

## **Regional Financial integration and economic growth in the East African community**

**Samuel Muthoga<sup>1</sup>, Almadi Obere<sup>2</sup>, Kimani Mburu<sup>3</sup>, Diana Mukwate-Muchai<sup>4</sup>**

<sup>1</sup>Corresponding author: *Kenyatta University*

<sup>2</sup>*Kenyatta University*

<sup>3</sup>*Africa Economic Research Consortium (AERC)*

<sup>4</sup>*Kenyatta University*

---

### **ABSTRACT**

*This paper aimed at establishing effects of regional financial integration on economic growth in East African Community (EAC). Conflicting views on the effects of financial integration on economic growth prompted the study. Quantitative and qualitative data between year 2000 and 2009 from the East African community was used. This paper employed the general method of moments in its analysis. Results showed that regional financial integration significantly stimulated economic growth of the EAC. The study recommends that EAC coordinating committee promote effective bank supervision to achieve uniform bank spread, initiate ways of issuance of common bond and develop secondary markets for all financial assets in the region.*

---

## **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, e.g. East African Community (EAC). Its goal as an economic and political entity stems from the desire by the governments of Burundi, Uganda, Rwanda, Kenya and Tanzania 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.

EAC 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 (Kasekende and Ng'eno, 2000). 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 EAC 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 embarked on the process of negotiation of the protocol for the establishment of the East African Monetary Union.

EAC attaches great importance to financial sector development in pursuit of their regional integration goal. 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 productive sectors of the region. 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).

Articles 85 and 86 of the Treaty for the Establishment of the EAC provide the main framework for integration of the regional capital markets. The provisions therein call for capital market development programs in the EAC; harmonized capital markets policies on cross-border listing, foreign portfolio investors; the establishment of a regional stock exchange within the EAC with trading floors in each of the Partner States; 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 expected to establish stronger links with capital markets in more developed countries.

### 1.1.1 Social Economic Profiles

Table 1.1 provides selected macroeconomic indicators on the five countries over the period 1970 to 2009.

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.

**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
<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
<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
<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
<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

Note: na-not available; bn-billion.

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

Economic trends of the EAC 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. The real annual GDP growth dropped to negative 8 percent in 1993, and negative 50 percent in 1994. 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.

Uganda, like Rwanda, has turned around and is now a stable and fast-growing economy. 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 policies, improving capacity utilization of industries, increasing efficiency in public sector and attaining both external and domestic macroeconomic stability through exchange rate reforms. 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. 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.

In Burundi Real GDP growth averaged negative 3 percent a year from 2000 to 2009 and inflation averaged 11 percent. 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.

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 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). 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 1990s 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.

In Tanzania the policy 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). 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.

### 1.2 Statement of the Problem

East African Countries' economic performance has been low compared to other regions. This has been attributed to among others: 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, Africa is witnessing a renewed momentum for financial integration.

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 protocol spells out 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.

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. Nanna (2006) supported the view that financial integration was associated with growth. Further, whether the EAC efforts towards deeper financial integration have yielded positive results in terms of improved economic growth remains largely unexplored or uncertain. This is an important issue because economic growth in the EAC is low and highly variable among these countries, and need to be improved.

### 1.3 Research Question

(a) What is the effect of regional financial integration on economic growth in the EAC?

### 1.4 Objective of the Study

The specific objective of the study was to:

(a) Assess the effect of regional financial integration on economic growth in EAC.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 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. Assets with identical risk characteristics should have the same price, independently of the location where they are traded.

Many papers use changes in returns dispersion to test the law of one price (Solnik and Roulet, 2000, Adjaouté and Danthine, 2004, Baele et al., 2004, and Eiling and Gerard, 2006). If returns are highly correlated, then more often 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.

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

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

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, it 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. If there is profitable opportunities in other countries for investment a nation can borrow abroad to invest at home, hence obtaining the extra-saving through net capital inflow.

The principle of comparative advantages 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; have desired consumption and savings time patterns not in line with their available income; and face different potential fluctuations of production that affects their consumption possibilities.

The neoclassical-Solow model has given a convincing argument for capital account liberalization and regional financial integration, Summers (2000). 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. Lower cost of equity capital eventually encourages investment. In all the cases financial openness ease building of capacity and growth through accumulation of capital.

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:

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

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.

## 2.2 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 and financial development. 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. The study used Generalized-Method-of-Moments (GMM) estimators developed for dynamic panel data. The panel consisted of data for a maximum of 57 countries over the period 1976-2000. 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.

Schularick and Steger (2006) examined the impact of international financial integration on economic growth. The study assembled data for 24 countries from 1880-1914. 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. The cross-sectional regression had the following functional form;

$$GDP = IFI + X \quad 2.3$$

Where  $X$  was a vector of control variables,  $IFI$  was the average capital inflow to GDP ratio over the period, and  $\square GDP$  was the dependent variable. The study used gross inflows of foreign direct investment and portfolio flow over GDP. The study found that international financial integration had a statistically significant effect on growth in the first era of global finance. The study had unbalanced panel.

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

$$y = \Sigma \lambda x + \beta z + \alpha E + \eta + \mu + \nu \quad 2.4$$

where  $x$  was a vector of significant explanatory variables referred to as basic augmented neoclassical growth variables that appears in the regressions,  $E$  denoted 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. Economic integration had a positive and significant impact on growth.

### CHAPTER THREE: METHODOLOGY

#### 3.1 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 diffuses across countries and is typically characterized by decreasing returns to capital. Under autarky, countries with less capital endowment will enjoy higher risk-adjusted returns to investment.

Financial integration allows a natural flow of funds caused by the interest rate differential between capital-abundant and capital scarce economies. The theory considers an open economy where capital is fully mobile but labor is not. Savings are assumed not to be equal to the domestic total investment. The national accounts identity is given by

$$Y = C + I + G + NX \quad 3.0$$

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

$$Y + rF = C + I + G + NX + rF \quad 3.1$$

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

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

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,

$$S_t = Y_t + rF_t - C_t \quad 3.3$$

Combining the above equations,

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

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

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

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

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

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

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

$$V_t = K_t + F_t \quad 3.8$$

Where V is the total wealth.

This translates to

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

People save a constant fraction of total income given as

$$S_t = s(Y_t + rF_t), 0 < s < 1 \quad 3.10$$

The model maintains the following basic assumption about production;

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

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:

$$\dot{L}_t = nL_t \quad 3.12$$

$$\dot{A}_t = gA_t \quad 3.13$$

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,

$$\ln L_t = \ln L_{(0)} + nt \quad 3.14$$

$$\ln A_t = \ln A_{(0)} + gt \quad 3.15$$

Where  $L_0$  and  $A_0$  are the values of L and A at time 0. Exponentiation of both sides of these equations yields;

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

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

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

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

Where  $d$  is the rate of depreciation. Equation 3.18 implies that  $k$  converges to a steady state value  $\hat{k}$  defined by  $s\hat{k}^\alpha = (n+g+d)\hat{k}$ , or  $\hat{k} = [s/(n+g+\delta)]^{1/(1-\alpha)}$  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:

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

### 3.2 Model Specification and Estimation

The study used a dynamic panel approach with system GMM estimation. Accordingly, the following dynamic panel will be modeled

$$GDP_{it} = \alpha_i + \sum \beta_i \Delta Z_{it} + \sum \pi_i \Delta X_{it} + \delta_i \Delta GDP_{it-1} + D + U_{it} \quad 3.21$$

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), while  $D$  is a dummy variable representing the period Burundi and Rwanda joined the EAC.  $U_{it}$  is the error terms.

### 3.3 Diagnostic Tests

#### 3.3.1 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, corruption perception index and bank spread (dispersion from mean squared) were all stationary at levels. 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		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	Level	-1.1739 ** ( 0.0202)	1.4948 ** (0.0325)
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

#### 3.3.2 Tests for Autocorrelation

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. 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). 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 and 4.4 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

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.

## CHAPTER FOUR: DISCUSSION OF THE RESULTS AND FINDINGS

### 4.1 Effect of Regional Financial Integration on Economic Growth in EAC

The 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). 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 objective are presented in Table 4.1, 4.2 and 4.3

In Table 4.1 the effect of regional financial integration on economic growth in EAC is shown with bank spread (dispersion from mean squared) 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, FDI as a percentage of GDP, corruption perception index, and the dummy variable.

**Table 4.1 SGMM Dynamic Panel Estimation Results of Effect of Bank Spread on Economic Growth**

Dependent variable :Economic Growth ( GDP)			
Independent Variable	Coefficient	Standard Error	P>   z
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

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

Source: Constructed from the Study Data.

The results in Table 4.1 shows that bank spread (dispersion from mean squared) significantly affect economic growth. 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. This suggests that

financial integration support economic growth. The growth of financial integration stimulates the convergence of regional incomes through the transfer of technology that occurs in the process of economic integration.

The dummy variable has a statistically significant positive coefficient (3.55). 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. Rwanda could have infected the other countries with its sense of urgency about nation-building, which explains the increased gains in the regional income.

Table 4.2 shows the effect of regional financial integration on economic growth in EAC, when Government security rate (dispersion from mean squared) is a proxy for regional financial integration, with the same control variables.

The table shows that government security rate (dispersion from mean squared) significantly affect economic growth 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 4.2 SGM Dynamic Panel Estimation Results of Effect of Government Security Rate on Economic Growth**

Dependent variable :Economic Growth ( GDP)			
Independent Variable	Coefficient	Standard Error	P>  z
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

\*\*\*, \*\*, 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. 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 null hypothesis of zero significance of effect of FDI 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 FDI produces externalities in the form of technology transfers. Accordingly, FDI may boost the productivity of all firms – not just receiving foreign capital.

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.

Table 4.3 shows the effect of regional financial integration on economic growth in EAC when real exchange rate (dispersion from mean squared) 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. 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.

**Table 4.3 SGMM Dynamic Panel Estimation Results of Effect of Exchange Rate on Economic Growth**  
Dependent variable :Economic Growth ( GDP)

Independent Variable	Coefficient	Standard Error	P>  z
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

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

Source: Constructed from the Study Data.

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 unit change in government balance causes economic growth to change by 0.2 percent. Accordingly, this result has strong backing from economic theory. 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.

## CHAPTER FIVE: SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS

### 5.1 Summary

The main purpose of this study was to investigate the effects of regional financial integration on economic growth. 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 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 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 inflation, FDI, CPI and a 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 EAC. This is because the higher the dispersion from the mean squared, the lower the regional financial integration and vice versa. Financial integration is likely to strengthen domestic financial systems, provide support for a monetary union in the region, encouraging efficient allocation of capital and higher growth. The joining of EAC by Rwanda and Burundi had a statistically significant positive effect on economic growth.

## 5.2 Policy Implications

The bank spread is bank based stimulate economic growth. Regional financial integration therefore requires appropriate banking supervision for a uniform spread across the region. This is the responsibility of the common central bank or national authorities depending on the degree of segmentation of national banking systems. Supervision should be coupled with appropriate legislation to enforce prudent lending.

According to the results, government security rate as a measure of financial integration directly affect economic growth. 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 to build a common substructure. Effective regional financial integration require secondary segments for trading various financial assets so as to have liquidity and effective pricing of risk in the region. Secondary market is almost nonexistent for financial assets like the commercial paper, (CP), certificates of deposit (CD) and corporate bonds. 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.

## REFERENCES

- Acemoglu, D., and Verdier, T. (1998). Property Rights, Corruption and the Allocation of Talent: A General Equilibrium Approach. *The Economic Journal*, 108, 1381–403.
- Arellano, M., and Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies* 1991, 58, pp. 277-297.
- Arellano, M., and Bover, O. (1995). Another Look at the Instrumental-Variable Estimation of Error-Components Models. *Journal of Econometrics*, 68, pp. 29-52.
- Baele, L., A. Ferrando, P. Hördahl, E. Krylova and C. Monnet, (2004). Measuring Financial Integration in the Euro Area. *Oxford Review of Economic Policy* 20(4): 509-530.
- Baltagi, H. (2008). Forecasting with panel data. *Journal of forecasting*, volume 27 issue 2.
- Beck, P., and Maher, M. (1986). A Comparison of Bribery and Bidding in Thin Markets. *Economic Letters*, 20, 1–5.
- Beck, T. (2003). Stock markets, banks and economic development: theory and evidence, *EIB Paper* 8, 36-54.
- Beck, T., Demirgüç-Kunt., Asli., Levine., and Ross. (2000). A New Database on Financial Development and Structure. *World Bank Economic Review* 14, 2000, 597-605.
- Beck, T., Levine., Ross., and Loayza, N. (2000). Finance and the Sources of Growth. *Journal of Financial Economics*. 2000, 58(1).
- Beck, T., and Fuchs, M. (2004). Structural Issues in the Kenyan Financial System: Improving Competition and Access. *World Bank Policy Research Working Paper* 3363, World Bank.
- Blundell R., Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87: 115–143.
- Blundell, R., and Bond, S. (1996). Initial Conditions and Moment Restrictions in Dynamic Panel Data. *Journal of Econometrics*, 87: 115–143.
- IMF. (2002). International Financial Integration and Economic Growth. *Journal of International money and finance* 9(3), 503-17.
- IMF. (2012). Special Focus: Deepening Kenya's Integration in the East African Community (EAC). *IMF*, June 2012 Edition No. 6.
- IMF. (2004a). *Direction of Trade Statistics CD-ROM (November)*. Washington, D.C.: Author.
- IMF. (2004b). *Direction of Trade Statistics Historical 1948-1980 CD-ROM*. Washington, D.C. Author.
- IMF. (2004c). *Kenya Selected Issues and Statistical Appendix*. December 10. Washington, D.C: Author.
- Kasekende, L., and Ng'eno, N. (2000). *Regional integration and economic integration in Eastern and Southern Africa*. Macmillan Press Ltd, London.
- Leff, H. (1964). Economic Development through Bureaucratic Corruption. *American Behavioral Scientist* 8(3): 8-14.
- Levine, R. (2005). Finance and growth: theory, mechanism and evidence. In: Aghion, P., *Journal of Countries Economic Development and Cultural Change*, Vol. 14, No. 1, 174–89.
- Mburu, T. (2006). *A Political and Economic Assessment of the Feasibility and Desirability of an East African Monetary Union* (Unpublished PhD Thesis). Claremont Graduate University, Claremont, USA.
- McKinnon, R. (1973). *Money and Capital in Economic Development*, Washington, DC: Brookings Institution.
- Mkenda, B. (2001). Is East Africa an Optimum Currency Area? *Göteborg University Department of Economics Working Paper*, 41 (April 2001).
- Nnanna, O. (2006). Economic and Monetary Integration in Africa. *A paper Presented at the G24 meeting in Singapore, on September 14, 2006*.
- Ng'eno, N., Nyangito, H., Ikiara, M., Ronge, E., and Nyamunga, J. (2003). Regional Integration Study of East Africa: The Case of Kenya. *KIPPRA Working Paper No. 9*.

- Njoroge, L. (2010). The impact of regional integration on economic growth: empirical evidence from COMESA, EAC and SADC trade blocs. *American Journal of Social and Management Sciences*, 2010, 1(2): 150-163.
- Schularick, M., Adams, K., and Steger, M. (2006). Does Financial Integration Spur Economic Growth? New Evidence from the first Era of Financial Globalization, *Cesifo Working Paper no. 1691*.
- Shaw, E.S. (1973). *Financial Deepening in Economic Development*. New York: Oxford University Press.
- Solnik, B. and Roulet, J. (2000). Dispersion as Cross-Sectional Correlation Financial Analysts. *Journal* 56(1): 54-61.
- Tukenmeza, et al (2005). *Economic development in Small Island States (SIDs) and integration to international financial markets: a case of Cyprus*. Buca-Izmir.
- Wakeman-Linn, J., and Wagh, S. (2008). Regional financial integration: Its potential contribution to financial sector growth and development in Sub-Saharan Africa. *IMF Working paper*.