burundi	0.07	0.14	0.08	0.05	0.06	0.08	0.52
	Kenya	0.34	0.14	0.19	0.24	0.19	0.22	
	Rwanda	0.03	0.04	0.05	0.07	0.20	0.08	
	Uganda	0.05	0.08	0.19	0.17	0.21	0.14	
<b>Uganda</b>	Burundi	0.08	0.16	0.23	0.36	0.25	0.22	1.81
	Kenya	1.01	1.24	0.80	0.99	0.89	0.99	
	Rwanda	0	0.33	0.40	0.71	0.75	0.44	
	Tanzania	0.11	0.09	0.17	0.26	0.17	0.16	
<b>Rwanda</b>	Burundi	0.03	0.04	0.03	0.04	0.10	0.05	0.61
	Kenya	0	0	0.01	0.01	2.13	0.43	
	Tanzania	0	0	0	0	0.02	0.004	
	Uganda	0.2	0.03	0.02	0.09	0.12	0.13	
<b>Burundi</b>	Kenya	0.40	0.01	0.05	0.22	0.10	0.16	0.59
	Rwanda	0.33	0.36	0.34	0.22	0.23	0.3	
	Tanzania	0.01	0.01	0	0.01	0	0.01	
	Uganda	0.12	0.13	0.12	0.10	0.11	0.12	

Source: IMF (2010), *Direction of Trade Statistics*, CD-ROM.

**Table 1.4: Direction of Intra-EAC Import, 2001-2009**

Imports (as a percentage of GDP)								
Imports to	Partner	2001	2003	2005	2007	2009	Average	Regional Average Imports
<b>Kenya</b>	Burundi	0.01	0	0	0.01	0	0.01	0.54
	Rwanda	0	0	0	0	0.41	0.08	
	Tanzania	0.06	0.12	0.15	0.16	0.15	0.13	
	Uganda	0.07	0.09	0.43	0.48	0.54	0.32	
<b>Tanzania</b>	Burundi	0	0	0	0	0	0	2
	Kenya	0.92	1.81	2.01	2.59	2.04	1.87	
	Rwanda	0	0	0	0	0	0	
	Uganda	0.12	0.06	0.12	0.2	0.14	0.13	
<b>Uganda</b>	Burundi	0	0	0	0.01	0.01	0.01	4.89
	Kenya	4.82	5.64	5.79	4.17	2.79	4.64	
	Rwanda	0	0.01	0.01	0.03	0.02	0.01	
	Tanzania	0.11	0.17	0.33	0.26	0.30	0.23	
<b>Rwanda</b>	Burundi	0.14	0.13	0.12	0.06	0.10	0.11	5.54
	Kenya	2.94	4.72	3.81	4.03	3.08	3.72	
	Tanzania	0.19	0.29	0.31	0.33	0.90	0.41	
	Uganda	0	1.24	0	2.45	2.78	1.30	
<b>Burundi</b>	Kenya	1.41	3.78	4.27	3.0	2.00	2.90	6.57
	Rwanda	0.07	0.12	0.11	0.17	0.02	0.10	
	Tanzania	1.70	3.09	1.61	1.00	1.11	1.70	
	Uganda	0.12	1.55	1.43	3.95	2.28	1.87	

Source: IMF (2010), *Direction of Trade Statistics*, CD-ROM.

From Table 1.3 and Table 1.4, it can be observed that Kenya is the dominant trading partner among the East African countries, exporting more to the others than it imports. Between 2001 and 2009, Kenya's intra-EAC exports as a percentage of GDP was on average 4 per cent, compared to an average import of 0.5 per cent from the EAC partner states. Kenya's dominance in trade could be attributed to its comparatively wider range of highly developed manufacturing industries. The table also reveals that Kenya's trade has been dominated by its exports to Uganda. In contrast, Burundi is the major importer of commodities

from the region, followed by Rwanda and finally Uganda, each accounting on average 6.6%, 5.5% and 4.9% of their GDP, respectively. What is noticeable from Table 1.3 is that the EAC region is becoming increasingly important as an export market for all the Partner States.

Total intra-EAC trade has continued to grow following the establishment of the EAC Customs union on 1st January 2005. Total intra EAC trade grew from US\$1,617.1 million in 2006 to US\$ 3,800.7 million in 2010 (ADB, 2012). This is more than Doubling of the trade in a period of 5 years. The increase of the intra-EAC trade has been on the account of increased imports and exports within the EAC bloc. The performance of each partner state shows similar upward trends in both exports and imports over the period. The increase in total intra-EAC trade has also seen the share of intra-EAC trade in total trade rise from 7.8% in 2006 to around 11.38% in 2010 (ADB, 2012). However, this still remains low compared to Europe where intra-regional trade account for around 60% of total trade.

#### **1.1.4 Financial Sector Landscape in East Africa Community**

##### **1.1.4.1 Tanzania**

The Tanzanian government followed strongly socialist policies until the 1980s, and its financial system was structured with the aim of making Tanzania a wholly self-reliant state, (Nasongo *et.al* ,2009). However, the financial sector in Tanzania has undergone substantial structural change since the liberalization of the sector in

1991. The financial landscape in Tanzania comprises mainly banks, pension funds, insurance companies and other financial intermediaries. The sector is dominated by banking institutions that account for about 75 per cent of the total assets of the financial system, followed by pension funds whose assets account for about 21 per cent, the insurance sector accounts for 2 per cent of the total assets, while the remaining financial intermediaries hold about 2 per cent (Sarangi, 2010).

By end of June 2010, the banking sector was made up of 41 banking institutions, out of which 19 were foreign owned. The banking system showed a high concentration of total assets (57 percent) being held by four big banks. Generally, foreign owned banks in Tanzania account for about 48 percent of the banking industry's total assets. Despite this significant market share, the effects of the Global Financial Crises (GFC) had a limited direct impact to foreign owned banks, notwithstanding the credit crunch suffered by some of their parent companies in Europe and America (Sarangi, 2010).

The insurance industry in Tanzania comprised 22 insurance companies, with five companies controlling about 70 percent of the total market share in terms of total assets. The State owned NIC alone accounted for about 39 per cent of the sector's total assets as of June 2010.

The cushion over external exposure was mainly attributed to the structure of the Tanzanian prudential financial sector regulation system, and the existing limitations on foreign currency placements or foreign investments by Tanzanian firms. Financial sector assets had expanded rapidly in the past decade from a total of TZS 1,637 billion at end of December 2001, to TZS 10,040 billion in December 2009. The growth was led by private sector deposits in the banking system. Despite the rapid growth in financial assets, the financial system depth remains small and access to finance is limited because it is behind a country like Germany whose population that's unbanked stand at 4%.

According to Fin-Scope Survey that was conducted in 2009, the proportion of adult population who use banks and other formal financial institutions was only 12.4 percent, representing about two million adults out of the estimated twenty million. Efforts to improve financial literacy in order to enhance financial inclusion and consumer protection are part of the second generation of financial sector reforms, (<http://www.tanzaniainvest.com/tanzania-banking-sector>).

The financial literacy program aims at empowering more individuals to make informed financial choices and increase the reach and coverage of consumer outreach initiatives. Consequently, promoting greater financial inclusion remains a high priority for the Bank of Tanzania as part of its commitment to enhance the stability and efficiency of the financial system. The existing banking laws in

Tanzania restrict banks from engaging in non-banking financial services. Banks which intend to diversify into other financial services are required to establish separate subsidiaries. The separation of banking services from other financial services provides some cushion against the transmission of shocks across different sectors in the financial system. Nevertheless, there is a significant inter-linkage across the financial sub-sectors in Tanzania.

An additional component of Tanzania's financial sector reform programme was the strengthening of the Bank of Tanzania's role in monitoring and enforcing banking regulations, (Zigoni 2010). There are regulations on large credit exposure, capital adequacy, liquidity ratios, and open foreign exchange positions, provision for bad debt, restricted lending and deposit insurance. There is a money market in operation consisting of short-term deposits, inter bank borrowings by commercial banks through the clearing-house and treasury bills.

The Dar es Salaam Stock Exchange was launched in 1998 with two listings, Tanzania Breweries and Tanzania Oxygen. The stock exchange was used as a privatization vehicle for these two companies to ensure a portion of local ownership. Tanzania is a member of the East African Securities Exchanges Association (EASEA), which was established in 2004. The formation of the EASEA is part of a broader strategic plan linked to East African Community (EAC), which encompasses capital markets and free trade across BURKT.



#### **1.1.4.2 Burundi**

Ten years of civil war from 1993 to 2003 has taken a heavy toll on Burundi's economy, destroying economic infrastructure and virtually halting investment, (Mburu 2006). With 75 percent of total financial system assets, commercial banks dominate Burundi's financial sector. The financial sector comprises eight commercial banks, two financial establishments, six insurance companies and two social security organizations, (Girukwigomba, 2010). Access to financial services is limited. Approximately 2 per cent of the population has a bank account and less than 0.5 per cent use bank credit facilities. All of these establishments are concentrated in the capital and in a few provincial administrative centres, with 45 per cent of bank agencies located in Bujumbura, (Girukwigomba, 2010).

Three commercial banks—Banque de Crédit de Bujumbura (formerly a subsidiary of FORTIS), Banque Commerciale du Burundi (formerly a subsidiary of ING), and Interbank Burundi (100 per cent privately owned) control 75 per cent of deposits and credits. The three commercial banks' domination over the banking system is such that most newcomers have ended in bankruptcy. The following Three banks filed for bankruptcy due to insolvency, too many non-performing loans and lack of liquid assets: Meridien Biao Bank (MBB) (in 1995), Banque de Commerce et de Développement (BCD) (in 2003), and Banque Populaire du Burundi (BPB) (in 2006). The same was true of three financial establishments: Crédit Vente Service, Caisse de Mobilisation et de Financement (CAMOFI), and

CADEBU (Caisse d'Épargne du Burundi). A new bank, Diamond Trust Bank (Kenya), opened its doors in 2009. This movement was fostered by new regulations from the Banque Centrale requiring that the shareholders' equity be raised from BIF 3 billion to BIF 10 billion in 2010 (Girukwigomba, 2010).

Burundi's insurance industry is minimally developed, with no set of regulations for either the industry or an insurance supervisor. The sector remains minute, highly concentrated and with a density rate (as measured by premium/inhabitant) about fifty times below the African average. Other financial services include national pension system, microfinance and housing finance. The national pension system (INSS) covers only 5 percent of the population and accounts for a mere 5 percent of total financial assets. Lack of access to financial services is a severe problem for the majority of the population, particularly in the densely populated rural areas. Only 2 percent of the total population holds bank accounts and less than 0.5 percent use bank lending services. This is incomparable with a country like Germany whose population that's unbanked stands at 4 per cent.

Microfinance, however, plays a larger role, with 4 percent of Burundians being members of microfinance institutions (a larger share of the population than that reached by banking and postal services combined). Housing finance in Burundi faces unmet demand, high prices and a deteriorating housing stock that makes housing unaffordable for the bulk of the population. The largest provider of housing finance remains the National Housing Promotion Fund (FPHU).

However, the market is very small with the FPHU mortgage portfolio accounting for just 2 per cent of total financial system assets, (<http://www.mfw4a.org/country-focus/burundi/burundi-financial-sector-profile.html>)

#### **1.1.4.3 Uganda**

Uganda's financial sector has evolved from the first commercial bank established in 1996, the National Bank of India, which later became the Grindlays Bank and is now the Stanbic Bank, to the 22 commercial banks, six credit institutions and three Microfinance Deposit-taking Institutions (MDIs) in the year 2010. These are in addition to the rapidly growing semi-formal and informal financial sector in the country. The sector has also undergone several policies, legal and regulatory reforms with various degrees of results.

The evolution of the financial sector has been characterized by bank closures, mergers and acquisitions. Before the country's independence in 1962, the financial sector was dominated mainly by foreign owned commercial banks (Beck and Hesse, 2006). In addition to the National Bank of India, Standard Bank was opened in 1912 and the Bank of the Netherlands was opened in 1954 and later merged with Grindlays Bank.

Uganda Credit and Savings Bank, which became Uganda Commercial Bank (UCB) in 1969 was established in 1965 by an Act of Parliament. This was the first local commercial bank established in the country. Bank of Baroda was established, first in 1953, but regularized as a commercial bank in 1969 with the enactment of the Banking Act of 1969. This was the first legal framework for regulation of the banking sector following the country's independence. The Bank of Uganda – country's central bank – which was established in 1966 under the Bank of Uganda Act (1966), was followed by the establishment of the Uganda Development Bank under the Uganda Development Bank (UDB) Decree (1972).

With the establishment of UCB and UDB, the government-owned banks dominated the banking industry. UDB received all foreign loans and channelled them to the local companies for development. UCB with the biggest number of branches (about 67 in number) handled the majority of the customers, while the East African Development Bank (established in 1967) handled the East African Community (EAC) business.

The informal sector comprises of a wide range of money lenders, Savings and Credit Cooperative Associations (SACCO), Rotating Savings and Credit Association (ROSCAs), and the Microfinance Institutions (MFIs). In terms of the informal financial institutions, there has been a considerable progress in expanding the outreach of these institutions and improving the access to financial

services especially by the rural population. While Uganda has a well-developed and diversified microfinance industry, it nonetheless suffers low capitalization and legal restrictions. These handicap limits the industry's ability to meet the development finance needs of the rural and micro enterprise sector that forms the bulk of Uganda's productive enterprises and account for more than 50 percent of GDP. Thus, microfinance cannot overcome the chronic shortage of larger and longer-term loans to small scale enterprises, especially in the commercial farming sector. On the other hand, Uganda's capital market is not developed enough to play any significant role in furnishing long-term funds to the economy. Similarly, the pension system is very weak where mobilizing long-term funding is concerned.

Overall, though financial depth remains low, signs of recovery are encouraging. Financial intermediation is low, playing a limited role in the provision of funds for development finance and dominated by commercial banks. The banking sector is dominated by international banks holding in totality at least 88 percent of total sector assets. The two biggest banks, namely Standard Chartered and Standard Bank (Stanbic), together hold market share of about 56 percent. In addition, Stanbic Bank, which acquired Uganda Commercial Bank in 2002, is the largest bank with a market share of about 31 percent on top of boasting the largest branch network in the country of 68.

#### **1.1.4.4 Kenya**

Kenya has one of Sub-Saharan Africa's most developed financial system, (Odhiambo 2008). The five largest banks, including two majority state-owned banks and two foreign banks, control over 50 per cent of assets (<http://www.mfw4a.org/kenya/kenya-financial-sector-profile.html>). The Nairobi Security Exchange (NSE) has about 50 listed firms cutting across the financial, industrial, service and agricultural sectors. The market also has active primary and secondary counters for corporate and government bonds.

The insurance market is overpopulated, highly segmented, and has a limited core of companies with adequate retention capacity and underwriting policies. The 2006 Insurance Amendment Act led to the establishment of an Independent Insurance Regulatory Authority in April 2008, which is expected to improve insurance penetration. A variety of financial institutions, including microfinance institutions (MFIs) and the Kenya Post Office Savings Bank, offer deposit and lending services to those segments of the Kenyan population that are underserved by commercial banks, but a clear strategy for developing formal and informal institutions is yet to be formulated. The microfinance industry is, however, growing and is expected to play a pivotal role in deepening financial markets and enhancing access to financial services and products, particularly in rural areas. A Microfinance Act was passed in 2008 to regulate MFIs through licensing and supervision. Kenya is a world leader in mobile banking. Its landmark M-Pesa

platform, a service offered through a partnership between Safaricom and Vodafone, allows a range of money transfer, cash-flow management and banking options through mobile phones. M-Pesa has received widespread acclaim and many countries are working to emulate its successes.

The global economic crisis slowed export growth, tourism receipts, remittances, and private capital flows in the year 2008. The crisis was forecasted to continue affecting Kenya's economic performance through the year 2009, leaving the country vulnerable to large current account deficits, high debt levels, increasing fiscal deficits and declining foreign exchange reserves. Thanks to prudent economic policies that helped reduce public debt, Kenya has had the necessary space to ease fiscal policy and help sustain domestic demand in the face of slowing economic growth.

#### **1.1.4.5 Rwanda**

Since the end of the civil war in 1994, Rwanda has made remarkable progress in rebuilding its economy. Peace and political stability have been reestablished, and sound macroeconomic and structural policies implemented, backed by substantial donor assistance. As a result, the country has enjoyed strong growth, averaging 7 percent for the past seven years, with comfortable international reserves and substantially reduced external debt levels. The agricultural sector, which employs over 80 per cent of the population, has expanded in recent years. As of 2007,

agriculture accounted for almost 40 percent of GDP, and forms the backbone of the export industry together with minerals. Challenges remain despite progress. Poverty is widespread, aid flows continue to account for over 20 percent of national income, and external debt levels continue to be high. The financial sector is small but growing. As of 2004, total financial sector assets stood at 35 percent of GDP, with bank assets being equivalent to 18 percent of GDP, both figures indicating low levels of financial depth relative to the sub-Saharan average (<http://www.mfw4a.org/rwanda/rwanda-financial-sector-profile.html>).

The government is involved in the banking sector, even though majority shares in two of the country's banks were sold in 2004. Credit remains limited to a small number of sectors, namely trade, tourism, property development and manufacturing. While financial supervision, oversight, and regulation are weak, the government has undertaken significant reforms and banks' soundness and performance has considerably improved since 2005. In May 2007, the government finalized the country's Financial Sector Development Program (FSDP) to establish a comprehensive policy framework and a detailed action plan for developing the financial sector.

Other financial service included insurance, pension and microfinance. The insurance industry is small, with only four companies active in the sector as of 2005. Premiums account for 0.4 per cent of GDP and total insurance assets for 1.7



percent. While access to financial services remains limited, ongoing reforms are rapidly improving citizens' ability to participate in the financial sector. Over 30 percent of households now have a bank account. Most microfinance institutions (MFIs) lack the capacity to finance themselves, develop new products, or expand their reach to rural clients.

### **1.2 Statement of the Problem**

East African Countries' economic performance has been disappointingly low compared to other developing regions. This has been attributed to many factors, among them: the inability for most African countries to secure access to larger markets; inherent high intra-country trade costs; lack of an effective framework for regional cooperation and resource pooling; and the pressure from development partners pursuing their own foreign policy objectives in the continent (Njoroge, 2010). As a consequence, among other measures geared towards promoting economic growth and development, Africa is witnessing a renewed momentum for financial integration. Besides the fear of marginalization, the fact that most of the African economies are too small on their own to negotiate with powerful trading blocs has also led to increased interest towards regional economic and financial integration. The continent has witnessed a shift from closed regionalism with import competing approach to a more open approach.

Regional financial arrangements have become a popular vehicle for the promotion of trade and growth. To this end, the EAC partner countries ratified the Common Market Protocol in year 2010 and turned the attention to monetary and financial integration, and the negotiation of a Monetary Union Protocol. Part G and H of the common market spells the efforts of EAC towards achievement of regional financial integration. This includes effecting policies towards coordinating and harmonizing financial sector regulations and encouraging convertibility of EAC partner countries foreign currencies. The determination of regional issues and the pace of the integration process can be more expeditious if policies to do with financial convergence are critically examined.

However, there are conflicting views concerning the role that financial integration plays in economic growth and by extension trade. Tukenmze (2005,) for example, found no evidence that financial integration supports economic growth. IMF (2002) found it difficult to establish the relationship between financial integration and growth. Schulne (2006) supported the view that financial integration was associated with growth. Kose *et al.* (2003), on the other hand, found that financial integration was associated with macroeconomic volatility. In addition, whether the EAC efforts towards deeper financial integration have yielded positive results in terms of improved economic growth and trade remains largely unexplored or uncertain. This is an important issue because growth and trade in the EAC is by and large low and highly variable among these countries, and need to be

improved. The role of financial integration in the growth process has become even more apparent, as many developing countries especially in Africa try to determine an appropriate liberalization strategy. It is against this background that following research questions arises.

### **1.3 Research Questions**

- (a) What is the effect of regional financial integration on economic growth in the EAC?
- (b) What is the effect of regional financial integration on intra-regional trade in the EAC?
- (c) Does the above effect differ among member countries?
- (d) What are the policy implications arising from the above research questions?

### **1.4 Objectives of the Study**

The main objective of the study was to investigate the effects of regional financial integration on economic growth of EAC member countries.

The specific objectives of the study were to:

- (a) Measure the effect of regional financial integration on economic growth in EAC.
- (b) Investigate the effect of financial integration on intra-regional trade in EAC.
- (c) Establish whether the effects differ among member countries.

(d) Draw the policy implications from the study findings.

### **1.5 Significance of the Study**

This paper reviewed some of the issues relating to financial markets and the regional financial integration. It was an attempt to clarify the role of financial integration in contributing to growth and employment in a regional setting, with a strong bias to the EAC. It was important for various reasons. First it gave empirical and theoretical insights into the nature of the relationship between the regional financial integration, economic growth and trade integration. To be consistent with regional development objectives, it is important to forge a consensus on financial policy reform and implementation. The result of the study can serve as source of information for designing and implementing regional and sovereign national policies to this end. Of great use is this study to policy makers in assessing the appropriateness of the existing financial policies designed towards an East African Monetary Union. This study adds to the existing knowledge on this topical issue and provides impetus for further research to the current and future crop of academicians and researchers. This paper help critically assess whether financial integration through its role of intermediation can be relied on to stimulate growth in RECs.

### **1.6 Organization of the study**

The study is organized in five chapters. The foregoing chapter gave the background of the study and its objectives. Chapter two is devoted to the review

of the relevant literature both theoretical and empirical. Chapter three highlights the research design and the methodology that was used in undertaking this study. The fourth chapter presents the study findings and discussions. It highlights the descriptive statistics, diagnostic test results and presentation and discussions. Chapter five contains the summary of the study findings, conclusions drawn from the study, policy implications emanating from the study and finally areas for further research are suggested.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This section reviews the theoretical literature on financial integration and economic growth. The chapter also looks at empirical literature on the relationship between financial openness and economic growth in Regional Economic Communities (RECs). The theoretical underpinnings of the analysis are spelled out in this section together with the identification of different causal relations between income, expenditure components and trade in foreign assets.

### **2.2 Theoretical Literature**

The law of one price (LOOP), pioneered by Augustin Cournot and Alfred Marshall provides the basic principle that explains the integration of financial sectors ([www.rbi.org.in/scripts/pulication](http://www.rbi.org.in/scripts/pulication)). According to the LOOP, in the absence of administrative and informational barriers, risk-adjusted returns on identical assets should be comparable across markets.

According to the law of one price, assets with identical risk characteristics should have the same price, independently of the location where they are traded. The cash flow and risk characteristics of money and government bond markets are comparable to allow for the law of one price to be tested. Similarly, for government bonds, increasing financial integration should imply yield convergence, once credit and liquidity risks are taken into account. On the other

hand, corporate bond yields, retail interest rates and equity returns are not directly comparable, as they are characterized by different cash flows and very heterogeneous sources of risk.

Several recent papers use changes in returns dispersion to test the law of one price (see, for example, Solnik and Roulet, 2000, Adjaouté and Danthine, 2004, Baele et al., 2004, and Eiling and Gerard, 2006). The rationale is simple: If returns are highly correlated, then more often than not they will move together on the up side or on the down side. If they do, the instantaneous cross sectional variance of these returns will be low. Conversely, lower correlations mean that returns often diverge, inducing a high level of dispersion. Hence dispersions and correlations are inversely related.

The term structure of interest rates, derived from the liquidity preference, the theory of unbiased expectations, and separation of markets into segments, establishes integration across the short, medium and long term (Blinder, 2004). The concept of term structure is applied to a specific financial asset like the government securities that are assumed to be risk free. In economic literature, it is known that the term structure of interest rate communicates information about future movements of inflation and growth which is a policy objective of most countries.

Further the capital asset pricing model (CAPM) is used widely for valuing common risk pertinent financial instruments. CAPM determines the connection between market portfolio and risk free assets such as government instruments. The CAPM analyses a simplified market devoid of all transaction costs, and homogeneous investors. In this case, the efficient portfolio is the market portfolio (Tobin, 1958). Many investors invest in the market portfolio in order to attain an optimal combination of risk and return trade off.

Black-Scholes' model of option pricing shows the relations between derivative products and cash market of underlying assets. The quoted put-call parity theory in economics states that without arbitrage opportunities, a derivative asset can be replicated in spot price of its underlying instrument together with borrowing and lending. Regional financial integration can also happen due to information efficiency as people form expectations on the future course of real sector growth and policy direction.

Standard growth theory postulates the making of new productive capacity as limited and provided by the quantity and quality amount of the available savings. Savings alternatively can accumulate domestically or by the means of deficit in the current account as shown in the standard income identity below:

$$(Y_t + r_t A_t) - (C_t + G_t + I_t) = S_t - I_t = CA_t = A_{t+1} - A_t \text{-----} 2.1$$



where  $Y_t$  is domestic output GDP,  $r_t$  is the international interest rate,  $A_t$  is domestically owned foreign assets,  $C_t$  is consumption,  $I_t$  is investment and  $G_t$  is the government spending. Equation 2.1 simply shows national income less absorption and is the same as the gap between saving and investment,  $S_t - I_t$ , together with the current account,  $CA_t$ , which explain the change in foreign assets  $A_{t+1} - A_t$ , or capital net flows. When there is profitable opportunities in other countries for investment a nation can borrow abroad to invest at home, and therefore, obtain the needed extra-saving through a net capital inflow. Economies can have net capital inflows due to consumption, import booms and payments debt service. A depression in export can lower production and income and so when debt payments are stable unfavorable current account can result.

Theories on the benefits or dangers of financial integration revolve around this identity, but this identifies different causal relations between income, expenditure components and trade in foreign assets. The traditional case of the integration of different financial systems is based on the benefits of pooling and allocating savings towards the most productive uses across countries. The principle of comparative advantages and mutual gains from free trade has been extended to trade in financial assets along three main dimensions: countries can benefit from financial integration if they have different capital endowments and different risk-free returns to capital and benefit (neoclassical convergence argument); have desired consumption and savings time patterns not in line with their available

income (inter-temporal trade argument); and face different potential fluctuations of production that affects their consumption possibilities (risk-sharing argument).

The neoclassical-Solow model has given a convincing argument for capital account liberalization and regional financial integration, Summers (2000). If technology easily moves across economies, nations with less of a capital endowment will enjoy higher investment returns and vice versa. When there is financial openness, the differential in real rate of interest capital intensive countries and capital-scarce economies generate an immediate flow of funds that give incremental foreign savings that encourage new growth an investment. When there is regional financial integration, push of finance from developed economies and pull to less developed countries causes a convergence in the financial instruments returns, technology and per capita growth via net capital inflows.

Standard theory, postulate a strong relationship between capital inflows and new growth capacity. Given certainty of capital profitability, savings produce its investment through direct transmutation, such as the one in the open economy Solow model. Further, savings inflows from abroad reduce the risk-free rate and the premium of equity through improved risk diversification. Lower cost of equity capital eventually encourages investment. In all the cases financial openness ease building of capacity and growth through accumulation of capital.

The debate on the benefits of financial globalization has also been influenced by some critical assumptions that commonly provide the fundamental starting point of most recent mainstream models. The definition of national welfare as the utility of the hypothetical representative economic actor, and the assumptions on its preferences, lead economic theory to focus disproportionately on the possibility of reducing the consumption volatility over time and across the state of nature, compared to any other distributional or even allocation issue. Strong assumptions on the information and rationality of market participants, and the resulting ability of markets to coordinate their actions, lead to the fundamental tenet that the more frictionless is the environment, the better is the outcome.

Investment and consumption decisions consider all the possible macroeconomic interactions, until full employment is optimally achieved. In addition, ideal mobility of capital is assumed in short-run open economy theory that explain fluctuations of current account in the cycle. If capital move immediately towards profitable opportunities the risk real return on capital are equalized continuously.

In the inter-temporal approach to the current account (popularized by Obstfeld and Rogoff 1995,1996), free trade in all the assets are an efficient way to stabilize income variations, and smoothen consumption by borrowing between economies. Trade in foreign assets and the variations in current account are the mean of smoothing the desired level of consumption. capital flows that is free

permit better allocation of financial wealth and a reduction of the effect of real disturbance on consumption hence improving total welfare. Decisions about investments are made on the basis of the world interest rate. Savings decisions are made by a response to shocks in income and realignments between returns and preferences,  $\beta$ , which affect current account and foreign assets as shown:

$$S_t(r_t^w, Y_t; \beta) - I_t(r_t^w) = CA_t = A_{t+1} - A_t \text{-----} 2.2$$

where  $Y_t$  is domestic output GDP,  $r_t$  is the international interest rate,  $A_t$  is domestically owned foreign assets,  $C_t$  is consumption,  $I_t$  is investment and  $G_t$  is the government spending.

In the neoclassical model, high saving countries would lend abroad, for they easily extinguish their investment possibilities, while borrowing countries are supposed to be those with more investment opportunities than saving capacity. In the inter-temporal model, capital mobility equalizes risk-adjusted rates so that consumption gains a centre stage together with income variability and inter-temporal preferences.

World financial integration permits countries to minimize production risk that is associated with outside idiosyncratic shocks. Nations with divergent structure of production, that are subject to unrelated production shocks, would improve their welfare by exchanging assets, minimizing return on asset volatility and hence minimizing their consumption levels volatility. This argument of sharing risk in

international finance is the extension of portfolio allocation theory, where national capital is seen as a risky financial instrument whose return is based on volatile production that can be exported abroad in form of domestic firm's shares. Any nation would diversify its portfolio minimizing its GNP risk by exporting a share of its GDP in the form of shares of productive capital and purchasing share of other countries GDPs via capital outflows. The extra-returns from the asset could offset each other in such a way that years of bad production in one country are eliminated by bumper harvests in the others.

The risk-sharing argument implies that if risk is shared perfectly among nations, nation's GNP is uncorrelated to their GDP and will be based on the global production. With ideal risk sharing, the growth rate of consumption is correlated across different nations and is not volatile like the domestic production. When output fluctuation is not relevant for welfare, country's production can become more specialties and the benefit of scale economies can accrue. Nations that are developing could be advised to reduce the diversification of their production in so as to increase their consumption levels and stabilize them.

There are many other channels by which regional financial integration and inflows of capital encourage growth i.e. the technological spillovers brought about by FDIs, the direct influence of an economy's openness in the growth of domestic financial sector through competition, improved liquidity and appreciation of new forms of financial intermediation, and the eventual discipline which financial

markets can put to a public sector. Regional Domestic financial sector could also gain from openness to competition from abroad. This improves the effectiveness and the efficiency of the banking sector and its supervision, and spurs the uptake of new financial assets which encourage financial intermediation. Domestic policies further become constrained, and more oriented towards monetary discipline and tax reforms favorable to investment. These two previous arguments have the same implication that competitive pressures that is external would discipline and encourage efficiency of institutions.

### **2.3 Empirical Literature**

IMF (2002) investigated the impact of international financial integration on economic growth and assessed whether the IFI-growth relationship depended on the level of economic development, educational attainment, financial development, legal system development, government corruption and macroeconomic policies. The study contributed to the existing literature by using new measures of international financial integration that is Foreign Direct Investment (FDI), portfolio, and total capital flows. Moreover, the study considered measures of just capital inflows as well as measures of total capital flows (inflows plus outflows) to proxy for IFI because openness is defined both in terms of receiving foreign capital and in terms of domestic residents having the ability to diversify their investments abroad.

The study used Generalized-Method-of-Moments (GMM) estimators developed for dynamic panel data that were introduced by Arellano and Bond (1991), and Arellano and Bover (1995). The panel consisted of data for a maximum of 57 countries over the period 1976-2000. It averaged data over non-overlapping, five-year periods, permitting five observations per country (1976-1980, 1981-1985... 1996-2000). The study did not support the view that international financial integration per se accelerates economic growth even when controlling for particular economic, financial, institutional and policy characteristics. Note, however, these results did not imply that openness was not associated with economic success. Indeed, IFI was positively associated with real per capita GDP, educational attainment, banking sector development, stock market development, the law and order tradition of the country, and government integrity (low levels of government corruption). Thus, successful countries were generally open economies. Rather, this study found that IFI was not robustly linked with economic growth when using a variety of IFI measures and an assortment of econometric approaches. Similarly, although there were isolated exceptions, the null hypothesis that IFI is unrelated to economic growth even when allowing this relationship to vary with economic, financial, institutional and macroeconomic characteristics was not rejected.

Kose *et al.* (2003) examined the impact of international financial integration on macroeconomic volatility. The study provided a whole review of changes in

macroeconomic volatility in a big group of industrial developing nations in 1960-99 period. Specifically, the study re-examined the importance of trade and financial openness in moving the cross-sectional and time series structure of the fluctuations. The paper used ordinary least squares. It employed two proxies of trade openness, a measure of restrictions on current account transactions, and a trade openness ratio i.e. the ratio of volume imports and exports to GDP. To capture financial openness, the study used an indicator of the restrictions on capital account transactions and a measure of total capital flows to GDP, where the latter is similar to the ration of trade openness. The restrictiveness proxy can be viewed as measures of *de jure* financial openness trade, while the flow measure indicates *de facto* openness. The distinction is important in explaining the impact of regional financial integration because many nations that have put controls on their transactions on capital account have realized they are mainly ineffective especially in the context of capital flight.

In the empirical analysis, the paper also included a number of variables drawn from papers that had examined various aspects of volatility. In addition to the measures of trade and financial openness, the core set of explanatory variables included the level of per capita income, the standard deviation of the terms of trade, the ratio of M2 to GDP and the volatility of changes in this ratio, the levels and volatility of inflation, and the fiscal balance. The paper eschewed the use of fixed-effects estimators in order to avoid restricting the empirical analysis to



within-country volatility. The study reported two major results: First, while the volatility of output growth had, on average, declined in the 1990s relative to the three earlier decades, it also documented that, on average, the volatility of consumption growth relative to that of income growth had increased for more financially integrated developing economies in the 1990s; Secondly, increasing financial openness was associated with rising relative volatility of consumption, but only up to a certain threshold. The benefits of financial integration in terms of improved risk-sharing and consumption-smoothing possibilities appeared to accrue only beyond this threshold.

IMF (2003) examined the effects of financial globalization on developing countries. The main purpose of the study was to provide an assessment of empirical evidence on the effects of financial globalization on developing economies. The objectives of the study were to: examine whether or not financial globalization promoted economic growth in developing countries; determine whether financial globalization impacted on macroeconomic volatility in these countries; and assess the factors that appeared to help countries obtain the benefits of financial globalization. The study found out that many developing economies with a high degree of financial integration had also experienced higher growth rates. It also found out that there were many channels through which financial openness could enhance growth. A systematic examination of the evidence,

however, suggested that it was difficult to establish a robust causal relationship between the degree of financial integration and output growth performance.

Tükenmez *et al.* (2005) investigated whether financial globalization promoted economic growth in Small Island Developing Countries (SIDs). The study based on Cyprus also determined factors that helped countries obtain the benefits of financial globalization and identified the role played by SIDs in the financial globalization process. The empirical results using OLS showed that there was no strong and uniform support for the theoretical argument that financial globalization per se increased the rate of economic growth. The study noted that one of the musts of financial globalization was the removal or reduction of trade barriers, which in turn would not necessarily lead to economic success. Small island states with their limited capacity were encouraged to upgrade their productivity or to promote innovation if they wanted to win this competitiveness game.

The financial integration of the small island states also required continuous effort to maintain sound macroeconomic policies such as external current account equilibrium, disciplined fiscal policy, transparent management of exchange and interest rates, stability oriented monetary targets and price stability. The paper also noted that exposure to international transactions on a limited range of goods and services would inevitably lead to greater risk of fluctuations in economic

activity. It argued that to overcome those problems, small states should consider product and factor market integration with larger trading blocks in a globalized market-place (Larose, 2003). In addition, SIDs had to cope with a variety of disadvantages arising from their locations. Many of them were located far from major trade centers and were highly susceptible to natural disasters, which could have devastating economic impacts. The research, therefore, concluded that it was important for these states to step up their resilience in order to enhance their ability to withstand and manage their vulnerability.

Schularick and Steger (2006) examined the impact of international financial integration on economic growth. The study assembled data for 24 countries from 1880-1914 covering more than 80 percent of global GDP in 1914. The historical dataset comprised European countries (Austria-Hungary, Denmark, France, Germany, Greece, Italy, Norway, Portugal, Russia and Spain), North American and Australasian settler economies (Canada, USA, Australia and New Zealand), South American (Argentina, Brazil, Chile, Mexico and Uruguay), Asian (Ceylon, India and Japan) and Middle Eastern (Egypt and Turkey/Ottoman Empire) economies. The objective of the study was to establish whether international financial openness promoted growth in the first era of global finance. The study employed a neoclassical growth model regressing the growth rate of real per capita GDP on a measure of the degree of international financial integration plus a vector of control variables which proxy fundamental growth drivers. The cross-

sectional regression with heteroskedasticity robust standard errors had the following functional form;

$$GDP = IFI + X \text{ -----} 2.3$$

where X was a vector of control variables, IFI was the average capital inflow to GDP ratio over the period, and GDP was the dependent variable, which equaled the logarithmic growth rate of real GDP per capita. The vector of economic control variables included the logarithm of the initial values for schooling and income (as a catching-up term). To those it was added the logarithm of period averages of inflation and the budget deficit; the initial investment ratio, inflation and budget deficits; the initial investment ratio and average population growth in the model, while dropping the policy variables.

The study used gross inflows of foreign direct investment and portfolio flow over GDP. This indicator captured a central element of the international financial integration concept, the potential growth effects of capital inflows. In quite stark contrast to the ambiguous findings of contemporary research, the study found that international financial integration had a statistically significant and robust effect on growth in the first era of global finance. The limitations of the study were that historical dataset were not available for all series for all countries across the different specifications in what constituted an unbalanced panel. The study also explored a very small sample of African economies and it was done many years

ago. The current study will overcome some of these weaknesses in that historical data set for the EAC will be analyzed further the study is current and will use priced based measures to capture the regional financial integration as opposed a quantity based measure..

Akinbobola and Isike (2009) took a cursory look at the empirical relationship between the inflow of capital, globalization (as proxied by the degree of openness), poverty and economic growth in South Africa. The study examined the impact of globalization on poverty vis-à-vis economic growth in South Africa in the period 1980-2005. The causal nexus between globalization (openness), poverty and economic growth was examined within the context of a four-variable vector autoregressive (VAR) system. The model was specified and estimated using annual data for 1980-2005. The size of the system required large observations in order to have enough degree of freedom for estimation. The model was represented by a four-component vector defined as:

$$V = [DO, CI, HDI, GDP] \text{-----} 2.4$$

where V was the vector containing the four variables, DO was the degree of openness, CI was the capital inflow, GDP was the growth rate of GDP, and HDI was the human development index. It was found that variation in economic growth in South Africa was explained by factors beyond foreign capital inflow and economic openness in the short run. However, it was of little consideration in the long run. Capital inflow explained a significant change noticed in the human

development index as the inflow of capital and economic openness had positive impact on poverty reduction. In essence, trade liberalization had not substantially impacted on the growth rate of the South African economy. This implied that fluctuations in real economic growth in South Africa should be seen beyond the external shock from the capital inflows or trade flows. Accordingly, the paper recommended that policy focus should be on areas that would encourage job creation and these included, for instance, investments in real sector rather than portfolio investment, which had been the case in South Africa. The study used trade as a measure of globalization.

Wang (2010) sought to quantify existing financial barriers among East African Community (EAC) member countries based on analysis of each member country's foreign exchange market. The primary contribution of the paper was the generation of an aggregate measure of financial barriers for the three relatively more advanced members (Kenya, Uganda, and Tanzania) using forward foreign exchange and interbank interest rate data. The empirical results, which are corroborated by other evidence such as the levels of development of the financial markets and restrictions on capital flows, suggested that Kenya was the EAC's most financially open country, followed by Uganda and then Tanzania. The fact that the three countries exhibited different degrees of financial openness suggests that financial integration in the EAC region has a long way to go. Using data from the forward foreign exchange and interbank funding markets of certain EAC

countries, the paper presented a measure of financial barriers for each country. The results showed that financial barriers existed within the EAC, and member countries were significantly less open financially than developed countries. These results, which should be treated with caution due to data limitations, are corroborated by other evidence such as the stage of development of money and foreign exchange markets, and restrictions on capital flows in EAC countries.

Njoroge (2010) examined the impact of economic integration on growth by constructing an economic integration index based on average Most Favoured Nations (MFN) tariffs and the level of regional cooperation for COMESA, EAC and SADC. The study applied GMM estimation technique specified as

$$y = \Sigma \lambda x + \beta z + \alpha E + \eta + \mu + \nu \text{ -----} 2.5$$

where  $x$  was a vector of significant explanatory variables referred to as ‘free variables’ (basic augmented neoclassical growth variables) that always appear in the regressions,  $E$  denoted the variable of interest, the economic integration index (EII) and or Intra regional trade intensity index, ITCR; and  $z$  was a vector of additional predetermined conditioning variables from previous studies for African countries.

This study developed an economic integration index that captured two main aspects that facilitate economic integration. First, it considered trade reforms within a particular trade bloc capturing the various efforts of individual member

countries towards freer trade. Second, trade reforms by a particular trade bloc and with the rest of the world, capturing efforts at a trade bloc level to freer trade were considered. The index took these two issues and provided various alternative policy combinations for member countries of the three trade blocs. A ten point classification scheme was constructed that combined measures of import tariffs reduction and the pace towards deeper regional integration for the three trade blocs of Eastern and Southern Africa. The study supported a positive relationship between economic integration and economic growth. Economic integration and trade, separately and jointly, had a positive and significant impact on growth. The research recommended, among other policies, pursuance of nondiscriminatory trade liberalization concomitantly with preferential liberalization in both goods and services for economic integration to have a significant and sustained positive impact on growth.

#### **2.4 Overview of Literature**

The purpose of this study is to empirically investigate the effect of regional financial integration on economic growth and intra-regional trade in EAC using a dynamic panel setting. The majority of previous studies employed cross-country growth regressions to examine the relationship between regional financial integration and economic growth (Kose *et. al.*, 2003; IMF, 2003; Tukenmez, 2005; Schularick and Adams, 2006).



However, it has become apparent that Ordinary Least Squares (OLS) estimation of cross-country growth regressions potentially suffers from a number of statistical problems. First, this methodology does not control for the unobserved country-specific effects, hence does not account for the possible heterogeneity in the relationship between privatization and growth. Second, cross-country growth regressions suffer from the omitted variable bias since the empirical growth literature have identified over fifty variables that are significantly correlated with growth (Levine and Renelt, 1992) and it is impossible to include them all in one regression.

There may be also a bias of simultaneity arising from probable reverse causality from economic growth to financial integration. In addition some factors that affect economic growth and are included in cross-section of country regressions should not be captured as exogenous, specifically when unobserved country-particular effects are not controlled for. In particular, bank development, stock market development and FDI are endogenous to economic growth. Enhanced economic growth encourages the growth of stock markets and financial sector actors and also boosts the inflow of FDI. It is therefore obvious that OLS estimators of cross-country growth regressions are inconsistent and biased. The estimates would therefore cast doubt on the output of previous literature on the relationship between privatization and economic growth based on this estimation model and procedure.

Unlike previous studies, Njoroge (2010) used a dynamic panel model and Generalized Method of Moments (GMM, henceforth) estimation to test the growth consequences of economic integration. The study supported a positive relationship between economic integration and economic growth. However, the political and economic backgrounds of transition countries are quite different from those of developed and developing markets economies and focused on economic integration. Consequently, the results of Njoroge (2010) cannot be generalized to developing and developed countries. Therefore the current study applies a GMM estimation technique in EAC.

This study uses new econometric techniques that reduce the statistical problems of cross-sectional growth regressions to investigate the effect of regional financial integration on economic growth and intra-regional trade in EAC. More specifically, the current study uses a dynamic panel model as given by (Njoroge 2010) that allows for the control of: the unobserved country specific effects that are theoretically important but too difficult to measure; the omitted variable bias; the inclusion of the lagged dependant variables regressor; and the endogeneity and simultaneity problems of explanatory variables. Further, the use of a dynamic panel will allow for incorporation of both the time-series dimension and the cross-sectional information in the data, thus gaining higher degree of freedom and more precise Estimates (Baltagi, 2008). The key variables derived from the study include, inflation, corruption and foreign direct investment which plays a key role

in explaining economic growth according to standard growth model reviewed. Further government expenditure as a variable is considered to affect the level of economic growth and trade according to (Akinola and Isike, 2009).

## **CHAPTER THREE: METHODOLOGY**

### **3.1 Introduction**

This chapter describes the theoretical framework that was used and presents the model specification adopted for the study. The variables that were used in the study are defined. The data, data sources and the methods used in data analysis are discussed.

### **3.2 Research Design**

This study aimed at establishing the effects of regional financial integration on economic growth and intra-regional trade in EAC. In order to achieve the objectives of the study, both quantitative and qualitative data were used. The study employed data for the period 2000 to 2009. The choice of the period was necessitated by the fact that the EAC treaty came in to force during this period, marking a major milestone in the integration process. Further, it is within this period when various efforts were undertaken to harmonize the financial markets in the region, for example, establishment of a custom union in the year 2005, harmonized capital markets policies on cross border listing, unimpeded flow of capital and allowing of national regulators to recognize players from all members' states. In order to answer various research questions posed by this study, panel data was collected from various sources that included government documents

such as economic surveys, sessional papers, statistical abstracts and policy documents. The collected data were analyzed using a dynamic panel model that applied system GMM estimation technique after undergoing panel time series property tests.

### 3.3 Theoretical Framework

The standard open economy neoclassical-Solow model provides the theoretical framework to analyze the impact of foreign capital inflows on growth. Technology easily defuses across countries and is typically characterized by decreasing returns to capital. Under autarky, countries with less (more) capital endowment will enjoy higher (lower) risk-adjusted returns to investment.

Financial integration, however, would allow a spontaneous flow of funds induced by the real interest rate differential between capital-abundant developed countries and capital scarce developing economies, hence providing the additional foreign savings required for new investment and growth. The theory considers an open economy where capital is fully mobile but labor is not. All markets are competitive. Savings are assumed not to be equal to the domestic total investment, and production and income are no longer identical. The national accounts identity is given by

$$Y = C + I + G + NX \text{ -----} 3.0$$

where  $Y$  is the gross national product of a country,  $C$  is consumption,  $I$  is investment,  $G$  is the government expenditure and  $NX$  represents the net exports.

This can be extended in an open economy with capital flows to

$$Y + rF = C + I + G + NX + rF \text{-----} 3.1$$

where  $F$  is holdings of foreign capital and  $rF$  is the income inflows from foreign capital holdings. Gross National Income (GNI) is, therefore,  $Y + rF$  as shown in equation 3.1.

If  $NX > 0$  (exports are greater than imports), then the economy must be building up assets from abroad and in general ( $r$  is assumed constant). From equation 3.1

$$NX_t + rF = F_{t+1} - F_t \text{-----} 3.2$$

where  $F_t$  is holdings of foreign capital in the original period while  $F_{t+1}$  is foreign capital in the following period.

Finally, by definition,

$$S_t = Y_t + rF_t - C_t \text{-----} 3.3$$

Combining the above equations,

$$S_t = C + I + G + F_{t+1} - F_t \text{-----} 3.4$$

where  $S$  denotes savings. Savings can be used to accumulate domestic capital ( $I$ ) or foreign assets ( $F$ ),

$$K_{t+1} = I_t + K_t \text{-----}3.5$$

where  $K_t$  and  $K_{t+1}$  are initial capital and capital in the period after the initial period respectively. The above translates to

$$K_{t+1} = S_t - (F_{t+1} - F_t) + K_t \text{-----}3.6$$

$$K_{t+1} + F_{t+1} = S_t + K_t + F_t \text{-----}3.7$$

In this case, total wealth is defined as domestic owned (K) and foreign (F) capital

$$V_t = K_t + F_t \text{-----}3.8$$

where V is the total wealth.

This translates to

$$V_{t+1} = S_t + V_t \text{-----}3.9$$

People save a constant fraction of total income given as

$$S_t = s(Y_t + rF_t), 0 < s < 1 \text{-----}3.10$$

The model maintains the following basic assumption about production;

$$Y_t = f(K_t, L_t, A) = AK_t^\alpha L_t^{1-\alpha}, 0 < \alpha < 1 \text{-----}3.11$$

where, Y is output, K is capital, L is labor and A is the level of technology.

The initial levels of capital, labor and level of technology are taken as given.

Labor and level of technology grow at constant rates:

$$\dot{L}_t = nL_t \text{-----}3.12$$

$$\dot{A}_t = gA_t \text{-----}3.13$$

where  $n$  and  $g$  are exogenous parameters and a dot over a variable denotes the derivative with respect to time. Applying the result that a variable's growth rate equals the rate of change of its log to equation 3.12 and 3.13 implies that the rates of change of the logs of  $L$  and  $A$  are constant and they are equal to  $n$  and  $g$ , respectively. Thus,

$$\ln L_t = \ln L_{(0)} + n_t \text{-----} 3.14$$

$$\ln A_t = \ln A_{(0)} + g_t \text{-----} 3.15$$

where  $L_0$  and  $A_0$  are the values of  $L$  and  $A$  at time 0. Exponentiating both sides of these equations gives us

$$L_t = L(0)e^{nt} \text{-----} 3.16$$

$$A_t = A(0)e^{gt} \text{-----} 3.17$$

The number of effective units of labor,  $A(t)L(t)$ , grows at a rate  $n+g$ .

The model assumes that a constant fraction of output  $s$  is invested. Defining  $k$  as the stock of capital per effective unit of labor,  $k = K/AL$ , and  $y$  as the level of output per effective unit of labor,  $y = Y/AL$ , the evolution of  $k$  is governed by

$$\dot{k}(t) = sY(t) - (n + g + \delta)k(t) = sk(t)^\alpha - (n + g + d)k(t) \text{-----} 3.18$$

where  $d$  is the rate of depreciation. Equation 3.18 implies that  $k$  converges to a steady state value  $\dot{k}$  defined by  $s\dot{k}^\alpha = (n+g+d)\dot{k}$ , or

$$\dot{k} = [s/(n+g+\delta)]^{1/(1-\alpha)} \text{-----} (3.19)$$



The steady state capital- labor ratio is related positively to the rate of saving and negatively to the rate of population growth. The central prediction of the Solow model concerns the impact of saving and population growth on real income. Substituting 3.19 into the production function (3.11) and taking logs we find the steady state income per capita is:

$$\ln \left[ \frac{Y(t)}{L(t)} \right] = \ln A(0) + gt + \frac{\alpha}{1-\alpha} \ln(s) - \frac{\alpha}{1-\alpha} \ln(n+g+\delta) \text{ -----(3.20)}$$

Because the model assumes that factors are paid their marginal products, it predicts not only the signs but also the magnitudes of the coefficients on saving and population growth.

An extract from equation 3.20 can be expressed as:

$$\Delta GDP_t = f(\Delta IFI_t) \text{ -----(3.21)}$$

$$\Delta TR_t = f(\Delta IFI_t) \text{ -----(3.22)}$$

Where,  $\Delta GDP_t$  is the economic growth rate, IFI is the financial integration variables and TR is the trade variable

### 3.4 Model Specification and Estimation

To analyze the effect of regional financial integration on economic growth and trade, the study used a dynamic panel approach with system GMM estimation. Panel growth model is formulated primarily for single unit time series. If applied for cross sectional time series (panel data), it requires that the underlying structure

be the same, with intercept and the same slope for each cross sectional unit. This requirement usually cannot be satisfied in multi unit series. Ignoring individual unit series and the country specific effects can generate heterogeneity bias which is a common problem encountered in panel data analysis (Hsiao, 2003). Therefore, dynamic panel model has been formulated to allow for individual country heterogeneity in the levels of all variables. Accordingly, the following dynamic panel will be modeled

$$GDP_{it} = \alpha_i + \sum \beta_i \Delta Z_{it} + \sum \pi_i \Delta X_{it} + \delta_i \Delta GDP_{it-1} + D + U_{it} \text{-----} (3.23)$$

where, Z is a vector of additional predetermined variables that the study used to control for other potential growth determinants like inflation, corruption and government balance. X is a vector of significant explanatory variables like financial integration variables (IFI) and trade variables (TR), while D is a dummy variable representing the period Burundi and Rwanda joined the EAC.  $U_{it}$  is the error term and  $\alpha_i$  is the individual heterogeneity of the cross sectional units (Schularick and Steger 2006).

The study used the system GMM approach, an approach initially proposed by Arellano and Boer (1995) and further developed by Blundell and Bond (1998), to analyze cross country growth and trade effects of regional financial integration. The General Method of Moments (GMM) is a method of estimation of dynamic panel models that provides consistent estimates (Baum, 2006; Roodman, 2006). However, one still has to decide whether to use “difference-GMM” (henceforth DGMM) developed by Arrelano and Bond (1991), or “system-GMM” (henceforth

SGMM) estimation established by Arrelano and Bover (1995) and Blundell and Bond (1998).

The SGMM estimate has an advantage over DGMM in variables that are “random walk” or close to be random-walk variables (Bond, 2002; Roodman 2006; Baum, 2006; and Roodman, 2007). Since the model specification includes macroeconomic variables which are known in economics for the presence of random walk statistical generating mechanisms, the SGMM approach is more appropriate choice. Differencing variables within groups will remove any variable that is constant. The SGMM approach generally produces more efficient and precise estimates compared to DGMM by improving precision and reducing the finite sample bias (Baltagi, 2008). If one works with an unbalanced panel, then it is better to avoid DGMM estimation, which has a weakness of magnifying gaps (Roodman, 2006). The panel used in this study is both balanced and unbalanced, which mean it is important to avoid DGMM estimation. The SGMM panel estimation improves over the pure cross-section regression because it uses both the cross-sectional and the time dimension of the data; it increases the number of observations; it controls for country-fixed effects; and it allows the model to take the potential endogeneity of the regressors into account.

The dynamic structure of the model makes the OLS estimator upwards biased and inconsistent, since the lagged level of income is correlated with the error term. A

possible solution is represented by the Generalized Method of Moments (GMM) technique. Blundell and Bond (1997) show that when  $\beta$  approaches one, so that the dependent variable follows a path close to a random walk, the differenced-GMM (Arellano and Bond, 1991) has poor finite sample properties, and it is downwards biased, especially when the sample size is small. Bond *et al.* (2001) argue that this is likely to be a serious issue for autoregressive model, like the growth equation, when the per capita GDP is observed in 3 or 5 years averages and the sample is necessarily small.

Therefore, Blundell and Bond (1997) propose another estimator – the System-GMM derived from the estimation of a system of two simultaneous equations, one in levels (with lagged first differences as instruments) and the other in first differences (with lagged levels as instruments). In multivariate dynamic panel models, the SGMM estimator is shown to perform better than the differenced-GMM when there is a dramatic reduction in the finite sample bias due to the exploitation of additional moment conditions (Blundell *et al.*, 2000).

The validity of the above-suggested instruments hinges on various assumptions. Among the assumptions are normality and heteroskedasticity. Compared to the OLS model, SGMM does not assume normality and it allows for heteroskedasticity in the data. Dynamic panel models are known for having common problem with the heteroskedasticity of data, which fortunately they can

control (Baltagi, 2008). Accordingly, robust standard errors consistent in the presence of heteroskedasticity and autocorrelation within the panel are reported. The study reports one-step estimates that yield theoretically robust results.

SGMM approach assumes linearity and that the disturbance terms are not autocorrelated, or in other words, that the applied instruments in the model are exogenous. Consequently, an important procedure in testing the statistical properties of this model is testing for the validity of instruments, which requires testing for the presence of first-order and, in particular, second-order autocorrelation in the error term.

The Im-Pesaran-Shin (IPS) Panel unit root test was performed to investigate whether there were any variables in the model that were non-stationary. The test was developed by Im, Pesaran and Shin (1997). The IPS estimates the  $t$ -test for unit roots in heterogeneous panels (Wakeman-Linn, 2005). The test allows for individual effects, time trends and common time effects. It is based on the mean of the individual Dickey-Fuller (DF)  $t$ -statistics of each unit in the panel, and assumes that all series are non-stationary (have unit roots) under the null hypothesis that all panel contain unit roots.

### 3.4.1 Definition and Measurement of Variables

**Regional financial integration (RFI):** refers to efforts to broaden and deepen financial links within a region, whether through market-driven or institutionalised processes. Integration requires the elimination of barriers to cross-border investments and differential treatment of foreign investors within the region, but can also extend to harmonising legislation, policies and institutions, which over time can lead to national financial markets effectively functioning as one. Regional financial integration was proxied by the following three measures; squared dispersion from the mean of the four countries: bank rate spread, government security rate, and real exchange rate.

**Real economic growth (GDP):** The real economic growth rate is a measure of the rate of change that a nation's gross domestic product (GDP) experiences from one year to another. Gross national product (GNP) can also be used if a nation's economy is heavily dependent on foreign earnings. Real economic growth was measured by real per capita GDP growth rate captured over the period of the analysis.

**Intra-regional trade:** it refers to trade which focuses on economic exchange primarily between countries of the same region or economic zone. The trade integration variable was captured by the volume of intra regional trade as fraction of GDP.

**Foreign direct investment (FDI):** Foreign direct investment is investment of foreign assets into domestic structures, equipment and organizations. It does not include foreign investment into the stock markets. It was captured as the net inflows as a percentage of real GDP.

**Corruption:** It is the s payment for services or material which the recipient is not due under law that is, the misuse of public power for private benefit. It was measured by corruption perception index (CPI) as published by Transparency International (TI) annually, ranking countries by their perceived levels of corruption as determined by expert assessments and opinion surveys.

**Inflation:** it is a rise in the general level of prices of goods and services in an economy over a period of time. Inflation was captured as the growth rate of consumer price index.

**Dummy variable:** The Rwandan dummy variable that took the value of one from the time Rwanda and Burundi joined the EAC and Zero otherwise.

**Government Balance:** It refers to the total government expenditure less total revenue. It measures that portion of expenditure which is financed through

borrowing. It was measured by deducting total expenditure (recurrent and capital) from total revenue (tax and non tax) as a percentage of real GDP.

### **3.5 Data Analysis**

To achieve the objectives of the study, annual time series data for the period 2000 to 2009 was collected. The variables and data were selected from World Bank Development indicators (various issues), International Financial Statistics (IFS), various issues of economic surveys and the statistical abstracts from the region, and EAC publications. The study employed SGMM dynamic panel developed by Arellano and Bover (1995), and Blundell and Bond (1998) to answer the study objectives. The study estimated two model for the period 2000-2009, and covers only Kenya, Uganda, Tanzania and Rwanda. In order to assess the effect of regional financial integration on growth and intraregional trade, the squared dispersion of the bank rate spread from the mean of the four countries, the squared dispersion of the government security rate from the mean of the four countries, and the squared dispersion of the real exchange rate from the mean real exchange rate of the four countries were used as proxies for regional financial integration. Economic growth was measured by real per capita GDP, Trade was measured by the intra-regional trade as a percentage of GDP captured over the period of the analysis.



### **3.6 Diagnostic Tests**

#### **3.6.1 Unit Root Tests**

The Im-Pesaran-Shin (IPS) Panel unit root test was performed to investigate whether there were any variables in the model that were non-stationary. A summary of the IPS panel unit root tests is presented in Table 3.1.

The results of the unit root test showed that real GDP growth rate, real exchange rate (dispersion from mean squared), foreign direct investment (FDI), government security rate (dispersion from mean squared), inflation, government balance as a percentage of GDP, trade as a percentage of GDP, corruption perception index and bank spread (dispersion from mean squared) were all stationary at levels, since the null hypothesis that all panels contain unit roots was rejected. The implication is that all the variables are stationary, and hence they could be used directly in regression to establish the long term effects.

**Table 3.1: Panel Unit Root Test –Im, Pesaran and Shin (IPS)**

Variable		Constant	Constant +Trend
Real Economic Growth	Level	-2.3357 *** (0.0098)	-1.3422* (0.0898)
Real exchange rate(dispersion from mean squared)		0.1398 (0.5556)	-2.0737 ** (0.0191)
Foreign Direct investment	Level	0.6856 (0.7535)	-0.1671 *** (0.0001)
Government Security Rate	Level	-2.3942* (0.0083)	-2.1778 ** (0.0147)
Inflation	Level	1.0668 (0.8570)	-1.6872 ** (0.0458)
Government Balance as a percentage of GDP	Level	-0.7822 (0.2170)	-1.3985 * (0.0810)
Bank spread (dispersion from mean squared)	Level	-1.1739 ** ( 0.0202)	1.4948 ** (0.0325)
Intra- regional Trade as a percentage of GDP	Level	-0.6974 (0.2428)	-1.6170 * (0.0529)
Corruption Perception Index	Level	0.2741 (0.6080)	-1.7055 ** (0.0441)

Note: \*\*\*, \*\*, \* indicates rejection of the null hypothesis that all panels contain unit roots at 1%, 5% and 10% levels of significance, respectively. The number in parenthesis is the p value

Source: Constructed from the Study Data

### 3.6.2 Tests for Autocorrelation

The validity of the obtained results in System General Method of Moments (SGMM) depends on the statistical diagnostics. Hence, the study starts the interpretation with the model diagnostics. Compared to the OLS model, SGMM does not assume normality and it allows for heteroskedasticity in the data. Dynamic panel models are known for having common problem with the heteroskedasticity of data, which fortunately they can control (Baltagi, 2008).

Accordingly, robust standard errors consistent in the presence of heteroskedasticity within the panel are reported.

The study reports estimates that yield theoretically robust results. SGMM approach assumes linearity and that the disturbance term is not autocorrelated or, in other words, that the applied instruments in the model are exogenous. Consequently, an important procedure in testing the statistical properties of this model is testing for the validity of instruments, which requires testing for the presence of first- order and, in particular, second-order autocorrelation in the error term. A summary of the AR (1) and AR (2) tests of first and second-order serial correlation in the first differenced residuals report tests are presented in Table 3.2

The p-values give the probability of correctly rejecting the null hypothesis of no autocorrelation. It is required that the AR (1) tests of first-order autocorrelation rejects the null, while the test for second-order autocorrelation fails to reject the null hypothesis of no autocorrelation (Arellano and Bond, 1991; 1998). Therefore, system GMM estimator is consistent only when second-order autocorrelation is not significant, although first-order correlation need not be zero. The hypothesis of the presence of autocorrelation of order one is accepted for the estimated results reported in Tables 4.2, 4.3, 4.4, 4.6 and 4.7 at 10 per cent level of significance, while autocorrelation of order two is found to be absent in all

equations as shown in table 3.2 below. This shows that the chosen lags are valid instruments for the model specifications.

**Table 3.2 Arellano-Bond Test for Zero Autocorrelation in First-differenced Errors**

Estimated model Tables	Order of autocorrelation	Z statistic	$P > \ z\ $
Table 4.2	AR (1)	-1.675 *	0.0939
	AR (2)	1.3727	0.1699
Table 4.3	AR (1)	-1.6471*	0.0995
	AR (2)	0.46123	0.6446
Table 4.4	AR (1)	-1.7051*	0.0882
	AR (2)	1.1507	0.2499
Table 4.5	AR (1)	-1.5959	0.1105
	AR (2)	-0.46369	0.6429
Table 4.6	AR (1)	-1.8189*	0.0689
	AR (2)	-0.43434	0.6640
Table 4.7	AR (1)	-1.749*	0.0803
	AR (2)	-0.06858	0.9453

Note: \*\*\*, \*\*, \* indicates rejection of the null hypothesis that there is no auto correlation in all equations at 1% and 5%, and 10% levels of significance respectively.

Source: Constructed from the Study Data.

Considering together the various statistical tests that have been conducted satisfy the key assumptions of SGMM estimation, this model is therefore an appropriate statistical generating mechanism.

## **CHAPTER FOUR: FINDINGS AND DISCUSSION OF THE RESULTS**

### **4.1 Introduction**

This chapter presents the study findings and discussions. It highlights the descriptive statistics, and presentation and discussions.

### **4.2 Descriptive Analysis**

Descriptive statistics were used to describe the basic features of the data in this study. Table 4.1 presents summary statistics for main variables for the sample of the four countries between 2000 and 2009. Burundi was excluded because of insufficient data.

**Table 4.1: Descriptive Statistics**

Variable	Observations	Mean	Std. Dev.	Min	Max
Real GDP growth rate	40	6.300133	2.650254	0.54686	11.2
Bank spread (deviations from mean squared)	40	6.697393	8.46916	0.01371	17.2967
Government security rate(deviations from mean squared)	40	13.19316	18.59506	0.0019128	43.5426
Real Exchange rate (deviations from mean squared)	40	181286.6	222611.8	12008.53	804753.1
Foreign direct investment as a percentage of GDP	40	0.0226525	0.0183297	.000408	0.066623
Inflation	40	8.084039	4.713435	-0.287509	26.2398
Government balance as a percentage of GDP	40	-1.9444	1.890197	-5.379	1.503
Intra-regional Trade as a percentage of GDP	40	0.0504478	0.0211221	0.013848	0.1172861
CPI	40	2.482857	0.3974076	1.9	3.3

Source: Constructed from the Study Data

The data presented in Table 4.1 show that the average growth rate for all sample countries over the study period was 6.3 per cent, ranging from a minimum of 0.5 per cent to a maximum of 11.2 per cent. It can also be noted that, on average, the total intra-regional trade amounted to 5 per cent of GDP over the study period, ranging from a minimum of 1.38 per cent to a maximum of 11.7 per cent.

Further, there was a wide variation in the trade, real exchange rate and government expenditure of the sample countries. This may be because trade in the region remains uneven in intensity and direction, with Kenya being the dominant but declining player in the EAC exports market, accounting for 80 per cent in mid-90s and 60 per cent since the Custom Union was formed in 2005. This shows that EAC countries exhibited the absence of long-term convergence on economic growth, trade and government expenditure, which are important parameters for sustained employment creation and effective integration. Inequalities abound in EAC and the region has not yet established harmonious economic convergence.

#### **4.5 Effect of Regional Financial Integration on Economic Growth in EAC**

The first objective of the study was to estimate the effect of regional financial integration on economic growth in EAC. The study employed SGMM dynamic panel developed by Arellano and Bover (1995) and Blundell and Bond (1998). The data used the period 2000-2009 for four member countries of the East African Community (Kenya, Uganda, Tanzania and Rwanda). In order to assess the effect of regional financial integration on economic growth, three measures of regional financial integration were used. These included the squared dispersion of the bank rate spread from the mean of the four countries, the squared dispersion of the government security rate from the mean of the four countries, and the squared dispersion of the real exchange rate from the mean real exchange rate of the four countries. Economic growth was measured by real per capita GDP growth rate captured over the period of the analysis. The regression results to

answer the first objective are presented in Table 4.2, 4.3 and 4.4, with each table capturing each measure of regional financial integration plus other control variables.

In Table 4.2 the effect of regional financial integration on economic growth in EAC is shown with bank spread (dispersion from mean squared) being applied as a proxy for regional financial integration. The control variables used in this regression include lagged economic growth rate, inflation, government balance as a percentage of GDP, foreign direct investment as a percentage of GDP, corruption perception index, and the Rwandan dummy variable.



**Table 4.2 SGMM Dynamic Panel Estimation Results of Effect of Bank Spread on Economic Growth**

<b>Dependent variable :Economic Growth ( GDP)</b>			
<b>Independent Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>P&gt;   z  </b>
Lagged economic growth	-0.1317559	0.1125448	0.242
Bank spread (dispersion from mean squared)	-0.1209464 ***	0.0174591	0.000
Inflation	-0.0604893 *	0.0580522	0.097
Government Balance as a percentage of GDP	0.3926801	0.2521136	0.119
Corruption Perception Index	0.2593124	0.2128714	0.223
Dummy	3.553767 **	1.747644	0.042
Foreign Direct Investment as a percentage of GDP	61.93687 ***	17.23408	0.000
Constant	6.516962***	1.469942	0.000
No. of observations	36		
No.of groups	4		
Wald Chi <sup>2</sup> (3)	79.51		
Prob> Chi <sup>2</sup>	0.0000		

Note \*\*\*, \*\*, and \* denotes rejection of the hypothesis at 1%, 5%, and 10% significant level

Source: Constructed from the Study Data.

The results in Table 4.2 shows that bank spread (dispersion from mean squared) significantly affect economic growth after controlling for other growth drivers

such as inflation, government balance and the dummy variable. The coefficient of this variable is 0.1209, implying that a unit in the bank rate spread causes economic growth to change by 0.1209 percent. The basic idea of a negative relation between banks spread (dispersion from mean squared) and growth is strengthened in the cross-section, implying that the higher the squared deviations of the bank spread, the lower the regional financial integration and vice versa. These results, therefore, suggest that financial integration support economic growth as postulated by economic theory. This is true because by tapping the pool of global savings and capital, poor countries could free themselves from a binding constraint on economic growth in the name of lack of capital. Closer financial integration may also strengthen domestic financial systems, leading to more efficient allocation of capital and higher growth.

Accordingly, the growth of financial integration stimulates the convergence of national or regional incomes. This happens through the transfer of technology that occurs as countries trade with each other or starts a process of economic integration. Flows of goods and capital also generate flows of knowledge. Goods that are imported can be imitated and produced locally, while foreign direct investment brings with the capital an associated know-how, and both contribute to a process of technological catch-up in which the productivity of poorer regions or countries increases faster than that of richer economies, leading to convergence of (average) national productivity levels.

FDI also directly influences the level of economic growth with a big magnitude as shown by the coefficient of 61.9, which show how important this variable is to economic growth. These results are important for two reasons. First, they suggest that foreign direct investment can be instrumental in spurring progress in the entire economy and particularly in the banking sector, since bank rate spread diversion squared is essentially bank-based. These findings are consistent with Cook and Uchida's (2003) argument that higher FDI contributes to economic growth by bringing new advanced technologies, management and marketing skills to the host country. Further, economic theory provides evidence that the level of FDI positively influences economic growth (Borensztein *et al.*, 2004).

Inflation has a significant inverse effect on economic growth with a small magnitude of 0.06 percent unlike FDI. This suggests that higher inflation does not lead to higher levels of income in the medium and the longer term. Inflation not only reduces the level of business investment, but also the efficiency with which productive factors are put to use. Therefore, the benefits of lowering inflation cannot be ignored.

Another finding from the study is the statistically significant positive coefficient (3.55) of Rwandan dummy variable. This means that the introduction of Rwanda and Burundi to the East African Community had a statistically significant positive effect in the average regional growth. All countries in the region except Kenya

experienced a higher growth rate since 2007 when Burundi and Rwanda joined in the EAC. Uganda's real growth rate remained almost stable at 8.3 per cent in 2008, compared to 8.2 per cent in 2007. The sources of Uganda's growth were the agricultural sector that enjoyed a robust demand in the region, the services sector that grew by 10.6 per cent in real terms on account of increased investment in the financial sector, transport and communication. This could be because Rwanda has a political leadership that some political scientists see as a rare case of an African political elite committed to building a developmental state. That is, there is a drive to construct a state dedicated to producing development results, partly because this is seen as the best way of guaranteeing the Tutsi group against a return to ethnic violence. Rwanda, therefore, could have infected the other countries with its sense of urgency about nation-building, which explains the increased gains in the regional income.

Table 4.3 shows the effect of regional financial integration on economic growth in EAC, when Government security rate (dispersion from mean squared) is applied as a proxy for regional financial integration, with the control variables remaining as earlier defined.

The table shows that government security rate (dispersion from mean squared) significantly affect economic growth after controlling for other growth drivers such as the inflation, government balance and the dummy variable at 5 per cent

level of significance. There is, therefore, a negative relation between government security rate (dispersion from mean squared) and growth with a coefficient of 0.05. Its effect on economic growth is not as pronounced as the effect of bank rate spread.

**Table 4.3 SGMM Dynamic Panel Estimation Results of Effect of Government Security Rate on Economic Growth**

<b>Dependent variable :Economic Growth ( GDP)</b>			
<b>Independent Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>P&gt;    z   </b>
Lagged economic growth	0.2148742**	0.1045714	0.031
Government Security Rate	-0.0494772**	0.0164078	0.041
Inflation	0.0218224	0.0386653	0.572
Government balance as a percentage of GDP	0.1558467	0.2277639	0.494
Corruption Perception Index	0.249384	0.231599	0.282
Dummy	3.860703***	1.410448	0.006
Foreign direct Investment as a percentage of GDP	62.44967 **	25.92783	0.016
Constant	5.333434***	1.869645	0.004
No. of observations		36	
No. of groups		4	
Wald Chi <sup>2</sup> (3)		33.81	
Prob> Chi <sup>2</sup>		0.0000	

\*\*\*, \*\*, and \* denotes rejection of the hypothesis at 1%, 5%, and 10% significant level

Source: Constructed from the Study Data.

The higher the squared deviations of the government security rate, the lower the regional financial integration and vice versa.

These results, therefore, strengthen the complementing nature of financial integration on economic growth as postulated by economic theory.

Commercial bank loans form the bulk of trade finance by most entrepreneurs. However, because of its cheap nature, government borrowing and financing through a cheap and accessible interest rate can overtake commercial bank lending as a substitute. The results, therefore, suggest that inter regional government loans at a cheaper government security rate can play an important part in facilitating trade finance, encouraging domestic capital formation, investment and promoting economic growth.

The lagged variable of economic growth has positive and significant coefficient at 5 per cent level of significance. The coefficient of the lagged dependent variable which is 0.2148 postulates the speed of adjustment which represents lag effect. This suggests that a one percentage increase in economic growth will affect growth by 0.2 per cent increase in the current period. This statistically significant lagged economic growth variable indicates that previous levels of economic growth encourage the current level of economic growth. Previous economic growth would have profound effects, not just inside each country, but for the rest of the region. Such effects are a combination of new market opportunities arising

from enhanced purchasing power and greater competitiveness of these economies as producers of selected products. Rising incomes create impetus for structural change in the agriculture and food sectors as demand and consumption patterns shift. Concomitantly, the impact will extend to trade, commerce and investment. It is clear that the rising incomes in these countries will continue to create pressure for structural reform of their own agriculture/rural development and food sectors to cope with changing demand size and evolving consumer tastes. Changing incomes will also offer expanded two-way trade opportunities with countries in the region and the rest of the world.

The null hypothesis of zero significance of effect of foreign direct investment on economic growth is rejected at 5% level of significance with a coefficient of 62.45. This implies that foreign direct investment influences economic growth by a rate of change of 62.45 per cent. This conforms to economic theory, which postulates that foreign investment produces externalities in the form of technology transfers and spillovers. Romer (1993), for example, argues that important idea gaps between rich and poor countries exist. He notes that foreign investment can ease the transfer of technological and business knowhow to poorer countries. Accordingly, FDI may boost the productivity of all firms – not just receiving foreign capital. This will have spillovers on the entire regional economies.

The positive coefficient of corruption implies that corruption positively influences the level of economic growth. The coefficient is, however, not statistically significant. Theoretically, the literature reaches no agreement about the effect of corruption on economic growth. Some researchers suggest that corruption might be desirable (Leff, 1964; Acemoglu and Verdier, 1998). Corruption works like piece-rate pay for bureaucrats, which induces a more efficient provision of government services, and it provides a leeway for entrepreneurs to bypass inefficient regulations. The view that corruption can be efficient—or that it greases the wheels of commerce has a long history. It first gained prominence back in the 1960s with a provocative article called ‘Economic Development through Bureaucratic Corruption’ by (Leff, 1964). Accordingly, corruption can be beneficial in circumventing regulatory and administrative restrictions. The general idea is that corruption facilitates beneficial trades that would otherwise not have taken place. In doing so, it promotes efficiency by allowing individuals in the private sector to correct pre-existing government failures of various sorts. Leff (1964) uses the following example to set the stage. Back in the early 1960s, the relevant government agencies in Chile and Brazil were charged with the task of enforcing price controls for food products. In Chile, an honest agency enforced the freeze and food production stagnated. In Brazil, a corrupt agency effectively sabotaged the freeze and production increased, to the joy of consumers.



Since then, it has been given a theoretical foundation by works of, for example, Lui (1985) and Beck and Maher (1986), and most recently, various empirical claims have been made in its favour. Egger and Winner (2005, p. 949), for example, concluded using a data set of 73 developed and less developed countries, ‘that corruption is a stimulus for FDI, which confirms the position of Leff (1964) that corruption can be beneficial in circumventing regulatory and administrative restrictions.’

The general idea is that corruption facilitates beneficial trades that would otherwise not have taken place. In doing so, it promotes efficiency by allowing individuals in the private sector to correct pre-existing government failures of various sorts. From this perspective, corruption acts as a lubricant that smooths operations and, hence, raises the efficiency of an economy. The results show that corruption’s affect on economic growth is positive, indicating that corruption causes an increase in economic growth. For EAC countries, corruption may simplify the administrative procedures, improve the administrative efficiency of bureaucracy, and reduce transaction time cost. This may be the reason why the impact of corruption is positive. The coefficient of corruption perception index, foreign direct investment and government balance are positive, meaning that the results indicate they positively affect economic growth in the EAC.

Table 4.4 shows the effect of regional financial integration on economic growth in EAC when real exchange rate (dispersion from mean squared) is applied as a proxy for regional financial integration. The table shows that real exchange rate (dispersion from mean squared) significantly affect the coefficient of economic growth negatively at 5% level of significance, after controlling for other growth drivers such as the inflation, government balance and the time dummy variable. The magnitude of the change i.e. the coefficient is very small, almost zero. Higher squared deviations of the exchange rate implies that there is little convergence in the financial markets while lower squared deviations of the exchange rate implies that there is high regional financial integration in the region.

An integrated exchange rate provides basis and support for the introduction of a common currency in the region. This can go a long way in providing a stronger and more solid foundation for investment and economic growth as the results suggest. Certainly, for an efficient and effective common market to operate, a monetary union and not simply the free movement of capital is essential.

**Table 4.4 SGMM Dynamic Panel Estimation Results of Effect of Exchange Rate on Economic Growth**

<b>Dependent variable :Economic Growth ( GDP)</b>			
<b>Independent Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>P&gt;  z  </b>
Lagged economic growth	-0.1672299	0.242768	0.491
Exchange rate(dispersion from mean squared)	-4.49e-07 *	5.68e-06	0.093
Inflation	0.0037462*	0.0338676	0.072
Government balance as a percentage of GDP	0.1901312*	0.3782966	0.085
Corruption Perception Index	0.1901312	0.3782966	0.615
Dummy	3.958392 **	2.053554	0.054
Foreign Direct Investment as a percentage of GDP	60.08685 **	33.8384	0.076
Constant	5.045572**	2.426043	0.038
No. of observations			36
No.of groups			4
Wald Chi <sup>2</sup> (3)			28.29
Prob> Chi <sup>2</sup>			0.000

\*\*\*, \*\*, and \* denotes rejection of the hypothesis at 1%, 5%, and 10% significant level

Source: Constructed from the Study Data.

According to Mburu (2006), adopting a single currency in a monetary union instead of an independent less rigid currency has its own micro and macroeconomic benefits. On the one hand, a single currency confers benefits of reducing volatility in the real exchange rate, thus reducing uncertainties and contributing to better allocation of resources initially used for foreign exchange reserves and to hedge against the risk of sharp exchange rate adjustments. Also, a single currency helps to save on transaction costs associated with multiple exchanges, further fostering trade, investment and cross-area foreign direct investment. For countries with poor track records on monetary policy and high inflation, attaching their currencies to those of low inflation-prone countries with credible monetary policy provides a nominal anchor that allow for efficient adjustments when shocks are of a nominal nature. A credibly fixed exchange rate will provide a clear commitment that can be monitored by private agents, consequently eliminating speculative attacks that have been blamed to cause currency and financial crisis in Asia and many other regions of the world.

The coefficient of Government balance, 0.19, has a statistically significant positive effect on regional economic growth according to the results in Table 4.4. This means that a one percentage change in government balance causes economic growth to change by 0.2 per cent. Accordingly, this result has strong backing from economic theory. The relationship between government expenditure and economic growth has continued to generate series of debate among scholars. Government performs two functions- protection (and security) and provisions of

certain public goods. Protection function consists of the creation of rule of law and enforcement of property rights. This helps to minimize risks of criminality, protect life and property and the nation from external aggression. Under the provisions of public goods are defense, roads, education, health and power, just to mention but a few. Some scholars argue that increase in government expenditure on socio-economic and physical infrastructures encourages economic growth. Government expenditure on health and education, for example, raises the productivity of labour and increases the growth of national output. Similarly, expenditure on infrastructure such as roads, communications, power, just to mention but a few, reduces production costs, increases private sector investment and profitability of firms, thus fostering economic growth. Supporting this view, scholars such as Al-Yousif (2000) concluded that expansion of government expenditure contributes positively to economic growth.

#### **4.6 The Effect of Regional Financial Integration on Trade in EAC**

The second objective of this study was to estimate the effect of regional financial integration on intra-regional trade in EAC. The study employed SGMM dynamic panel developed by Arellano and Bover (1995), and Blundell and Bond (1998). The estimated model is for the period 2000-2009, and covers only Kenya, Uganda, Tanzania and Rwanda. In order to assess the effect of regional financial integration on trade, the squared dispersion of the bank rate spread from the mean

of the four countries, the squared dispersion of the government security rate from the mean of the four countries, and the squared dispersion of the real exchange rate from the mean real exchange rate of the four countries were used as proxies for regional financial integration. Trade was measured by the intra-regional trade as a percentage of GDP captured over the period of the analysis. The regression results are presented in Table 4.5, 4.6 and 4.7, with each table capturing each measure of regional financial integration plus other control variables.

Table 4.5 shows the effect of regional financial integration on trade in EAC when Bank spread (dispersion from mean squared) is applied as a proxy for regional financial integration. The table indicates that the bank spread (dispersion from mean squared) negatively and significantly affect intra-regional trade in EAC. This may be true because the higher the squared deviations of the spread, the lower the regional financial integration and vice versa. It, therefore, means that regional financial integration complement trade in the region. The needs for international financial integration on international trade can be shown in theoretical models.

**Table 4.5 SGMM Dynamic Panel Estimation Results of Effect of Bank Spread on Intra-regional Trade**

Dependent variable : Intra-regional Trade			
Independent Variable	Coefficient	Standard Error	P>   z
Lagged Intra-regional Trade	0.6489606 ***	.0666793	0.000
Bank spread(dispersion from mean squared)	-0.0005379 ***	0.0000355	0.000
Inflation	-0.0002079*	0.0005788	0.072
Government balance as a percentage of GDP	-0.0001668	0.0006472	0.797
Corruption Perception Index	0.0040879 ***	0.0008592	0.000
Dummy	0.0315246 ***	0.0098692	0.001
Foreign Direct Investment	0.1015411	0.2293933	0.658
Constant	0.0009228	0.0124715	0.941
No. of observations	36		
No. of groups	4		
Wald Chi <sup>2</sup> (3)	14121.34		
Prob> Chi <sup>2</sup>	0.0000		

\*\*\*, \*\*, and \* denotes rejection of the hypothesis at 1%, 5%, and 10% significant level

Source: Constructed from the Study Data.

Both Ricardian and Heckscher- Ohlin model show the role of financial sector on international trade flows (Beck, 2003). Some studies indicate that trade follows finance. Further, Fukao *et al.* (2003) found that FDI had a strongly positive

impact on vertical intra-industry trade. Zhang *et al.* (2005) found that FDI played a significant role in determining intra-industry trade, especially vertical intra-industry trade. Ronci (2004) suggested that external financing helps to determine trade. The presence of foreign financial institutions in East African countries strengthens ties between the countries involved, since these same institutions facilitate financial services linked to trade and investment flows.

The coefficient of inflation, 0.0002, has a statistically significant negative effect on intra-regional trade. These findings indicate that trade in the region responds negatively to inflation by a very small percentage. This negative response supports the economic theory which postulates a negative relationship between inflation and growth of trade. Accordingly, inflation erodes international competitiveness. Exports become more expensive abroad. This can cause a decrease in demand for exports. That in turn can lead to a decrease in demand for the currency and to a devaluation of the currency. The devaluation may restore exports, but at the cost of making imports more expensive, thus increasing inflation again. The results could be explained by the fact that East African Community is a net importer of food, industrial inputs and oil products, which form a big proportion of the region's trade. This means that inflation increases the huge cost of importation made by the region and quantitatively imports volume increases causing trade, which is measured using the summation of exports and imports to go up.



The coefficient of the Rwanda dummy variable, 0.032, of inclusion of Rwanda and Burundi in EAC is positive and significant, meaning that the inclusion positively influenced trade in the East African Community. With the enlargement of the Community in 2007, the EAC really became energized. The realization of a large regional economic bloc encompassing Burundi, Kenya, Rwanda, Tanzania and Uganda with a combined population of 120 million people, land area of 1.85 million sq kilometers, and a combined gross domestic product of \$41 billion, bears great strategic and geopolitical significance. The enlarged custom union and common market has brought many benefits to the region, which includes the creation of trade, the channeling of existing trade into intra-community exchanges, broader markets to absorb products, increased productivity and stimulation of investment.

Corruption has a statistically significant positive effect on trade in the region. The coefficient which is 0.004 indicates a one percentage change in corruption perception results to a 0.004 per cent increase in economic growth. These results agree with earlier notions advanced by Le (1964) and Huntington (1968) that corruption can be efficiency enhancing because it removes government-imposed rigidities that impede investment and interfere with other economic decisions favourable to growth. This view is succinctly captured in the notion that corruption greases the wheels of trade (Rose-Ackerman, 1997). In a country rife

with onerous regulations, the opportunity to offer bribes allows firms to circumvent unproductive government control.

Table 4.6 show the effect of regional financial integration on intra-regional trade in EAC when government security (dispersion from mean squared) is applied as a proxy for regional financial integration.

**Table 4.6 SGMM Dynamic Panel Estimation Results of Effect of Government Security Rate on Intra-regional Trade**

<b>Dependent Variable Intra-regional Trade</b>			
<b>Independent variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>P&gt;   z  </b>
Lagged Intra-regional Trade	0.44739 ***	0.1536013	0.004
Government Security Rate (dispersion from mean squared)	-0.000114 **	0.0001389	0.012
Inflation	0.0005578	0.0006715	0.406
Government Balance as a percentage of GDP	-0.0008853*	0.0006411	0.067
Corruption Perception Index	0.0042839***	0.000806	0.000
Dummy	0.0322587 ***	0.012105	0.008
Foreign Direct Investment as a percentage of GDP	0.2048988	0.2367405	0.387
Constant	-0.0008437	0.0117322	0.943
No. of observations	36		
No. of groups	4		
Wald Chi <sup>2</sup> (3)	96.34		
Prob> Chi <sup>2</sup>	0.0000		

\*\*\*, \*\*, and \* denotes rejection of the hypothesis at 1%, 5%, and 10% significant level

Source: Constructed from the Study Data.

The government security rate (dispersion from mean squared) has a statistically significantly negative effect on intra-regional trade. This is true because the higher the squared deviations of the measures, the lower the regional financial integration and vice versa. It, therefore, means that changes of one percentage change in regional financial integration complement trade in the region by a percentage change of 0.0001. While the five EAC member countries have opened up their stock markets to investors wishing to trade across borders, the sale of government and corporate bonds remains localised.

Companies operating in East African countries with relatively small domestic markets will thus be able to take advantage of the availability of a larger pool of funds on the regional market and boost trade according to the results in Table 4.6. East African Securities Regulatory Authority, through the Kenyan Capital Markets Authority (CMA), issued draft regulations that set the stage for companies and institutions willing to raise funds in Kenya, Tanzania, Uganda and Rwanda through regional bonds. Co-location services of the bond market will allow traders and institutions to place their routers and servers as close as possible to the exchange trading engine, often within the same data centre so as to reduce the distance an order must travel. In doing so, it attracts new customers, particularly high-frequency traders to the exchange.

The Government balance as percentage of GDP has a statistically significant negative effect on intra-regional trade of 0.00088. This means that a one

percentage change in government balance reduces intraregional trade by 0.0008 per cent. This conforms to economic theory, which argues that an increase in the government budget deficit means that the government increases its demand for loanable funds from the private sector, looking to borrow money from its own citizens as well as from international investors. In a healthy region, this means that the government begins competing with private borrowers for a fixed supply of savings, thus driving up interest rates. This increase in interest rates may reduce (“crowd out”) private-sector investments in plants and equipment. This decline in investment means that the overall regional economy has a smaller capital stock with which to work, and this smaller capital stock decreases future trading activities.

The coefficient of foreign direct Investment has a positive effect on intra-regional trade. This means that a one percentage change in government balance reduces intraregional trade by 0.2048 per cent. Studies which observe the relation between the FDI and the foreign trade have explained that both complementariness and substitution could exist between the two factors. According to Krugman (1992), if there are significant differences in the factor equipment, the capital factor will export the management, research and development services to the labour intensive country by means of FDI, and will import differentiated and homogeneous goods from the foreign country. Thus, the FDI would be the complementary of the trade movements in the labour intense country. In addition, in cases where the different

stages of a material are produced in different companies, (vertical integration) the main company exports intermediate input to its subsidiary companies (Horstman and Markusen, 1992; Brainard, 1997; Markusen and Maskus, 1999). Under the assumption of the countries being similar in terms of the market size, factor equipment and the technologies, they have developed a model considering their scale economies, transportation costs and trade barriers in the factory and company level. The preference between the horizontal FDI and the international trade will be determined by the comparison of the advantages to be obtained by being near to the market (preventing the transportation and trade barriers) with the advantages to be obtained as the result of concentration (scale economy).

Corruption perception index has a statistically significant positive effect on trade in the region. The coefficient of the variable is 0.0043. This means that a one unit change in corruption perception index increases intraregional trade by 0.0043 per cent.

Table 4.7 shows the effect of regional financial integration on intra-regional trade in EAC when real exchange rate (dispersion from mean squared) is applied as a proxy for regional financial integration. The real exchange rate (dispersion from mean squared) has a statistically significantly negative effect of a coefficient of 0.013 on the trade. This means that a one percentage change in real exchange rate changes intra-regional trade by 0.013 per cent. This is true because the higher the

squared deviations of the measures, the lower the regional financial integration and vice versa. It, therefore, means that regional financial integration complement trade in the region. Financial integration is always accompanied by intra-regional exchange rates showing less great dispersion, which potentially promote the further expansion of intra-regional trade. New trade theory shows trade links tend to be deeper between neighbours, and those deeper trade links foster a deepening of financial ties.

**Table 4.7 SGMM Dynamic Panel Estimation Results of Effect of Exchange Rate on Intra-regional Trade**

<b>Dependent variable :Intra-Regional Trade (TR)</b>			
<b>Independent Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>P&gt;  z  </b>
Lagged Intra-Regional trade	0.4420399 ***	0.1171341	0.000
Exchange rate (dispersion from mean squared)	-3.11e-08 *	2.79e-08	0.065
Inflation	0.0007948**	0.0007378	0.081
Government balance as a percentage of GDP	-0.0012939 *	0.0006959	0.063
Corruption Perception Index	0.0046861***	0.0012238	0.000
Dummy	0.0256716***	0.0084311	0.002
Foreign Direct Investment as a percentage of GDP	0.1165275	0.2248232	0.604
Constant	0.0066886	0.0131859	0.612
No. of observations			36
No.of groups			4
Wald Chi <sup>2</sup> (3)			118.95
Prob> Chi <sup>2</sup>			0.0000

\*\*\*, \*\*, and \* denotes rejection of the hypothesis at 1%, 5%, and 10% significant level

Source: Constructed from the Study Data.

This means that exchange rates tend to matter more at the regional than global level. Any exchange rate belongs to two countries, so that any desired reaction to its fluctuations requires some degree of cooperation. Achieving greater intra-regional exchange rate stability promotes intra-regional trade, reduces exchange allocation of regional resources. Reducing exchange rate uncertainty, most importantly, helps expand intra-regional trade in goods and financial assets as a key component of the region's rebalancing strategy.

The lagged variable of trade has a positive significant effect on trade. The results presented here imply that previous levels of trade play a significant and a dominant role in stimulating trade volumes among EAC member countries. The coefficient of the lagged dependent variable which is 0.442 postulates the speed of adjustment which represents lag effect. This suggests that a one percentage increase in intra-regional trade will affect trade by 0.442 per cent increase in the current period.

Inflation has a statistically significant positive effect on intra-regional trade with a coefficient of 0.0008. This coefficient implies that a one percentage increase in inflation will affect intra-regional trade by 0.0008% increase. These findings indicate that trade in the region respond positively to inflation, which is contrary to the economic theory that postulates a negative relationship between inflation



and growth of trade. The government expenditure balance has a positive and significant effect on the trade in EAC.

The foreign direct investment has a positive significant effect on trade. The coefficient of FDI which is 0.1165 implies that a one percentage increase in FDI will affect intra-regional trade by 0.1165 per cent. The results presented here imply that foreign direct investment plays a significant and a dominant role in stimulating trade volumes among EAC member countries. On one hand, foreign direct investment does not displace exports but rather stimulates them. This can occur for a number of reasons. Among these are that FDI enables a firm to establish a larger distribution base and thus enlarge the line of products sold in a foreign market over and above what could be achieved if all sales were made via exports from the home market. Also, even if FDI is used to create local production in a host country of a product that previously was imported into the host market from the home country, the local production might require inputs that continue to be imported, such as components and machinery. On the other hand, a positive relationship between a country's imports and its outward FDI can also occur. This might be expected if a firm can produce a product offshore and import it into the home market more cheaply than it can produce the product domestically; it certainly makes sense for the firm to do so. International trade occurs, after all, as the result of international specialization. FDI, in this context,

can be seen as one means by which this specialization is made to happen. The consequence is expanded trade, both on the export and the import side

The coefficient of the dummy variable has a positive and significant coefficient of 0.0257 on trade. This implies that the ascension of Rwanda and Burundi in the EAC has enhanced trade in the region. The improvement in total intra-EAC as a share of total trade is due to the diversification of trade towards regional trading blocs. In spite of some trade imbalances which emanate from the inherited historical economic structures of partner states, some reversal of the hitherto skewed trade pattern is beginning to emerge whereby partner states that were predominant importers of goods from within EAC are also making entry into the export arena. In 2008, total intra-EAC trade increased by 37.6 per cent, reaching a record value of US\$ 2,715.4 million compared to the previous year. During the period under review, Tanzania recorded high intra-EAC trade flows, which more than doubled from US\$279.5 million in 2007 to US\$ 735.8 million in 2008 (EAC, 2009). Overall, Kenya continued to dominate the EAC regional trade, accounting for 44.8 per cent of total value of trade and recorded a surplus in this trade. Uganda and Tanzania accounted for 28.1 per cent and 27.1 per cent of the total intra-EAC trade, respectively.

#### **4.7 Difference in the Effect of Regional Financial Integration on Trade and Growth among EAC Members**

The third objective was to establish whether the effect of regional financial integration on economic growth and trade differ among member countries. The objective of determining the effect of regional financial integration on economic growth was done by estimation of SGMM equations and interpreting the constant because it shows individual heterogeneity in the model. The three measures of regional financial integration were included. The regression results are presented in Table 4.2, 4.3 and 4.4, with each table capturing each measure of regional financial integration plus other control variables.

In Table 4.2, 4.3 and 4.4 where squared dispersion of the bank rate spread from the mean of the four countries and the squared dispersion of the government security rate from the mean were used as measures of regional financial integration, the constant term had a statistically significant coefficient of 6.517, 5.333. This means that individual heterogeneity of the sample countries is significant in explaining variations in economic growth. There exist significant political differences between the states. The single-party dominance in the Tanzanian and Ugandan parliaments is unattractive to Kenyans, while Kenya's ethnic-politics is not apparent in Tanzania. Rwanda has a distinctive political culture with a political elite committed to building a developmental state, partly in order to safeguard the Tutsi group against a return to ethnic violence.

Other differences involve states being reluctant to relinquish involvement in other regional groups, for example, Tanzania's withdrawal from COMESA but staying within the SADC bloc for the Economic Partnership Agreement negotiations with the European Union. Tanzanians are also concerned because creating a common market means removing obstacles to the free movement of both labour and capital. Free movement of labour may be perceived as highly desirable in Rwanda, Uganda and Kenya, and has important developmental benefits. In Tanzania, however, there is widespread resistance to the idea of ceding land rights to foreigners, including citizens of Kenya and Uganda. The three founding members of the EAC have a long history of trade and administrative cooperation (stretching back to nearly a century), and as a result of their colonial history, they have all inherited legal systems based on English common law. Both Rwanda and Burundi are former Belgian colonies, and as a result, follow the civil law tradition.

The constant in Table 4.4 where exchange rate (squared deviations from the mean) is used as measure of regional financial integration is not statistically significant on economic growth. This implies that the individual heterogeneity in the model is not significant. This suggests that the effect of regional financial integration on economic growth does not differ among member countries. This could be attributed to the structure of the East African economies, which is generally dominated by agriculture. Agriculture caters for the livelihood of a

large part of the population of East Africa. There is also a declining trend in the share of agriculture to varying degrees in all the economies. The increasing shares in services to GDP making up for the declining share of agriculture can also explain this feature.

The objective of determining the effect of regional financial integration on trade was done by estimation of SGMM equations and interpreting the constant (intercept term). The three measures of regional financial integration were used. The regression results are presented in Table 4.5, 4.6 and 4.7, with each table capturing each measure of regional financial integration plus other control variables.

Accordingly, effect of regional financial integration on trade does not differ among member countries. This is because the constant term in all the three equations estimated using all the measures of regional financial integration is not statistically significant on trade. This can be attributed to the share of agricultural products, which account for a significant proportion of cross-border trade among the partner states, although a large part of this trade is informal and therefore not captured in official statistics.

## **CHAPTER FIVE: SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS**

### **5.1 Introduction**

This chapter contains the summary of the study findings, conclusions drawn from the study, policy implications emanating from the study and finally areas for further research are suggested.

### **5.2 Summary**

Regional economic integration has preoccupied many African countries. Among the economic integration initiative is the promotion of intra-regional trade with the aim of enhancing global competition and bargaining power. In the case of East African Community (EAC), the Common Market Protocol has been ratified, and attention has now turned towards financial and monetary integration. The main purpose of this study was to investigate the effects of regional financial integration on economic growth and intra-regional trade in EAC. Annual time series data for the period 2000 to 2009 was collected for the four East African Community countries, namely: Kenya, Tanzania, Uganda and Rwanda. Burundi was excluded because of insufficient data.

The first objective of the study was to establish the effect of regional financial integration on economic growth in EAC. The study employed System General Method of Moments (SGMM) dynamic panel model to estimate the cross country

growth effects of regional financial integration for the period 2000 to 2009. Regional financial integration was proxied by the following three measures; squared dispersion from the mean of the four countries: bank rate spread, government security rate, and real exchange rate. Economic growth was measured using real per capital GDP growth rate. Control variables used in the regression included lagged economic growth rate, inflation, government balance as a percentage of GDP, foreign direct investment as a percentage of GDP, corruption perception index and the Rwandan dummy variable that took the value of one from the time Rwanda and Burundi joined the EAC and zero otherwise.

The empirical results showed that regional financial integration significantly stimulated the economic growth of the East African Community countries. The statistically significant negative coefficient of the three proxies of regional financial integration simply means that the higher the dispersion from the mean squared of the bank rate spread, government security and real exchange rate, the lower the growth rate. This is because the higher the dispersion from the mean squared, the lower the regional financial integration and vice versa. Closer financial integration was likely to strengthen domestic financial systems, provide basis and support for the introduction of a monetary union in the region, leading to more efficient allocation of capital and higher growth. This could also be true because by tapping the pool of global savings and capital, poor countries could

free themselves a binding constraint on economic growth in the name of lack of capital

The joining of EAC by Rwanda and Burundi had a statistically significant positive effect on economic growth. Further foreign direct investment positively influenced economic growth. This is attributed to among other things the externalities in form of technology transfers and spillovers that foreign direct investment produces.

The second objective of this study was to investigate the effect of regional financial integration on intra-regional trade in EAC. The same SGMM dynamic panel model and the three proxies of regional financial integration as well as control variables were used to estimate the effect of regional financial integration on intra-regional trade in EAC. The study findings showed that regional financial integration complement trade in the region. The results conform to both Ricardian and Heckscher- Ohlin model, which stresses the important role of international financial integration play on international trade. Both Ricardian and Heckscher- Ohlin model show the complementing role of financial sector on international trade flows (Beck, 2003). Financial integration is always accompanied by intra-regional exchanges, which potentially promote the further expansion of intra-regional trade.



Inflation has a statistically significant negative effect on intra-regional trade. Inflation erodes international competitiveness by making exports become more expensive abroad. This can cause a depreciation of domestic currency, which although may restore exports, is likely to make import more expensive, thus increasing inflation again. The results could be explained by the fact that East African Community is a net importer of food, industrial inputs and oil products, which form a big proportion of the region's trade.

The third objective was to determine whether the effect of regional financial integration on economic growth and trade differ among member countries. The objective was achieved by interpreting the constant term of the estimated SGMM equations of economic growth and trade. The statistical significance of the constant term shows individual heterogeneity in the model. The study found out that the constant term was statistically significant in terms of economic growth. This meant that individual heterogeneity of the sample countries was significant in explaining variations in economic growth.

There are much political differences between the East African States. The states are also reluctant to abandon their engagement in other regional groupings, e.g., Tanzania's withdrawal from COMESA but participating in SADC bloc for Economic Partnership Agreement negotiations together with the European Union. Tanzanian is also unsettled because formation of a common market would means

removal of all obstacles so as to have free movement of capital and labour. Unhindered free movement of labour may be construed as desirable in Kenya, Uganda and Rwanda and could result to important growth benefits. In Tanzania, unlike other nations there is widespread resistance to the idea of negating land rights to foreigners, more so the citizens of Kenya and Uganda.

Effect of regional financial integration on trade did not differ among member countries. This can be attributed to the share of agricultural products, which account for a significant proportion of cross-border trade among the partner states, although a large part of this trade is informal and therefore not captured in official statistics.

### **5.3 Conclusions**

On the basis of empirical results, the study concludes that there is a complementing nature of financial integration on economic growth as postulated by economic theory. This could be true because by tapping the pool of global savings and capital, poor countries could free themselves from a binding constraint on economic growth in the name of lack of capital. Regional financial integration also complements trade in the region. Financial integration is always accompanied by intra-regional exchanges which potentially promote the further expansion of intra-regional trade.

The study also concludes that individual heterogeneity of the sample countries is significant in explaining variations in economic growth. This study suggests that the effect of regional financial integration on economic growth differ among member countries. This could be explained by significant political differences between the states. Finally, the effect of regional financial integration on trade does not differ among member countries. This can be attributed to the share of agricultural products, which account for a significant proportion of cross-border trade among the partner states, although a large part of this trade is informal and therefore not captured in official statistics.

#### **5.4 Policy Implications**

Regional financial integration can generate potentially large benefits to East African countries through increased trade flows and economic growth according to the study results. The approaches taken toward financial integration and its implementation have differed among the individual member countries. Financial services are conditioned by a host of factors such as cost and availability of funds, transparency, well developed infrastructure, prudential regulation and market openness. Within this region, some countries are well advanced to embrace advanced stages of financial integration (such as linking capital markets) among themselves, while other members lag behind. Some common obstacles to regional financial integration include: lack of physical infrastructure (roads, ICT);

divergent initial macroeconomic situations; low degree of bank soundness in some member countries; lack of political commitment to regional financial integration; lack of adequate (human and financial) capacities; over-ambitious and ill-defined objectives and timeframes; weak regional institutions charged with managing the integration process; lack of coordination between national and regional strategies; conflicting regional obligations due to multi-organization membership of some countries, just to mention a few. Considering this, key reforms need to be undertaken among the EAC countries as enumerated below.

The bank spread as a measure of regional financial integration is bank based and has positive effect on growth and trade according to the study. Regional financial integration will therefore require appropriate banking supervision to have a uniform spread across the region. Whether this is the responsibility of the common central bank or national authorities depend on the degree of segmentation of national banking systems. Supervision should be coupled with appropriate legislation to enforce prudent lending behaviour. This is particularly important in a context where asymmetric information between lenders and borrowers can lead to deterioration in the quality of borrowers, hence resulting to rising share of non-performing loans. A clear decision also needs to be made by the Council of Ministers on which institution will be the lender of last resort, since the shift of this function from national central banks to the common central

bank is not automatic. The sustainability of financial integration will depend crucially on mechanisms for resolving potential political economy conflicts.

According to the study results, government security rate as a measure of financial integration directly affect both economic growth and intra-regional trade. It can therefore be noted that investment in regional bonds can contribute to the development of regional bond markets. EAC Council of Ministers should seek ways to spur issuance of bonds within the region and member countries, and to build a common substructure (a credit guarantee, credit rating and settlement system) that can foster regional bond market development.

There are challenges and limitations to furthering regional economic integration, especially in the financial sector, due to the differing states of the economies across East Africa Community members. However, the transition to trade and financial integration in the region is inevitable, and eventually will be beneficial as the study shows. Trade openness and integration are closely related to the degree of financial integration, and the major costs of financial integration stem primarily from domestic financial market imperfections and institutional weakness. From this point of view, it is suggested that East Africa Community member countries strengthen regional cooperation to facilitate intra-regional trade and financial integration, and reap the accompanying benefits.

Financial integration in East Africa could also play a complementary role in global-level initiatives. EAC need to strengthen its cooperative relationship with major international financial organisations. This will help to ensure that the region's common interest is reflected properly in the international community and enable the promotion of regional financial cooperation to proceed more smoothly. In promoting its cooperative project, EAC needs to utilize the knowledge and experience of the existing international financial organisations, including the International Monetary Fund (IMF), the Bank for International Settlements (BIS), and the African Development Bank (ADB). Technical advice from the IMF based upon its diverse experience and expertise in the area of international cooperation is essential for resolving conflicts of interest and differences of views on countries' shares of funds and reaching consensus among members.

The study results shows that the integration of the major sectors of the financial market in the EAC i.e. The money market, the foreign exchange market, the government securities market and the credit market segments depends on various conditions. These conditions include the power of participants to purchase and sell various financial instruments; the ability to lend and borrow money and securities. Further, the ability of market participants to sell and buy derivative financial assets in foreign exchange market, credit and interest. Developments in

some of these segments need to be brought to par with overall market development and the changing needs of the economy.

To achieve effective regional financial integration, it is important to have secondary segments for trading various financial assets so as to have liquidity and achieve effective pricing of risk in the financial market in the region. Secondary market is almost nonexistent for financial assets like the commercial paper, (CP), certificates of deposit (CD) and corporate bonds. CDs are commonly issued by banks when there is no liquidity and are given at higher interest rates. Because of the higher rates of interest rates on CD investor usually hold them up to the date of maturity. As a result, the CDs secondary market is at infant stage in the EAC.

In addition, CP market is led by the desire for this asset mostly by mutual funds. The CP price is usually between some benchmark money market interest rate and the lending rate by commercial bank, which represent opportunity cost of resources. CP is held till maturity by mutual funds, causing an inactive secondary market for such assets. In most regional markets, the CP is sold on short-term basis in addition to a rollover facility. This kind of arrangement is not allowed in the EAC region. Efforts therefore, need to be put into effect to start the secondary segments where they are non existence. This would widen the investor base so as to help improve secondary markets. There is also a need to sensitize participants acquire skills such that they are able to take a forward looking perspective of

evolving macroeconomic environment which would encourage trade. Regional financial Integration in the EAC would be enhanced with an improved, coordinated settlement, payment and clearing infrastructure.

Though the study results suggest that the financial regional integration positively impact on intra -regional trade and economic growth, the overall degree of intra-regional trade and financial integration in East Africa remains insufficient, with financial integration lagging far behind trade integration. The recent global financial and economic crisis that originated in the United States has made clear the need to change East Africa's trade and development policies, and facilitate intra-regional trade and financial integration to rebalance domestic economies and maintain stable growth in the region. Development in East Africa would benefit from wider regional mechanisms with the enhancement of intra-regional trade and financial development. At this crucial turning point in East Africa, the study suggests that East Africa Community countries work dynamically to increase the various benefits of the regional mechanisms with smoothly functioning, integrated regional markets. Their efforts should focus on enhancing trade policy cooperation, expediting capital market development, effectively managing cross-border portfolio investments, and strengthening regional safety networks.



Financial derivatives have been very important in financial sector development and their integration in many economies, specifically in developed countries. Financial derivatives help achieve an exhaustive financial sector because previous risk properties of loans and financial assets could be repackaged to into new synthetic assets. For example, synthetic derivatives would be made by putting underlying financial instruments such as stock or bonds in addition to borrowing and lending assets with a combination of derivative assets like call and put options. Organizing risk characteristics this way could provide more ideal match investor's risk tastes and the efficient risk of the cash-flow. Derivatives permits risk pertinent to an asset to be traded individually which ensure an effective price system in the financial instrument markets. A lot of efforts need to be put in the EAC to appreciate the use of derivatives in the financial market which is still at a very young stage.

The derivative markets continue to face various rigidities on account of lack of credible term money benchmark; lack of significant participation by large players such as public sector banks, mutual funds and insurance companies; absence of cash market for floating rate bonds; and lack of transparency in price and volume information. It would be desirable to address these issues in future for the development of the derivatives market in EAC. Thus, the widening of participation and enhancing the depth of the derivatives market by allowing

several products could contribute to greater inter-linkages amongst the various financial market segments.

Greater regional financial integration makes domestic markets vulnerable to risk, uncertainty and contagion. For example world financial imbalances, sophistication of financial market participants and increase of big and leveraged financial assets, including derivatives and collateralized debt obligations, would increase fluctuations in the financial sector. Hence, with increasing global integration, it is needed to be careful about the risk and uncertainty of financial institutions and their vulnerability to various shocks in prices. This strengthens the case important and appropriate risk management. Strategies are also needed for greater harmonization and sharing of information among central banks to prevent the importation of negative development abroad to the domestic economy and markets.

The success of regional financial integration depends critically on member countries pursuing convergent macroeconomic policies. Misalignments of tariffs, inflation rates, exchange rates, rate of money growth and other vital macroeconomic variables between member countries would be disruptive to financial integration. In addition, these misalignments could lead to rent-seeking activities by governments and private individuals that could stifle legitimate investment opportunities. This could contribute to the demise of the economy of a

member country, thereby weakening the whole integration process. It is, therefore, imperative that the process of strengthening regional financial integration should include guidelines for the convergence of the macroeconomic and trade policies of the entire regional space so as to strengthen the overall regional integration agenda. It is also essential to strengthen and consolidate East Africa's financial markets and institutions, in order to mobilize the financial resources needed to finance integration efforts such as infrastructure projects. These institutions also enhance the payment system and help facilitate trade within and outside the regional communities.

The study results show that corruption's effect on economic growth and intraregional trade is positive, indicating that corruption causes an increase in economic growth. As noted, this could be because of bureaucracy in the EAC operations and so many non-tariff barriers to trade that increases the level of inefficiency. Much need to be done by the stake holders to reduce this bureaucracy and non-tariff barriers which will eliminate traces of corruption in EAC operations. Such efforts include cooperating on the legally-binding mechanisms governing NTBs would be valuable to reproduce their best practices of dealing with NTBs. A legal institutional framework is also needed to deal with NTBs among the partner states. The Monitoring Committee on NTBs should be made stronger and it is recommended to create a portal for exchanging views on

NTBs among the partner states based at the EAC Secretariat. This way corruption will cease from being an option among the traders.

The study found that individual heterogeneity of the sample countries is significant in explaining variations in economic growth. There remain significant political differences among the EAC member countries. The single party dominance in the Tanzanian and Ugandan parliament is unattractive to Kenyans, while Kenya's ethnic politics is not apparent in Tanzania. Rwanda has a distinctive political culture with a political elite committed to building a developmental state, partly to prevent a return of ethnic violence. A major challenge affecting the EAC is suspicion among partner states on whether political federation will be in place as expected. While a political federation was the major anchor of the first EAC that collapsed in 1977, steps must be taken to ensure that political differences do not cause dissolution of the EAC again.

All stakeholders should be proactive and give views on the kind of political federation they want, once the expected monetary union is put in place. Despite the challenges, the long cherished dream of an East African political federation could be realized soon which calls for commitment by all within the EAC bloc. The leadership of EAC member countries should lead the way, by providing the much needed political will and commitment. Further, the EAC secretariat should ensure a well orchestrated sensitization campaign for all the EAC citizens on the

importance of a political federation. This will help remove the general perceptions among the populace will compromise the individual state power and hand it to another supra national body.

### **5.5 Areas for Further Research**

Since the focus of this paper is the analysis of effects of regional financial integration on economic growth and trade, it is important to explore the distributional effects of regional financial integration. An important issue to address for further research is enhancement of better understanding of the effect of regional financial integration on income inequality in the region. Current literature provide many and conflicting models that explain whether regional inequalities will disappear with regional financial integration. The proponents of neoclassical theory, argue that income disparities are could be eliminated due to law of variable proportions in production. There is therefore the need to test empirically the phenomenon in the EAC members.

Cross-country econometric evidence gives rather limited support to the issue that corruption perception encourages growth and trade. In terms of future research, both data quality and the standards of the econometric modeling remain huge concerns in this area. Macro-data should be analyzed together with micro-evidence so as to nail down exact transmission mechanisms through which growth is affected by corruption. Future econometric modeling should envisages

too examine clearer links to this theoretical discourse and be more keen to endogeneity, reporting and errors-in-variables concerns.

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## APPENDICES

### Appendix I: Raw Data

**Table A.1: Raw Data for Financial Regional Integration (2000-2009)**

country	year	id	gdp	banksread	govsecurityrate	exchangerate	inf
UGANDA	2000	1	3.14191	9.29316	14.7047	40661.5	3.39202
UGANDA	2001	1	5.18366	13.7484	0.100191	52006.2	1.86513
UGANDA	2002	1	8.73269	11.2034	12.3397	61956.5	-0.287509
UGANDA	2003	1	6.47326	0.049463	35.3896	83124.1	8.68048
UGANDA	2004	1	6.80723	16.9193	0.291912	76907.6	3.72129
UGANDA	2005	1	6.33257	6.84379	0.074364	88994.3	8.44873
UGANDA	2006	1	10.7847	2.09842	0.873973	102256	7.31068
UGANDA	2007	1	8.41243	2.39777	3.08034	83333.6	6.1475
UGANDA	2008	1	8.70886	2.21593	16.7846	104433	11.6341
UGANDA	2009	1	7.06274	3.06151	6.48247	117864	13.4472
RWANDA	2000	2	8.1	9.93453	87.533	12008.5	3.89953
RWANDA	2001	2	8.5	11.3487	3.23184	12639	3.34285
RWANDA	2002	2	11	8.03798	0.001913	21810.6	1.99259
RWANDA	2003	2	2.2	1.56394	0.070033	38303.1	7.4497
RWANDA	2004	2	7.4	2.74686	8.76212	36009.9	12.2507
RWANDA	2005	2	9.3	0.027823	0.180302	24149	9.01409
RWANDA	2006	2	9.2	0.146977	0.646626	17480.4	8.88283
RWANDA	2007	2	5.5	1.09164	0.003004	24911.8	9.08072
RWANDA	2008	2	11.2	2.24721	24.7834	19335.3	15.4449
RWANDA	2009	2	4.1	44.0506	18.2013	20019.5	10.3648
KENYA	2000	3	0.599695	17.694	7.34255	58984.1	9.98003
KENYA	2001	3	3.77991	6.49169	4.18747	71223.2	5.7386
KENYA	2002	3	0.54686	7.73693	0.180064	82425	1.96131
KENYA	2003	3	2.93248	12.7408	51.629	95128.7	9.81569
KENYA	2004	3	5.1043	1.81972	43.5426	89851.8	11.624
KENYA	2005	3	5.90667	0.190796	0.114825	106245	10.3128
KENYA	2006	3	6.3188	0.111192	5.02021	120437	14.4537
KENYA	2007	3	7.00719	0.01371	0.245101	104789	9.75888
KENYA	2008	3	1.55333	0.179672	7.42371	117056	26.2398
KENYA	2009	3	2.59215	0.378735	9.66639	125266	9.23413
TANZANIA	2000	4	4.93385	17.2967	0.182693	232669	5.92396

TANZANIA	2001	4	5.99783	22.7305	41.8865	325839	5.14747
TANZANIA	2002	4	7.16355	8.55024	34.1298	374704	5.31783
TANZANIA	2003	4	6.88623	6.75215	21.7267	461111	5.30357
TANZANIA	2004	4	7.8283	1.41679	1.47105	443373	4.7358
TANZANIA	2005	4	7.36988	5.19541	3.57826	588582	5.03457
TANZANIA	2006	4	6.73738	0.580956	6.68272	714369	7.25097
TANZANIA	2007	4	7.1481	0.817854	37.0732	556075	7.02551
TANZANIA	2008	4	7.43682	2.43812	9.82847	740381	10.2784
TANZANIA	2009	4	6.02195	5.73248	8.27971	804753	12.1422

**Table A.2: Raw Data for Financial Regional Integration (2000-2009)**

country	year	id	gov	tr	cpi	dummy	fdi
UGANDA	2000	1	-4.804	0.062104	2.3	0	0.025948
UGANDA	2001	1	-2.8	0.061471	1.9	0	0.025939
UGANDA	2002	1	-4.911	0.066071	2.1	0	0.029885
UGANDA	2003	1	-4.157	0.076352	2.2	0	0.031908
UGANDA	2004	1	-1.183	0.064653	2.6	0	0.034882
UGANDA	2005	1	-0.544	0.077357	2.5	0	0.042201
UGANDA	2006	1	-0.874	0.058758	2.7	0	0.064932
UGANDA	2007	1	-1.278	0.067764	2.8	0	0.066623
UGANDA	2008	1	-3.029	0.065592	2.6	0	0.050472
UGANDA	2009	1	-2.38	0.051654	2.5	0	0.037634
RWANDA	2000	2	0.83	0.039892	0	1	0.004795
RWANDA	2001	2	-1.251	0.033229	0	1	0.002767
RWANDA	2002	2	-1.73	0.051326	0	1	0.001591
RWANDA	2003	2	-3.901	0.064443	0	1	0.002522
RWANDA	2004	2	0.904	0.060489	0	1	0.003667
RWANDA	2005	2	0.863	0.058343	3.1	1	0.003111
RWANDA	2006	2	0.183	0.054703	2.5	1	0.003611
RWANDA	2007	2	-1.746	0.070183	2.8	1	0.017948
RWANDA	2008	2	0.954	0.117286	3	1	0.022031
RWANDA	2009	2	1.503	0.092285	3.3	1	0.022752
KENYA	2000	3	-0.415	0.042542	2.1	0	0.008739
KENYA	2001	3	-2.489	0.049254	2	0	0.000408
KENYA	2002	3	-2.702	0.051228	1.9	0	0.0021
KENYA	2003	3	-2.428	0.049864	1.9	0	0.005484
KENYA	2004	3	-0.113	0.052717	2.1	0	0.002862
KENYA	2005	3	-1.823	0.051314	2.1	0	0.001132

KENYA	2006	3	-2.537	0.042708	2.2	0	0.02252
KENYA	2007	3	-3.076	0.043741	2.1	0	0.026836
KENYA	2008	3	-4.313	0.049433	2.1	0	0.003183
KENYA	2009	3	-5.379	0.044213	2.2	0	0.004784
TANZANIA	2000	4	-1.141	0.017496	2.5	0	0.045495
TANZANIA	2001	4	-0.66	0.015538	2.2	0	0.045495
TANZANIA	2002	4	-0.354	0.013848	2.7	0	0.03587
TANZANIA	2003	4	-1.328	0.022782	2.5	0	0.026443
TANZANIA	2004	4	-2.855	0.02495	2.8	0	0.025776
TANZANIA	2005	4	-3.031	0.026467	2.9	0	0.034935
TANZANIA	2006	4	-4.937	0.030807	2.9	0	0.041654
TANZANIA	2007	4	-4.028	0.033212	3.2	0	0.038452
TANZANIA	2008	4	-0.005	0.033464	3	0	0.019312
TANZANIA	2009	4	-4.811	0.028382	2.6	0	0.0194