STOCK MARKET PERFORMANCE AND ECONOMIC GROWTH IN THE EAST AFRICA COMMUNITY

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A Thesis Submitted to the Graduate School in Partial Fulfillment of the Requirements for the Master of Arts Degree in Economics of Egerton University

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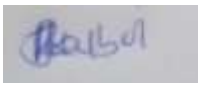
DECLARATION AND RECOMMENDATION

Declaration

This thesis is my original work and to the best of my knowledge has not been presented in this university or anywhere else for the award of a degree, diploma or certificate.

Signature.  Date: 21/10/2021

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Recommendation

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DEDICATION

I dedicate this thesis to my beloved parents, Mr.& Mrs. Kaiboi, my husband Amos Komen, my children Keynes Kimutai and Kalmin Kipkoech for the emotional and financial support they offered me.

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First, I would like to thank the Lord for granting me patience, good health and grace from the beginning to the end my studies. I am sincerely grateful to Egerton University for giving me the opportunity to undertake my postgraduate studies. I thank the entire Economics Department for the high-quality education they provided to me, I will forever be indebted to you. I also acknowledge the expertise support from Dr. Symon Kiprop and Prof. Aquilars Kalio who gave me guidance as well as your exemplary supervision skills through the process of research and preparing this document.

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ABSTRACT

Stock markets in developing nations are faced with various constraints such as thin trading, liquidity issues and lack of developed investor base. The EAC has seen its GDP growth decline from 6.8 percent in 2010 to 5.3percent in 2019, despite making much advancement in changing the financial sector and initiating measures to support financial deepening. Even though stock market performance in developing financial markets has the capability to enhance economic growth, its direct contribution to the combined economies of the countries in the EAC has not been well investigated. Several researchers hold divergent views concerning the directions of causality between the stock market performance and economic growth. This study investigated the effect of stock market performance on economic growth in EAC spanning from 2002- 2019 by specifically assessing the effects of capitalization of markets, turnover ratio of stock and value of stock traded on economic growth in EAC.The study also tested the causality between stock market performance and growth of the economy. This study was underpinned by AK model framework for economic growth since it emphasizes on the long-term growth which may affect economic decisions of a country. The study relied on secondary data sourced from EASRA, capital markets and Stock Exchanges of the EAC member countries that is USE NSE, RSE and DSE. Panel Vector Autoregressive VAR technique was used in estimation. The results of the research indicated a positive correlation between the performance of the stock market and the EAC economic growth. With Regards to causality there was a two-directional causality between market capitalization, turnover of stock and growth of the economy, however there was a uni-directional relationship between stocks traded value and the economic growth of the economy in EAC. Therefore, the study is beneficial to East Africa Securities Regulatory Authority (EASRA) in designing of policies that creates favourable business environment for stock markets to flourish. The study is also useful to future scholars as it adds to the existing literature. The study recommends that the EAC governments should design policies that ensure that there is improved stock market efficiency among the member states. This can be fulfilled by encouraging more companies to go public as this would increase liquidity in the stock market. Liquidity in the market attracts more foreign investment and portfolio that can spill over to the economy.

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LIST OF ABBREVIATIONS AND ACRONYMS

ATS	Automated Trading System
CPI	Consumer Price Index
CMA	Capital Markets Authority
DSE	Dare Salaam Stock Exchange
EAC	East African Community
GDP	Gross Domestic Product
GMM	Generalized Method of Moment
JSE	Johannesburg Stock Exchange
NSE	Nairobi Stock Exchange
NWC	Networking Capital
OECD	Organization of Co-operation and Development
OLS	Ordinary Least Square
OTC	Over the Counter Market
RSE	Rwanda Stock Exchange
SEM	Structural Equation Modeling
USE	Uganda Stock Exchange
VAR	Vector Autoregressive

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

Many African countries have not diversified their sources of economic growth; as a result, it faces major hindrances towards achieving a sustainable economy. This has made economists to deliberate on various ways that can enhance revenue generation for developing countries ranging from Physical capital, enhancement of stock markets, foreign aid, Research and Development (R&D), foreign direct investment (FDI) and International Trade (Anwade, 2017; Kirui, 2012; Salami, 2014).

Stock Market performance is a very important aspect of an economy since it offers short term and long terms funds to both public and private investors. The stock markets are regulated by Capital Market Authorities. The returns from stocks investment depends on several factors such as the share prices, inflation, economic condition of the country, foreign exchange and government regulations. Through the stock markets governments and corporations are able to raise capital to initiate projects and to expand existing projects overtime (Shahbaz *et al*., 2018). Supplying capital to productive economic units improves the performance of the economy.

Consequently, Economic growth concept lies on the capability of a country to sustain its fiscal welfare through enhancing efficient production of goods and services, increase in investments, limited government expenditure on social services, increased export from a home country, creation of employment and ability to attract foreign direct investment (Helpman, 2004). Economic growth not only determines the current state of a country but it also evaluates the ability of a country to participate in the global markets to access financial resources (Garrett, 2014).

Globally, financial markets comprise of bank-based systems and market-based systems. In a market system shares takes precedence with banks in getting societies savings to companies and managing risks (Osho, 2014). Stock market performance refers to a measure of stock market as an entirety or of a specific stock. It acts as a measure of economic performance which helps in distribution of the necessary capital required for the harmonization of growth in an economy (Madaleno & Pinho, 2012). The shift in the stock prices as well as the indexes portrays and hints on future leaning of the security, industry or the general economy.

Documentation of the nexus identifying with stock market performance and the improvement in the economic condition is expansive in both academic and policy arenas. An

unrivaled impression of the connection between these two variables has gigantic repercussions to policy makers, analysts and monetary area professionals. A few researchers have tried to position financial advancement in overall and security market functioning specifically as a factor of economic development. Among these pioneers of this propositions were Schumpeter (1911) who opined that the services rendered by monetary institutions such as mobilization of saving, project evaluation, risk management and transaction facilitation are key ingredients of financial technological progress and consequently, economic growth. Ideally, Schumpeter was of the idea that economic growth in the financial sector is through credit creation.

Schumpeter works was later on extended by the works of Goldsmith (1961) and Shaw (1973). However, their works had a small deviation from the former's proposition. They emphasized that the restrictive policies set by the governments for example capping of interest rates, devaluation of the currency, high taxes imposed to banking sector and huge minimum reserve requirements are deterrents to financial market development. McKinnon and Shaw (1973) therefore, advocated that it is through resolving these repressive financial policies that countries can achieve economic growth as it would pave way for proper allocation and distribution of financial resources.

Worldwide patterns demonstrate that successful business and service organizations are getting fixated on customer experience (Pollari, 2018). Information technology podiums are outweighing everything else in client relationship management. For instance, the acquisition of air tickets is being made on the web. Retail buyer purchases are being made through online business sites, for example, Amazon and Alibaba (Yan & Wei 2017). Other worldwide movements influencing the performance of securities exchanges incorporate expanded rivalry, changes in administration structures, client services management, among others (Pollari, 2018).

Stock market has led to the development of the global economies due to the benefits that can be exerted on corporate finance and economic activity (Anigbogu & Nduka, 2014). Failure to utilize capital resources in most productive economic areas especially industries lead to poor economic development. Continuous development of economies requires additional funds to allow expansion. These resources are sourced and allocated through the stock market which provides long-term non-debt financial capital to corporations as a unique benefit (Ogunrinola & Motilewa, 2015).

The stock performance in the entire globe has suffered a hit in the last decade as a result of the many shocks that have taken center stage in the global scene. First off, towards

the end of last decade and at the beginning of the decade the world witnessed what can be termed as the worst economic meltdown in the modern epoch. Major stock markets namely the Unites States Wall Street and the European Union stock market faced a blow of preponderance magnitude. In 2008 alone when the crisis was at its peak, the US S&P 500 recorded a 37% and with dividends included, it plummeted to a 43% return. Dow Jones posted a 26% loss. On the other hand, NASDAQ composite index recorded a 40% drop while Russell 2000 a prevalent yardstick for relatively smaller companies in US stock marked a drop of 20%. In the non-US market front, among the largest economies that are tracked by the MSCI index, retuned -15.5%. African and Middle East market which is also measured by the MSCI, most country market return was not greatly adversely affected although several countries received a dent. Notable among these were Israel (-8.2%) and morocco (-14.8%) that logged negative returns in their local currency (Forbes, 2020).

Another major shock in the decade was the COVID-19 pandemic which has sent an unprecedented shockwave across the global stock market. The pandemic's effect on the market is predominantly attributable the global market uncertainty that pushed the risk averse investors to divert their portfolio to relatively risk free assets such as government securities. As a result of this, major stock markets around the globe performed dismally in the last two years among these being NASDAQ composite index that witnessed a 6% drop in 2020, the Dow jones industrial that posted a drop of 10%, and the S& P that recorded a 12% drop. With regards to the non-US market the MSCI world ex USA index logged a 7% drop, while the MSCI emerging markets logged a 4% drop. Overall the global stock market volatility was significantly high compared to the same period in 2019 as gauged the CBOE volatility index. The US and larger economies faced a larger shock in the stock market performance compared to emerging markets.

Globally the leading stock exchanges include the Ney York stock exchange, NASDAQ and Japan Exchange groups. These stock markets have had a great impact on world economies, the country's population have been well informed on the profits of investing in stocks, unlike in most African countries where most stocks are traded over the counter. African capital market is characterized by emerging and frontiers stock exchanges which are less efficient as compared to the developed market exchanges. Some of the most vibrant bourse are Johannesburg Securities Exchange (JSE), Nigeria Securities Exchange (NSE), Ghana Securities Exchange (GSE), Malawi Security Exchange (MSE) and Nairobi Security Exchanges (NSE) among other exchanges. All these exchanges have varied stock indices which are used to assess market performance. For the purpose of regional views of

index review, the study will review Johannesburg Securities Exchange. The Johannesburg Stock Exchange offers secure, efficient secondary and primary capital markets across a diverse range of securities, supported by our post-trade and regulatory services.

JSE is the preferred market for local and international investors looking to gain exposure to the leading capital markets in South Africa and the broader African continent. Currently the JSE is ranked the 19th largest stock exchange in the world by market capitalization and in African continent as the largest exchange. The bourse has several indices which are used to measure performance of the market, market segment/sector or an economy industry (Exchange Journal 2018). Financial system not only in East Africa but across the globe is mandated with the responsibility of controlling the surplus and the deficit spending units.

A 2017 report by World Bank, on analysis of financial deepening in Africa came to a conclusion that economic growth is realized through enabling of various activities such as saving, trade, risk management, enhancement of stocks markets and efficient use of resources (World Bank, 2018). Additionally, the study established that even though East Africa is far much from achieving advanced financial market system, the potential to grow has been witnessed with various economic and financial activities expected to occur such as increased investment in security, modern banking system including internet banking and investment in global financial markets.

1.1.1 Overview of the East African Stock Markets

Security markets of the EAC have been up with numerous setbacks in the last decade (2009-2019). These setbacks stem from political discontents and lack of robust development in the information exchange. These challenges are posing more glitches to the integration of the security markets in the EAC. In addition, there is a disparity in the depth of securities markets among the EAC member states (Ncube & Mingiri, 2015). This is unlike the situation in many other blocs such as Southern African Development Community (SADC) and Middle East and North Africa (MENA). Among the EAC countries' where majority of the countries have similar dynamics in the stock markets as measured by market capitalization. Moreover, according to Allen *et al.* (2013) the East African security market is considered to have a low liquidity compared to other blocs because collectively their stock traded value is less than 1 percent of the value of their GDP. These challenges could be part of the contributing factors to slow economic growth in the EAC member states.

The Kenyan Securities Market is called the NSE. Investors in the exchange can be local retail, local institutional, international individual or international institutional investors. The NSE Currently has 68 listed firms with 61 firms actively trading (NSE, 2018). The NSE has had tremendous developments namely automation of its services, increasing its trading hours and most recently (on July 1, 2014) demutualization. After demutualization, NSE was subsequently listed in the MIMS under the subsector of investment services (NSE, 2014).

In the East African Stock Markets, there are nine firms that are currently cross listed in more than one stock market with three firms currently listed in all the three former East African Markets. These are Kenya Airways, Jubilee Insurance, East African Breweries, KCB, Equity Bank, NMG, Umeme and Bank of Kigali Group. All these companies are Kenyan based with exception of the latter two. Kenyan Securities Market has proven to be the most robust among the East African Securities markets. This is evidenced by the fact that out of the eight firms that are cross-listed, it is only Umeme Ltd which is Ugandan, the rest being Kenyan based firms. Other East African stock markets include; Uganda Stock Exchange (USE), the Rwandese Stock Exchange (RSE) and the Dar-es-Salaam Stock Exchange (DSE). Burundi and Southern Sudan currently are the only East African Countries without an established Stock Market (Kariuki & Onyuma, 2012).

In the same respect, fragmented markets as depicted by security exchange share indices are shown to limit cross-listings among the member states of the economic bloc. In addition to cross-listing, investors in one-member country might shy away from investing in stocks in another country. Table 1 displays the East Africa Stock exchange markets of four EAC member countries, namely, Kenya, Tanzania, Uganda, and Rwanda for the year 2019 Burundi and southern Sudan were excluded as they lack securities market.

Table 1

East Africa Stock Exchange Markets

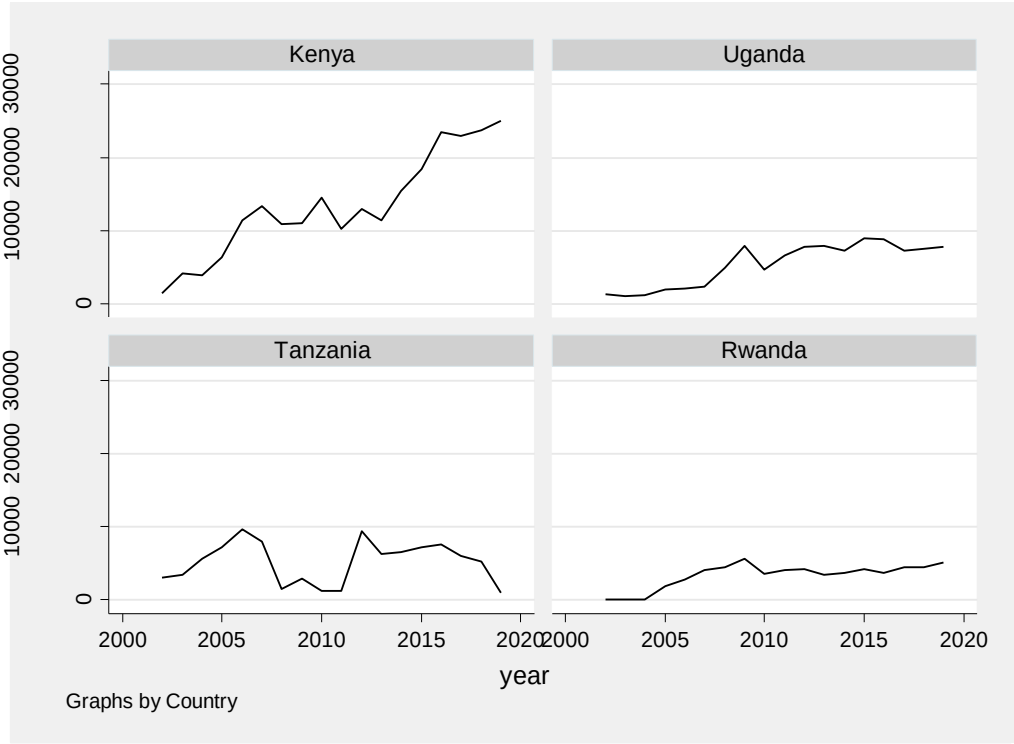
Country	**Market**	**Listings**	**Market capitalization (Million USD)**
Kenya	NSE	66	26489
Tanzania	DSE	26	10164
Uganda	USE)	16	7804
Rwanda	RSE	10	1

Source: Modified from WDI database (2019)

Kenya's Nairobi stock exchange is by far the most advanced and extensive in the EAC. This is as shown in Table 1. Kenya's stock exchange is the oldest and busier compared to its EAC counterparts. It was founded in 1954 and currently has 66 listings. The DSE is the second largest and has a listing of 26 companies. It was started in 1996 and commissioned in 1997. Ugandan stock market is small and still developing. USE is an emerging Stock Market in Africa initiated in the year 1997, and became functional in 1998. During its establishment, it had only one listing, a bond from East African Development Bank and restricted frequency of weekly trading (Maghanga & Quisenberry, 2015). In the contemporary age, USE has a total of 16 listings of local companies and those within the East Africa region. Finally, Rwanda Securities exchange is the most recent in EAC. It was started in the year 2000. It has made tremendous progress since its inception and has currently listed 10 companies both domestic and foreign. Figure 1 displays the market capitalization trends.

Figure 1

Market Capitalization Trend for EAC Countries



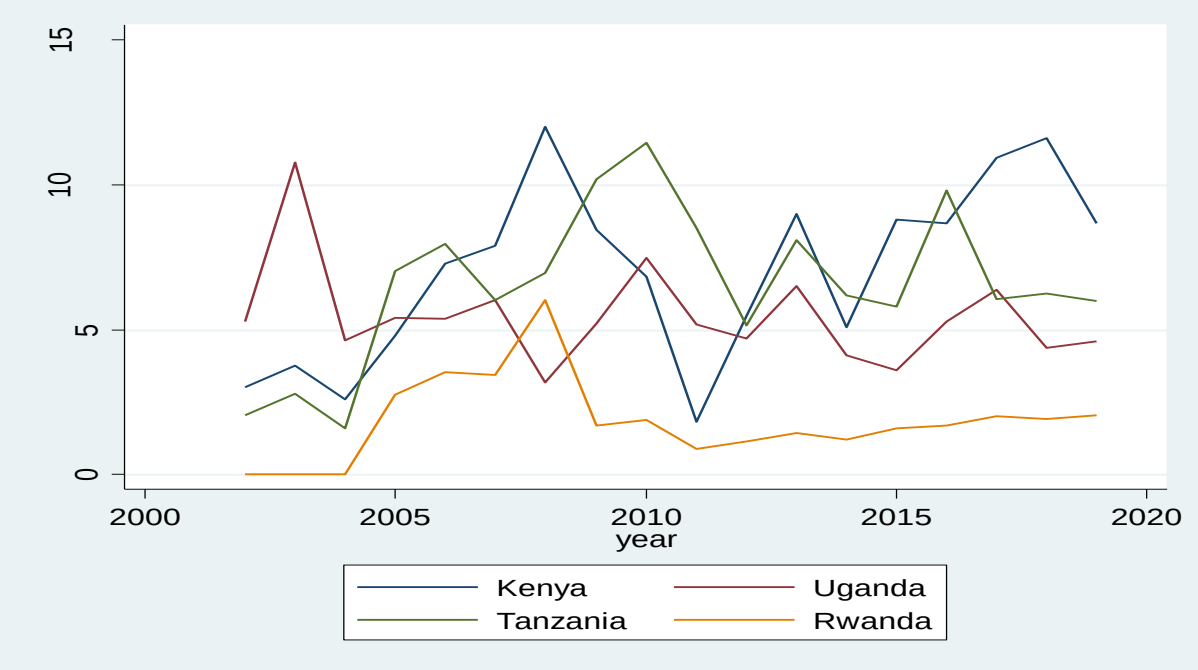
Source: World Bank Development indicator WDI database (2019)

Market capitalization is the total worth of a stock market. It signifies the market value of stock. Kenya has recorded better performance in terms of market capitalization. This is attributable to a relatively many firms listed in the NSE. The market capitalization rate has

fluctuated considerably between 2002 and 2015 after which it recorded a steady growth ending with 26,489 million current USD in 2019. On the other hand, market capitalization in Dar es Salaam Stock exchange has been recording highs and lows. The performance has been deteriorating since 2015 ending with a low of 10164 million USD in 2019. Uganda security exchange's market capitalization has had a steady flow between 2002 and 2015. It started showing a small decline and ended with 7804 million USD in 2019. Finally, Rwanda's stock exchange is the least performing among its EAC counterparts. It is however, worth noting that it has been on a growing trajectory and ended with 1 million USD in 2019. The next subsection presents trend for stock turnover ratio. The trends are as displayed in Figure 2.

Figure 2

Stock Turnover Ratio Trend for EAC Countries



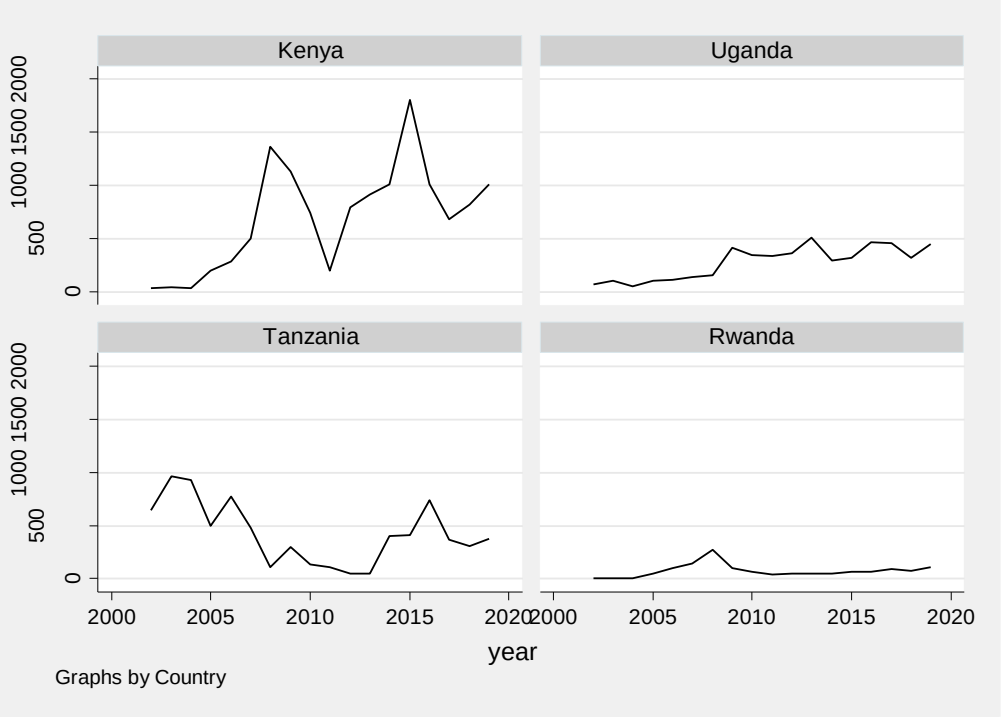
Source: World Bank Development indicator WDI database (2019)

Stock Turnover ratio is an estimation gotten by dividing the shares traded in a certain a period by the average market capitalization. It is evident that Kenya has been recording a higher turnover ratio compared to its other EAC counterparts. There has been a substantial fluctuation with the highest recording of 11.9908 witnessed in 2008 and 11.6215 in 2018. In 2019, the turnover ratio reduced by 2.5669 and ended at 8.546. Tanzania's stock turnover ratio has been on a downward spiral since 2016 where it recorded a ratio of 9.756, and dropped by 3.7 to 6.04 in 2017, 6.24 in 2018 and ended at 6.00 in 2019. Uganda has been experiencing fluctuations in turnover ratio for instance; In 2017, it recorded a turnover ratio

of 5.29458 and ended with 4.606 percent in 2019. Rwanda has recorded an increasing from 2009 ending with 2.0 in 2019. Figure 3 displays the stock traded value for the four EAC countries.

Figure 3

Stock Traded Value Trend in EAC Countries



Source: World Bank Development indicator WDI database (2019)

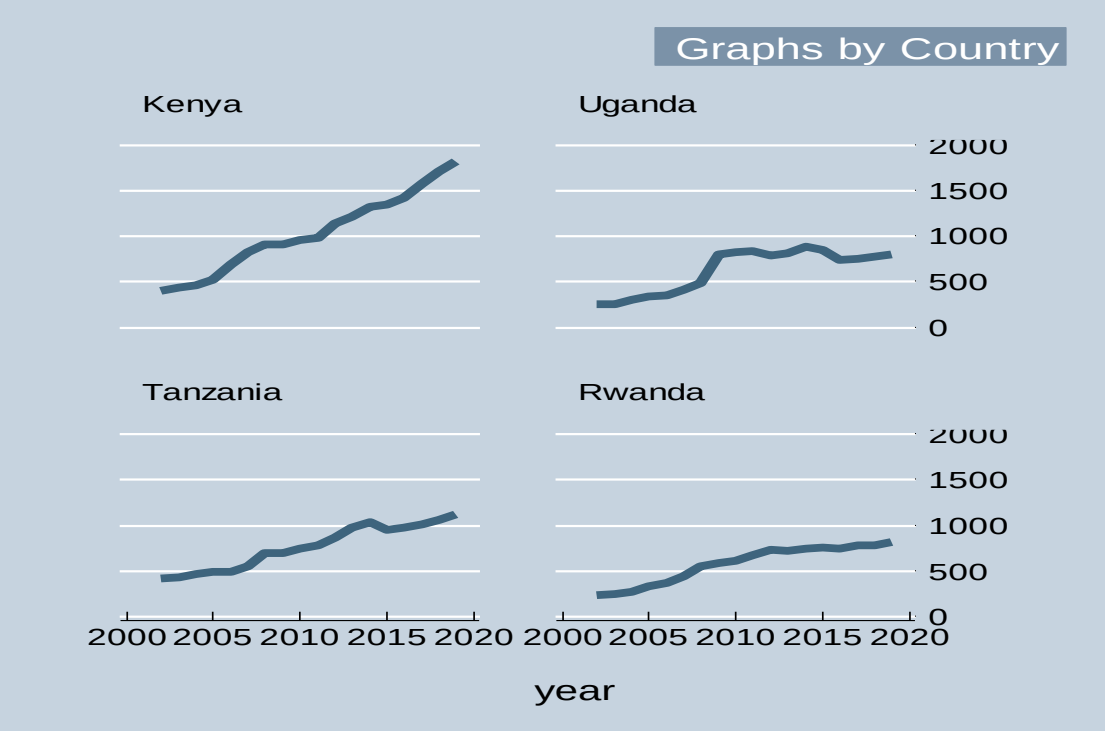
Stock traded value is the volume of traded stock in a certain period multiplied by their price. On Average Kenya has been recording high value, this has however, been marked with periods of high growth and periods of low growth. In 2019 the stock traded value was 1010 million USD. Tanzania has recorded a flux in stock traded value growth. It ended with a 337 million USD in 2019. Similarly, Uganda has witnessed variations in value of traded stock, In the past five years however, it has been on a downward inclination ending with 449 million USD in 2019. On the other hand, Rwanda has recorded steady growth in value of shares traded albeit the lower value compared to other EAC member states. In 2019 it recorded a stock traded value of 105 million USD.

1.1.2 Overview of Economic Growth in EAC

EAC has seen an increase in economic activities in the past decade. This is partly attributed to the joint move by the member states to mend their differences that had caused it to collapse in 1977. The reintroduction of the EAC saw it integrate to higher levels and at the moment it has reached the level of common market meaning that the markets are opened up for free mobility for the factors of production. This has in turn led to trade interaction of people to people. Trade in EAC has been supported by standard Gauge railways, opening up of the hinterland areas with road networks, proper marketing of EAC as tourist destination as well as diversification of products. It is worth noting however, that despite these tremendous improvements, GDP per capita growth of the EAC has been on a downward spiral in the past decade from 6.8 in 2010 to 5.9 in 2019 (UNECA, 2019). Figure 4 displays the GDP per capita trend for the four EAC community Countries.

Figure 4

GDP per capita trend for EAC countries



Source: World Bank Development indicator (WDI) database (2019)

Kenya has a stronger economy in terms of GDP per capita. According to Figure 4 Kenya's per capita GDP has been on a positive trend since 2003. The country has also recorded a higher trend between 2002 and 2019 where a continuous increase from USD 389.54 to USD 1816.55 in GDP per capita is noticed. Rwanda too has been on an upward trajectory from USD 233.28 in 2002 to USD 820.02 in 2019. Tanzania has been experiencing

a steady increase in GDP per capita since 2002 but recorded a slight decline in 2015 (USD 947.933) and 2016 (USD 966.47), it got back to its increasing path in 2017 closing with USD 1122.12 in 2019. Finally, Uganda's GDP per capita has been fluctuating with a high of USD 879.72 in 2014. It ended with per capita GDP of USD 794.34 in 2019. This fluctuation in the growth of the economy may have been due to sluggish and lack of well-developed investor base such as the thin trading.

As East Africa community aspires for economic revolution through integration, the favorable result of the stock market performance on the economy need careful tapping for greater improvement. This will expedite the achievement of its goals as indicated in the East Africa integration vision. The United Nations is conscious of the crucial role of alternative financing sources in boosting investment that is essential for sustained economic growth. It is therefore crucial that these countries should invest in stock markets in order to diversify its sources of capital.

1.2 Statement of the Problem

The East Africa community economies are at the initial stages of implementing sustainable

development goals. The EAC community should therefore strive to achieve a stable, competitive and sustainable middle-income economy. Economic growth is crucial because it enables countries to improve the quality of living standards, create employment and reduce debt burden. A healthy economy encourages firms to take risks, innovate and invest in future products such as stock markets. However, the East Africa community has continued to experience a sluggish economic growth where its GDP declined from 6.8% in 2010 to 5.9% in 2019 (UNECA, 2019). If this trend continues, it may negatively affect the region's development goals of becoming a middle-income economy.

Stock markets have been cited by extant literature to promote investment and ultimately economic growth. For the companies to expand, create more jobs and grow, they must increase their capital. Despite the fact that stock market performance in developing financial markets has the capability to enhance economic growth, its direct contribution to the combined economies of the countries in the EAC has not been adequately investigated. Empirical studies on stock market performance and its effects on growth of the economy have also presented conflicting results concerning the link between the variables in question. Secondly majority of these studies have considered the relationship in a national setting (for example: Sylvester and Enabulu (2011)). Studies that have paid attention to trade blocs

include a study by Nyanaro and Elly (2017), but this study failed to establish a causal link between stock market performance and economic growth. The Study by Aduda et al. (2012) concentrated on GDP growth however, the current study focuses on GDP per capita as population is a critical factor in the analysis of Economic growth as it ensures optimal allocation of resources (Vossos, 2019).

Based on the aforementioned, the main gap identified in this study therefore stems from two aspects; the scarcity of studies around the relationship between stock markets and economic growth in EAC bloc. Secondly, there was a need to study a causal relationship between the stock market and economic growth variables for the purposes of proper economic diagnosis and policy proposal. This study was conducted with an aim to bridge these existing gaps by establishing the nexus between stock market performance on economic growth in the EAC.

1.3 Objectives.

The study was guided by general and specific objectives outlined as;

1.3.1 General Objective

To investigate the performance of stock market and economic growth nexus in the EAC.

1.3.2 Specific Objectives

i. To investigate effect of market capitalization on economic growth in the East Africa community countries
ii. To determine how stock turnover ratio, affect economic growth in the East Africa community countries
iii. To investigate effect of stock traded value on economic growth in the East African community countries.
iv. To determine causal relationship between stock market performance and economic growth of East Africa Community Countries.

1.4 Research Hypotheses

i. Market capitalization does not significantly affect the growth of the economy in the East Africa community countries
ii. Stock turnover ratio has no significant effect on the growth of the economy in the East Africa community countries

iii. Stock traded value has no significant effect on the growth of the economy in the East Africa community countries.

iv. There is no causal effect between stock market performance and the growth of the economy of East Africa community countries.

1.5 Justification of the Study

The study is essential to the management of NSE and other stock markets in East Africa in its policymaking. The policy makers are advised to be innovative and develop policies that can increase market efficiency by coming up with incentives and mechanisms that encourage investors to trade on stock markets so as to increase the capital.

There exist a few studies discussing how securities market performance affects growth of the economy in East Africa. This research immensely contributes to the existing body of knowledge. The researchers will have more empirical literature available for future references. Moreover, this study has suggested areas that can be studied in future to enormously enrich the empirical literature.

This study also recognized the necessity of EAC to concentrate on robust and nominal stock markets in order boost investment and economic growth in the region. Policies that facilitate financial integrations should be developed through East Africa Regulatory Authority (EASRA). Financial analysts may get some insights from the results of this study about what methodologies to continue applying and those ones that they should overhaul.

1.6 Scope and Limitation of the Study

This research focuses on four EAC Countries namely; Kenya, Uganda, Tanzania, and Rwanda. Availability of data for South Sudan and Burundi was limited, since South Sudan is a new member and Burundi has been facing political instability therefore affecting its economic activities. The study used data from 2002 to 2019. The period was chosen since the data available was complete and a number of operational changes through innovations and process automations might have happened over this period.

The study faced several limitations. Firstly, the study was limited by availability of data and therefore, the study spanned for 18 years and it also excluded two EAC member countries, that is, Burundi and Southern Sudan. This study had the challenge of compiling data that was very voluminous and scattered. There were also limitations in respect to accessing data from the company's websites. This was addressed by checking hard copy financial statements at the CMA library.

1.7 Definition of Terms

Economic Growth: The general proliferation in the production levels in the country over a stated amount of time in most cases one year. It is commonly put into measure by evaluating addition of value of products and services at the market rate.

Financial Market: These are markets where investors trade securities (Stock) and other market derivatives at a cheap transaction cost.

Market Capitalization: The complete valuation of total shares in the market based on its present cost of shares and the total number of outstanding stocks. It's assessed by multiplying the current market cost of an organization's shares by the total outstanding shares of a similar organization.

Market Performance: This can be defined as the end outcome of the comparison between the selling prices to the costs of production.

Stock Traded value: This the aggregate quantity of traded shares multiplied by their respective prices.

Stock Turnover Ratio: This refers to the ratio showing the number of times a company has made sales in a specified duration of time. Stock is all of the shares into which ownership of the corporation is divided.

Investment: This is an asset or products that are obtained with the intention to generate additional income and increase the stock of capital.

Terms of Trade: This is the amount of imports good an economy can purchase per unit of export goods.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The theoretical and empirical studies of various scholars are presented herein, these are theories and works that has been carried out by other scholars in the past relating to stock market performance and economic growth. It covers theoretical literature, empirical literature and ends with conceptual framework. The conceptual framework represents the association between dependent, independent and the control variables.

2.2 Theoretical Review

This chapter outlines the theories of economic growth and those that are related to the stock markets.

2.2.1 Endogenous Growth Theory

Paul Romer in 1960's came up with this theory and states that economic growth is endogenous and cannot be affected by external forces. This theory points out the major contributor to economic growth as investment in human capital, knowledge, and innovation. It puts into consideration the spillover implications of a knowledge-based economy which resulted in economic growth. The theory majorly subscribes to the opinion that policy measures put in place determines growth rate of an economy. This is possible through measures such as research and development. Subsidy on education expands growth rate through expansion of incentive for innovation as outlined in some endogenous growth model.

According to this theory therefore, economic development is a positive purpose of the venture ratio and that the increase in size of the economy of a region is dependent on policy initiatives enacted by the governments. Therefore, Policy initiatives that promote the capital build-up and investments of the stock markets have a positive effect on the economy. This signifies that policies that magnify the development and performance of stock marketplaces encourage the economic progression of a country in the long-term. Policies enacted by the EASRA towards financial integration and deepening in EAC greatly affects member states economic growth rate.

One primary shortcoming for endogenous growth theories is a collaborative failure to expound conditional convergence disclosed in empirical literature and to clearly outline principles of diminishing returns to capital. However, the theory is relevant to this research because it emphasizes the prominence of financial markets in promoting the growth of the

economy. According to the theory, without a robust financial system even the most sophisticated of invention will not catapult economic growth of a country.

Hicks (1969) was of the view that financial development leads to liquidity in the market. The observation was that in the wake of industrial revolution in England, there were numerous innovations and inventions but significant economic growth was only realized at the time when the focus was shifted to financial markets. It is during the latter's epoch that long-term project started bearing the fruits owing to the huge amount of capital injected in the economy as a result of developed financial markets (Yartey, 2008). Securities market is a type of financial market which has gained wide recognition for its contribution to economic growth.

2.2.2 Equilibrium Theory

The theory was founded by Montes in 2003. It remains valid juxtaposed to the partial equilibrium theory, or Marshallian partial equilibrium, which solely assesses specific markets or sectors. It tries to describe the operations of the macro economy as a whole instead of as clusters of individual market occurrence. General equilibrium theory attempts to demonstrate how and why all free markets incline towards equilibrium at the end. Markets do not automatically arrive at equilibrium, but rather incline towards it. The market can be likened to a lake flustered by the wind, where the water is continually pushing towards its level without ever attaining it.

At the center of economics is the notion of equilibrium theory that solid state of occurrences to which an economy is inclined. In actual economies, people trade without any restrictions in the markets to grow their welfare. In Economics, general equilibrium theory tries to give an explanation on the demand, supply and prices in an entire economy in consideration of a handful of or many interacting markets, by trying to show beyond any doubt that supply and demand lead to general equilibrium.

Existence of a competitive equilibrium can be proved under quite general conditions on assumption of the theory. Equilibrium has several approaches with its own restrictions. Of this approach two assumptions in discussion of uniqueness of equilibrium made are; overall substitutability and inadequate proposition of reveal preferences. For a flawless exchange economy, distinctiveness of equilibrium can be ascertained if summed up excess demand functions conform to the gross substitutability property. Desirability assumption is best in proving uniqueness in comparison to free goods i.e., in every equilibrium, prices of each good should be positive and the aggregate demand function to be differentially continuous. In

case of indifference curves having kinks, dimensions of prices were all be at market equilibrium.

General equilibrium theory has a number of failures, which includes the likelihood of partial non-independent inclination, partially completed and non-transferable options and non-convex demand and production. Besides, the distinctiveness of the equilibrium theories could only be secured grounded on the supposition which are inadmissible and quite limited. Another limitation for the theory is that is based on perfect competition market which is not a reality in real market. General equilibrium theory's static nature is its primary limitation from the institutional school perspective.

The theory is relevant to this study as it explains that economic stability arises from several factors injected in the economy. It states that the economy is an amalgamation of different markets and these markets act independently but interact to create an overall stability in the economy. The stock market under this study is part of the money market. Its stability or growth is expected to result in the growth of the economy or help the economy go into equilibrium. This makes the theory suitable for this study.

2.2.3 Demand-Supply Leading Hypothesis

The demand-supply leading causality was advanced by Hou and Cheng (2010). The theory attempts to demonstrate the capital-growth nexus. The theory proposes that financial development is a process that can precede and follow economic development. The implication of this is that economic growth is an important contributor to capital market development and at the same time capital market development is an enabler of growth of the economy. Beginning with the demand leading hypothesis, the argument is that economic development triggers the general population to demand stock market products. The rationale behind this is that economic development ensures that there is liquidity in the markets which influences the purchasing power. In this regard, households and firms are able to put their investment in the stock market which results in its better performance in terms of share prices and ultimately value of stock as well as the general market capitalization. In addition, the theory posits that when the economy grows, financial system gets activated to maintain adequate activities leading to cost effectiveness. This leads to maturation of financial system which bring down the fixed costs. This creates financial inclusion prompting households to gain more access to credit and ultimately invest in the stock market.

The supply leading hypothesis is premised on the causation of stock market on the economy. The theory postulates that a well-built financial system enables households to

increase their savings which is channeled towards acquiring productive capital which ultimately fosters economic growth. Thus the theory recognizes that the stock market and financial markets are intertwined, a well-functioning financial systems creates a robust stock market. Once this happens, the robustness in the stock results in economic growth through enabling the listed companies to obtain capital in a hasty and efficient fashion through generating an open market platform that nurtures transparency and efficiency for business operation. The obtained capital can be directed towards profitable ventures that aid in the facilitation of investment. This leads to the preferment of sustainable investment environment that is vital for economic growth.

The theory puts the arguments that stock market performance and the growth of the economy are causes and results of one another. This argument is useful in supporting the findings obtained after performing granger causality test.

2.2.4 Rational Bubbles Theory

Bubbles have been in existence ever since structured markets began; investors are usually believed to be rational for they rapidly acclimatize to any information that is applicable to the fortitude of prices of the assets and accordingly adjust to the prevailing conditions (Cuthbertson & Nitzsche, 2004). The fluctuations of prices in stocks assume a bubble approach where are irrational and rational bubbles (Engsted, 2014). Market Prices rati onally reflect available information such that the markets are fully informed. Eugene Fama argues that irrational bubbles cannot evidently predict the declines or increase in prices of shares. Rational bubbles operate on the notion that they are in existence at the present times only if they are operational in the near future.

Engsted (2014) found that rational bubbles cannot exist in situations where rates of stock returns surpass the growth rate of the economy. They prosper in enthusiastically resourceful economies. The creation of rational bubbles in the initial literature was not clear but later research recognized that bubbles arise initially due to rational investors' confidence and other psychological biases. The most appropriate example of a rational bubble was the stock market boom of the 1990's. LeRoy (2004) notes that stringent theoretical influences in contrast to the rational bubbles are not likely to occur. To the author, interpretation of a rational bubble is that agents are conscious that they trade bubble-inflated prices and that there are no untapped profitable trading prospects notwithstanding the bubble itself.

A rational bubble in a state with continuous anticipated proceeds does not denote foreseeable price deteriorations; it may as well take an extrapolation of when it will spurt and

its anticipated revenues may stay constant but it is not possible to forecast how it would surge (Engsted, 2014). Cuthbertson and Nitzsche (2004) observed that rationality places has no restrictions on the arrangement of the subsequent and greater instants of the dispersion of the error term. For example, the variance of the error term can be correlated to its previous value devoid of violating the Rational Expectations: from this condition the Auto Regressive Conditional Heteroscedasticity (ARCH) process is developed.

Engsted (2014) proposes that stock prices can be presumed by tallying the essential value together with rational bubble constituent. The ultimate value is the present discounted value of expected future dividends that integrates all elements that could be affecting the price of a security. The theory notes that for bubble to be gotten rid of, the transversally condition must be imposed and equated to a zero value. Transversally condition implies two points that are intersecting, where at every point of intersection, there is a parallel tangent space. This two parallel points combined together make the tangent space of the ambient manifold to more efficient in terms of the share prices. In such a case, it clearly means that prices only mirror their ultimate value. This theory reinforced the notion of white noise effect and its relationship with the performance of stock exchange indices. This theory is relevant to this study in the determination of price fluctuations of the stock prices, since the stock exchanges handles both rational and irrational clients.

2.3 Empirical Review

Zivengwa (2011) did a study in Zimbabwe to interrogate and investigate the link between stock market development and economic growth. Granger causality tests, vector Autoregressive approach and advanced econometric techniques was used to analyze annual time series data from 1980-2008. The Variables used included real GDP per capita, stock market turnover, investment and stock market size. The results of the study showed an existence of a unidirectional relationship from the stock market development to economic growth and that investments transmits to stock market development indirectly. The study was based on Patrick's supply leading hypothesis, however the study left out some important variables used to estimate stock markets such as capital markets which is the total market value of a stock.

Sylvester and Enabulu (2011) studied on how stock markets affect economic growth in Nigeria. The study employed OLS model for data covering the period 1989 to 2008. Results of the study presented positive effect of stock market performance on growth of the economy. Among variables used included gross capital formation, political instability real

GDP per capita and inflation. The study could have suffered misspecification problem since real GDP accounts for inflation yet it was included as one of the variables.

Aduda *et al.* (2012) expounded on development determinants of NSE for the period covering 2005 to 2009. The VAR model was employed to determine the evidence concerning the direction and the nature of relationship of variables. The findings revealed a relationship between variables of the performance of stock market and the growth of the economy. The variables under the study were domestic savings, bank development and stock market liquidity. Private investment and terms of trade were not applied as the control variables which this research seeks to explore as control variables.

Biyan (2012) explored roles of the stock exchange market on the Tanzanian economy. This study employed the case study based on triangulation and descriptive model in acquiring the needed qualitative and quantitative data. Furthermore, the outcomes established the obstacles that impede expansion of DSE to be; insufficiency of fluidity, capitalization, dilapidated economic environment, skyrocketing business costs, inadequate track-openness, unskilled labour. These studies nevertheless paid attention to the role of stock exchange on economic expansion unlike this study which focuses on market capitalization on economic growth.

Obere *et al.* (2013) sought to investigate the outcome of financial consolidation within the region and its implication on economic growth in EAC. Quantitative and qualitative data was obtained from the East African community between year 2000 and 2009 using general technique of moments. The results of the study established that regional financial partnership greatly induced economic growth in the EAC. The study however focused on a shorter period. The study suggested that EAC coordinating committee enhance effective bank administration to attain uniform bank proliferation, come up with ways of disbursement of common bond and create secondary markets for all the financial assets in the region. The study however showed effects financial integration on economic growth unlike this study which focuses on the effect of market capitalization on economic growth.

Ishioro (2013) sought to investigate a causal relationship between stock market development and economic growth in Zimbabwe. The data for the period 1990-2010 was estimated with the use of granger causality test as suggested by Toda and yamamoto (1995) and Augmented Dickey fuller unit root tests. The following independent variables were used as proxy for stock markets: Market capitalization, market liquidity, stock traded value, listed companied and Gdp as a proxy for economic growth. The outcome of the study revealed a bidirectional causality between the stock market and economic growth. The study

recommended that stock market management authorities should concentrate more on policies that encourages a consistent and a steady economic growth.

Kagochi *et al.* (2013) expounded on the relationship between stock market development and economic growth in sub-Saharan Africa for the period 1971 to 2007 using granger causality approach and fixed effect estimation. The variables used were stock turnover ratio, stock traded value, market capitalization, listed domestic companies and Gdp. The outcome of the study specified a unidirectional relationship from economic growth to the stock market indicators and a bidirectional relationship between stock market development and economic growth. The findings on the control variables in this case political instability, schooling and life expectancy depicted a positive effect on economic growth. The study recommended that the sub-Saharan countries should inculcate policies that creates favourable environment for small capital markets. This study excluded terms of trade and investment which is very key in determining economic growth if a country.

Using granger causality, Masoud (2013) assessed the stock market performance effects on the growth of the economies in developed countries for the period covering 1970 up to 2006. The findings portrayed a positive connection linking efficient stock markets and the growth of the economy both in the short run and the long run. The research however scrutinized the of stock market performance influence on economic growth in developed countries with technological advancement while the current study focuses on the performance of stock market performance and the effect on the economy.

Kirui *et al*. (2014) did a research on the macroeconomic variable effect on stock returns of commercial banks listed at NSE in Kenya between 2006 and 2015 basing on exploratory research design. The study findings show that the stock market capitalization, the stock market index, the stock market liquidity and financial depth positively affect economic growth. The study however used time series which has the limitation of less sample variability and less degrees of freedom causing inefficient estimates and multicollinearity.

Koirala (2014) did a study to find out the effect of stock market development on economic growth in United Kingdom (UK) covering the period 2001 to 2019. Control variables and collection of primary data was used to demonstrated the overall direction of the economy. The variables used include stock Markets capitalization, foreign direct investment (FDI), government revenue and GDP. From the regression analysis the results indicated a positive significant relationship between market capitalization and economic growth. The outcomes also revealed that a long term sustainable growth can be attained by encouraging

capital markets. This study might have experienced biasness some omissions since pre diagnostic tests such as unit root test and cointegration tests was not conducted.

Asghar and Hussain (2014) analyzed the causal relationship between financial development and economic growth in the developing countries covering the period 1978-2012. panel cointegration analysis and panel causality was applied to check on the relationship between the variables of interests that is foreign direct investment, Trade openness and economic growth. The outcomes of the study illustrated that financial development and economic growth have a strong long run positive relationship. secondly Foreign direct investment and financial development have a bi directional causality. Thirdly trade openness impact financial development in all the developing counties. The study recommends that the policy makers should develop policies that leads to promotion of trade to enhance economic growth

Aduda *et al.* (2014) researched on the capital market deepening effects on the growth of the economy in Kenya for a period covering 1992 to 2012 using Correlational research design. The findings revealed a positive effect of capital market deepening on the growth of the economy in Kenya and that no bidirectional relationship. The following variables were used stock turnover ratio, market capitalization, stock markets size and bond market turnover ratio. The unit root test was not conducted and therefore the study might have suffered spurious regression outcomes

Acquah-Sam and Salami (2014) did a research on of capital market growth effect on the growth of the economy in Ghana covering the periods 1991 to 2011 using granger causality test. Results confirmed that GDP growth is linearly associated to stock market growth. The findings also presented a positive bi-directional association between the growth of the economy and assets market. Variables used include market capitalization ratio, inflation, gross capital formation, stock turnover ratio and GDP. Nevertheless, the study emphasized much on capital market development as variable unlike this research on the effects of performance stock market using other variables including the stock turnover ratio as a component of stock markets

Okonkwo *et al*. (2015) investigated Nigeria's securities market expansion and its effect on the growth of the economy using classical regression techniques. The findings of the study suggested that liquidity has an inclination on stimulation of the growth of Nigerian economy and that market capitalization has an effect on the market liquidity.

Colombage *et al*. (2015) sought to ascertain whether stock markets and tax revenues are determinants of economic growth in developing Asia using panel data over the period 1990- 2008. The study employed panel unit root tests, Pedroni cointegration tests and granger

causality tests. The variables used in the study included logged values of GDP as a proxy for economic growth, Percentage of stock market capitalization on GDP, total tax revenue and stock markets. The findings of the study indicated that stock markets and tax revenue have a very minimal impact on economic growth. It also demonstrated the existence of a short run causal linkages for the countries in East Asia pacific between tax revenues, stock markets and economic growth respectively. The was also a relationship that runs from economic growth and tax revenue and secondly economic growth and stock markets to tax revenue. The study recommended that channels between economic and tax revenues should be improved, this can be achieved by developing a strong market liquidity and identifying tax oriented reforms in the ten Asians countries in order to improve economic growth.

Liu and Park (2015) examined the stock price movement in dares-salaam by employing descriptive research design. The research population consisted 176 institutional investors and 47 brokerage firms. The study found out that factors such as economic, socio-cultural and governmental policies influenced the development of stock market. Economic factors were established to have an effect on the stock market operations. Factors, for example, increment in interest rate, deterioration of currency, purchasing power and discretionary cash flow influence the costs and request of the stock securities which in the end influence the advancement of stock.

Jalloh (2016) did an investigation of stock market capitalization on the growth of the economy in Africa, using dynamic panel. Findings indicated that stock market capitalization positively and significantly impacts growth of the economy. This research however paid attention to larger Africa unlike this study which focus on East Africa which is striving to achieve a common market and free trade ass.

Nordin and Nordin (2016) investigated the capital market effect on economic expansion in Malaysia using VEC model. The research adopted a time series data and employed Johansen-Juselius co-integration test. The study's results revealed a co-integrating relationship between capital market and the growth of the economy. The findings also indicate that stocks markets have unidirectional cause and effect in the economy. The VEC model outlined both the stock market has significant effect on Malaysian economy. The study however failed to use the control variables which might have affected the results, time series data is also prone to suffer from less sample variability if unit root tests is not conducted.

Nabieu and Barnor (2016) carried out a study aimed at establishing the linkage concerning stock market performance and economic growth in Ghana. The study used quarterly time series secondary data from 2000-2012. Data was analyzed with the use of

vector causality approach and vector Error Correction Model technique. The study found out that stock market performance has a significant positive relation with economic growth both in the long run and short term period. The results from granger causality tests proved that there exists a bidirectional causality between the independent and the dependent variables in question. Market capitalization, market liquidity, stock traded turnover ratio and listed companies and countries gdp was used in conducting the study. The study however did not consider the use of the control variables to cushion the unforeseen occurrences in data estimation which might have affected the accuracy of the outcomes of the study.

Ullah and Wizarat (2016) conducted a research on the long-term association between stock market development and the growth of the economy for the period covering 1980 to 2004 using Johansen cointegration and Granger causality test. The findings of cointegration were that there exist association between stock markets and the growth of the economy in 4 of the selected 12 countries that is; China, the Philippines, Singapore and Taiwan. The result of Granger causality test showed presence of a bi-directional two-route connection between stock markets and financial growth in Malaysia, China, Indonesia, Hong Kong and Thailand.

Nyanaro and Elly (2017) conducted a study to establish a link between stock market performance and economic growth in the EAC for a five-year period. The examination was done by utilizing quantitative exploration strategies in deciding the idea of connection between the factors. The examination utilized Vector Autoregressive model just as Granger test for causality. The securities exchange factors measured in the examination were market capitalization, share value unpredictability market liquidity while GDP was utilized as an intermediary for monetary development. The discoveries uncovered a positive connection between financial exchanges and monetary development.

Halkos and Polemis (2017) evaluated the effect of financial stability and growth of OECD economies. The research was based on unbalanced panel data for the period covering 1970 to 2014. The technique employed general technique of moment system estimation (SYS-GMM). Evaluation of principal measures of financial stability and macroeconomic stability displayed a significant variance on the selected economies. Outcomes confirmed existence of stock turnover ratio, chosen banking development measures like size of financial intermediaries as significant factors determine of economic growth.

Musyoka *et al*. (2018) examined the consequence of stock market development on economic growth. The research employed use of ordinary least squares (OLS) Method to run regression and Error correction model. The research employed market capitalization, equity turnover and total shares traded as measurement methods. The counteraction test showed a

co-relation between point of reference of stock market development and economic growth in Kenya. Further investigation by Error Correction Model (ECM) indicated a negative relationship between market capitalization series and the growth of the economy.

Aduda *et al*. (2012) paid attention to causal variables of stock market development utilizing a population that included an All-Share index in the 4 financial exchanges within the East Africa nations. Vector Autoregressive (VAR) model was employed in the study to evaluate evidence concerning the direction and the nature of relationship of variables. The findings were that there is an existing association between variables of the performance stock market and the growth of the economy in these countries.

Kirui *et al*. (2014) did a research on macroeconomic variable effect on stock returns of listed commercial banks in Kenya between 2006 and 2015 basing on exploratory research design. The findings indicate that the stock market liquidity, the stock market capitalization, stock market index and financial depth positively affect the growth of the economy. The research failed to display whether there exists a relationship between economic growth and Performance of Stock Market.

2.4 Theoretical Framework

The study adopted the AK model of economic growth. Being a linear model it has output in form of linear function of capital. The model (AK) assumes that when people amass capital and adopts 'learning by doing' yields technological development that gravitates towards increasing the marginal product of capital, thus laying down the inclination for the marginal product to decline when technology is unchanged. The model ensues in a production function of the form:

$Y = AK$ ..... (2.1)

Where: Y = output

AK= marginal product of capital

The model forecasts that a country's growth rate is contingent on economic factors including a thrift and the feasibility of resource distribution. Bebczuk (2002) augments the model to explain the source of per capita growth. The assertion is that other than capital accumulation, factor productivity is an important determinant of per capita growth. The analysis also incorporates labour and views total output as a multiplicative function of efficiency and volume combined output. The resulting model thus become:

$Y = Q\ A_t\ F\ \{K_t, L_t\}$ .....(2.2)

Where:

t = Time

Q = Output

L = labor

K = capital

A = technical efficiency

The analysis begins with the following Cobb-Douglas production function by remodeling equation 2.2 into linear model as shown in equation 2.3

$Y = AK^{\alpha}L^{1-\alpha}$ …… (2.3)

Where g represents real output, a measures technical progress, K indicates real physical capital, and L is labour force. From equation 2.3, raw labor and human capital are combined to form a labor effective input. Nevertheless, decomposing human capital and raw labor, gives equation 4.

$Y = AK^{\alpha}H^{\beta}L^{1-\alpha-\beta}$ …… (2.4)

Assuming that the rate of return on investments made towards human capital increases, as the stock of human capital rises, similar assumptions to physical capital and labor, hence, it's notable that the three factors depict constant returns to scale. In this growth accounting model, the study considers country's investment as a factor of production. This has been echoed by Romer in (1960) who noted that countries with higher initial stock investment stock experienced faster growth.

From equation 2.4, the study assumes that A and L are exogenously determined at a rate of n and Y respectively at a particular point in time. Taking natural logarithm of the equation 2.4 gives the following:

$\ln Y = A.\alpha \ln K + \beta \ln H + (1 - \alpha - \beta)\ln L$ ……..(2.5)

The modification of AK model helps in understanding the existing association between stock market and economic growth. The AK model in the stock market has proofed to be essential in understanding the efficiency of stock market performance. AK model describes how it is important for investors to make sound decisions particularly in analyzing the business and profits prospects of companies. Since the AK model is based on input output relationship, the performance of the stock market will depend on the portfolio selection of assets traded in the stock market. Performance of stock market is an indication of increased investment in the country that adds up to capital accumulation of a country. The stock market growth in a country boosts the investment propensity of firms in a country. In turn, it yields more liquidity in the market leading to the growth of output in the economy.

2.5 Conceptual Framework

The dependent variable used to indicate the relationship between the stock market and economic growth was GDP per capita. The Independent variables included; Stock turnover ratio, stock traded value and market capitalization. The research used private investment and terms of trade as control variables (variables that do not change but can influence the results of the study).

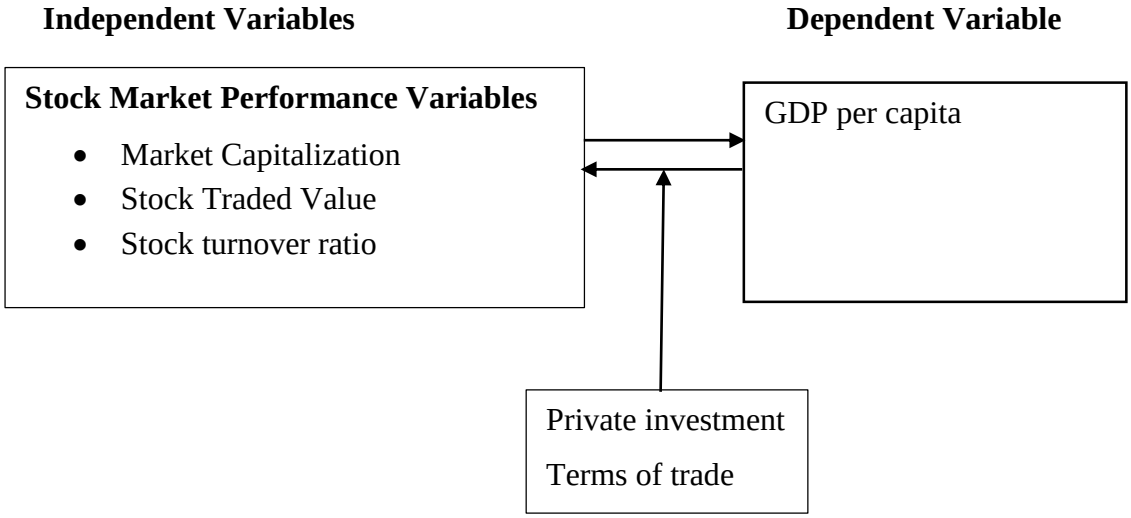


Figure 5: Conceptual Framework

Stock market is a valuable source of funds that can impact the growth of the economy of a country by enhancing savings and investment. Its performance was measured based on capitalization of the markets, Stock Turnover Ratio and Stock traded value. Gdp per capita was used to measure the growth of the economy.

Market capitalization is the complete valuation of total shares in the market based on its present cost of shares and the total number of outstanding stocks. Market capitalization contributes to economic growth by giving hints on company's size for future forecasting

Stock traded value can be referred as the cumulative value of the shares traded on a given time frame (Chang *et al*., 2013). Increasing the value of stock denotes a rise in the company's revenue, thus positively affecting the GDP growth over time.

Stock turnover ratio is an efficiency ratio responsible for inventory management. It measures whether the company is doing well or not. Low turnover ratios indicate if the company is selling less hence low economic growth. High turnover ratio indicates more sales hence higher economic growth.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This section covers areas such as; the research design, the model specification, the study area, data sources, justification of variables and analysis technique.

3.2 Research Design

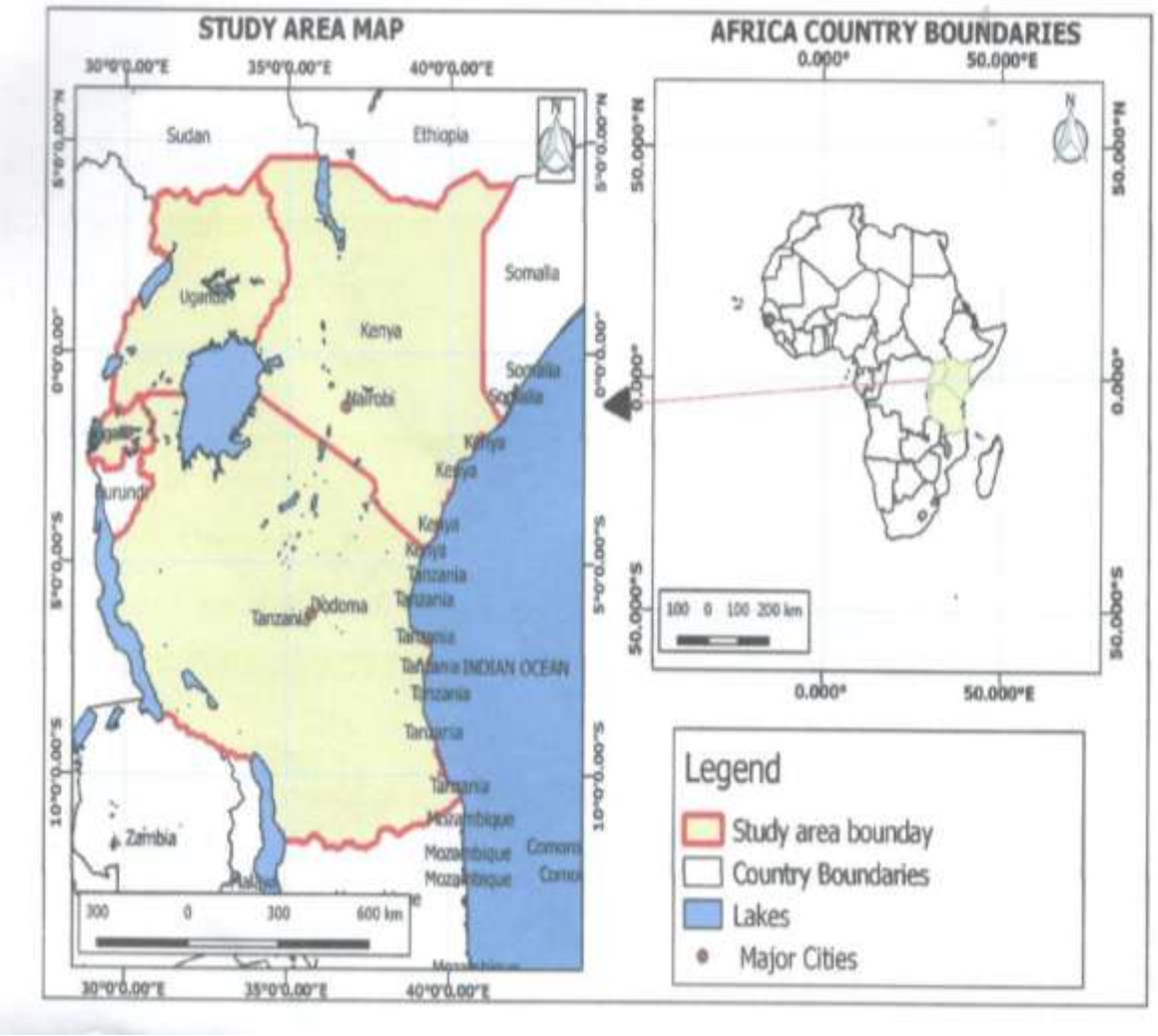
This research used causal research design to evaluate the trends of securities market performance and the growth of the economies in EAC covering 2002 to 2019. This design is useful in linking the dependent variable from the independent variable with the aim of establishing the causal effect (Kothari, 2015). The study also used secondary data and employed a panel data analysis. The design is also suitable for explaining trends and predicting future phenomenon.

3.3 Study Area

This research was done in East African Community bloc. The member countries were chosen since they have almost similar economic, sociological and cultural dynamics. The stock market performance has continued to perform dismally in EAC compared to other blocs. According to UNECA (2019) the average GDP growth of EAC declined from 6.8 in 2010 to 5.9 in 2019. Therefore, it was necessary to establish if financial markets and specifically the stock market have a part to play in this. Burundi and Southern Sudan were excluded from the analysis due to data unavailability. Figure 6 presents the map of the study location.

Figure 6

Map of East African Community Countries



Source: http://mapsopensource.com retrieved on 5th May 2020

3.4 Model Specification

Osinubi (2001) identified an empirical method of assessing the effects of performance stock market on the growth of the economy. This study used three models to represent the first three objectives. They were also modelled in natural logs to normalize the data. Equation 3.1 addressed the first objective and it presented a regression of GDP per capita against market capitalization and two control variables namely terms of trade and private investment. Equation 3.2 shows the stock turnover value and GDP per capita relationship as well as control variables. Equation 3.3 represents the third objective and it displays a regression between GDP per capita and stock traded value.

$$LnGDP_{it} = \beta_0 + \beta_1 lnMC_{it} + \beta_4 lnTOT_{it} + \beta_5 lnINV_{it} + \varepsilon_{it} \quad \text{..... (3.1)}$$

$$LnGDP_{it} = \beta_0 + \beta_2 lnST0_{it} + \beta_4 lnTOT_{it} + \beta_5 lnINV_{it} + \varepsilon_{it}) \quad \text{..... (3.2)}$$

$$LnGDP_{it} = \beta_0 + \beta_3 lnTVL_{it} + \beta_4 lnTOT_{it} + \beta_5 lnINV_{it} + \varepsilon_{it} \quad \text{..... (3.3)}$$

Where:

LnGDP represent the natural log of GDP per capita (dependent variable)

LnMC = natural log of Market Capitalization

LnSTO = natural log of Stock Turnover Ratio

LnTVL = natural log of Stock Traded Value

LnTOT= natural log of Terms of Trade

LnINV= natural log of Investment

β_0, β_1, β_2 and β_3 represent model coefficients

ε represents estimate of Error

$_i$ represents country

t represents time

Panel vector autoregressive (VAR) model was used in the model. This is a regression method that is applied to data that do not have cointegration. The initial step of formulating the model is to consider a k-variate homogeneous panel VAR of order p with panel-specific fixed effects signified by the subsequent mathematical model provided by (Abrigo & Love, 2016).

$$Y_{it} = Y_{it-1}A_1 + Y_{it-2}A_2 + \cdots + Y_{it-p+1}A_{p-1} + Y_{it-p}A_p + X_{it}B + u_i + e_{it} \quad \text{..... (3.4)}$$

$$i \in \{1,2,\dots,N\}, t \in \{1,2,\dots,T_i\}$$

Where:

$\boldsymbol{Y_{it}}$ =outcome variable

$\boldsymbol{X_{it}}$ =vector of independent variables;

$\boldsymbol{u_i}$ and $\boldsymbol{e_{it}}$ error terms

3.5 Granger Causality

The fourth aim of the research is to determine causal links between performance stock market and the growth of the economy of EAC. In this regard granger causality test was used. It was developed by Granger in 1969. It is a non-parametric hypothesis testing used in showing causality between two variables. The method enables the researcher to understand the possibility of finding out the relationships of two variables in time series. For instance, assume x_t and y_t are two stationary series as in expressed in equation 3.5. The model is used to test whether x results in y and vice versa

$$Y_t = \alpha + \sum_{k=1}^{K} \beta_k y_{t-k} + \sum_{k=1}^{k} \delta_k x_{t-k} + \varepsilon_t \quad \text{.....(3.5)}$$

If the previous figures of x are substantial forecasters of the present value of y even when past values of y are contained in the equation, then x has a causal effect on y and vice versa. Using the equation 3.5, it is possible to carry out this causality grounded on the Fischer's test. However, the model is a time series model as it was originally put forward by Granger. Dumitrescu and Hurlin (2012) extended the procedure to accommodate panel data. Their causality model is specified in the following form:

$$Y_{it} = \alpha_i + \sum_{k=1}^{K} \beta_{ik} y_{i,t-k} + \sum_{k=1}^{K} \delta_{ik} x_{i,t-k} + \varepsilon_t \quad (3.6)$$

Where x_{it} and y_{it} are the observations for person i in period t. The subscript i on the coefficients indicate that that the coefficients can vary across groups but are presumed to be time invariant. K is the order of lag selection for all individuals and the panels are expected to be balanced. The null is stated as:

$$H_{01}: \delta_{i1} = \delta_{i2} = \cdots = \delta_{ik} = 0 \quad (3.7)$$

Where i=1…N

The underlying granger causality regressions can be written as shown in equation3.8 to 3.13. Equation 3.9 shows causality between GDP and market capitalization with GDP per capita which is the dependent variable while equation 3.9 represent the same causality but with market capitalization as the dependent variable.

$$lnGDP_{it} = \alpha_{i1} + \sum_{K=1}^{K} \beta_{ik} lnGDP_{t-k} + \sum_{k=1}^{K} \delta_{ik} lnMC_{t-k} + \sum_{k=1}^{K} \sigma_{ik} lnTOT_{t-k} + \sum_{k=1}^{K} \vartheta_i \Delta lnINV_{t-i} + \mu_{1t} \quad (3.8)$$

$$\Delta lnMC_t = \alpha_{i2} + \sum_{k=1}^{K} \delta_{ik} lnMC_{t-k} + \sum_{i=1}^{p} \beta_{ik} lnGDD_{t-k} + \sum_{k=1}^{K} \sigma_{ik} lnTOT_{t-k} + \sum_{k=1}^{K} \vartheta_i \Delta lnINV_{t-i} + \mu_{2t} \quad (3.9)$$

Equation 3.10 and 3.11 represent the causality regression between stock turnover ratio and GDP per capita with equation 3.10 showing whether stock turnover ratio granger causes GDP per capita and 3.11 showing whether GDP per capita Granger causes stock turnover ratio.

$$lnGDP_{it} = \alpha_{i3} + \sum_{K=1}^{K} \beta_{ik} lnGDP_{t-k} + \sum_{k=1}^{K} \theta_{ik} lnSTO_{t-k} + \sum_{k=1}^{K} \sigma_{ik} lnTOT_{t-k} + \sum_{k=1}^{K} \vartheta_i \Delta lnINV_{t-i} + \mu_{3t} \quad (3.10)$$

$$\Delta lnSTO_t = \alpha_{i4} + \sum_{k=1}^{K} \theta_{ik} lnSTO_{t-k} + \sum_{i=1}^{p} \beta_{ik} lnGDD_{t-k} + \sum_{k=1}^{K} \sigma_{ik} lnTOT_{t-k} + \sum_{k=1}^{K} \vartheta_i \Delta lnINV_{t-i} + \mu_{4t} \quad (3.11)$$

Finally, Equations 3.12 and 3.13 show the Granger causality relationship between stocks traded value and GDP per capita. Equation 3.12 shows whether stock traded value granger causes GDP per capita while Equation 3.13 shows whether GDP per capita granger causes stock traded value.

$$lnGDP_{it} = \alpha_{i5} + \sum_{K=1}^{K} \beta_{ik} lnGDP_{t-k} + \sum_{k=1}^{K} \gamma_{ik} lnTVL_{t-k} +$$

$$\sum_{k=1}^{K} \sigma_{ik} lnTOT_{t-k} + \sum_{k=1}^{K} \vartheta_i \Delta lnINV_{t-i} + \mu_{5t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.12)$$

$$\Delta lnTVL_t = \alpha_{i6} + \sum_{k=1}^{K} \gamma_{ik} lnTVL_{t-k} + \sum_{i=1}^{p} \beta_{ik} lnGDD_{t-k} +$$

$$\sum_{k=1}^{K} \sigma_{ik} lnTOT_{t-k} + \sum_{k=1}^{K} \vartheta_i \Delta lnINV_{t-i} + \mu_{5t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.13)$$

The hypothesis for the models is as stated below:

$H_{01}: \beta_{i1} = \beta_{i2} = \cdots = \beta_{iK} = 0$ Denoting that GDP per capita does not Granger cause market capitalization, stock turnover ratio and/or stock traded value.

$H_{02}: \delta_{i1} = \delta_{i2} = \cdots = \delta_{ik} = 0$, denoting that market capitalization does not Granger-cause GDP per capita;

$H_{03}: \theta_{i1} = \theta_{i2} = \cdots = \theta_{ik} = 0$, denoting that that stock turnover ratio does not Granger-cause GDP per capita;

$H_{01}: \gamma_{i1} = \gamma_{i2} = \cdots = \gamma_{ik} = 0$, denoting that stock traded value does not Granger-cause GDP per capita.

3.6 Justification of Variables, Signs and Sources of Data

The research utilized secondary information from the world development indicator (WDI), EASRA, Respective countries stock exchange websites and the Capital Market Authority Library. The economic growth variables were measured by GDP per capita using data obtained from the World Bank data base.

3.6.1 GDP Per capita Growth

This is can be defined as the general increase in the production of goods and services in the country over a stated amount of time in most cases one year divided by a countries population. It is commonly put into measure by evaluating addition of value of products and services at the market rate visa vi the population of a country.

3.6.2 Stock Market Performance

Market capitalization (MC), stock turnover ratio (STO) and stock traded value (TVL) was used as a measure for stock market performance.

3.6.3 Market Capitalization

Market capitalization, indicated by MC on the dependent variable, was measured through market value, market stock and market cap. The data was sourced from respective countries stock exchanges. The study expected a positive sign. Market capitalization presents

the investors with a hint of the size of the company and can even be utilized to contrast the size of different companies (Ray, 2012). The notion can also grant a presupposition about the future anticipations of individual companies since the market capitalization is an indicator of how much the public is prepared to pay for the stock of the company in question (Jaya & Sundar, 2012).

3.6.4 Stock Turnover Ratio

Stock turnover ratio, indicated by STO is an independent variable and a proxy of stock market performance. Stock turnover ratio was measured by the number of shares transacted over a particular period vis-a-vis the total shares that ought to have been traded in the same period. The data was sourced from EASRA and annual statistical reports from EAC website. The variable was expected to have a positive sign. Traded stocks are always not predictable and very speculative. High stock turnover ratio minimize storage and holding costs therefore it always very important for a company to strive to achieve a higher ratio.

Weighing up ratios between companies operating within the same industry is critical than those operating in different industries since they differ greatly basing on the industry. Low turnover signifies that; a company's sales are below par, hence carries and stores too much inventory, or is going through unskillful inventory management (Innocent *et al*., 2013).

3.6.5 Stock Traded Value

Stock traded value, indicated by TVL is an independent variable. It was measured through multiplying the total number of shares traded (domestic and foreign) by their respective matching prices of each country. Data were sourced from the NSE, USE, DSE and RSE. The variable was expected to have a positive sign.

Due to scarcity of shares, bulk purchase of shared fund or an alternative large investor can result to large change in price (Yadav, 2015). By the same trend or change, if the investor makes a decision to sell, the shares were too likely to fail. Either situation however can be favorable for investors. That's why IBD regards a stock that trades fewer than 400,000 shares per day, counting on a 50-day average, as thinly traded (Brummer, 2015).

3.6.6 Terms of Trade

Terms of trade is a control variable. It was measured by dividing the price of exports by the price of imports. Data was collected from World Bank Development Indicator (WDI) database. The variable was expected to have a positive sign. Terms of trade can provide a reflection of how a country is performing in terms of exports. Higher terms of trade depict

that the citizens of a country are spending less on foreign products compared to what is imported. This indicates that the country is performing well, this in turn can lead to increased economic growth as the country is gaining (Mputu, 2016).

3.6.7 Investment

Investment was used as a control variable. It was measured by increase in capital stock. Data was collected from World Bank Development Indicator (WDI) database. The study expected a positive sign. Investment affects economic growth through a number of ways, firstly it allows for production of good and services to meet the domestic and export demand. It also leads to employment creation this leads to revenue generation for the government through individual income tax and business tax. Increased labor leads to efficiency and higher productivity the long run and ultimately economic growth (Albedalfattah & Al Shabib, 2012).

3.7 Data Analysis

This section entails pre-diagnostic tests including the panel unit root, cointegration and Post diagnostic tests. Inferential statistic and descriptive statistics was also employed to analyse the data.

3.8 Pre-Diagnostic Tests

3.8.1 Panel Unit Root test

Granger and Newbold (1974) postulate that for stationarity in all econometric studies, it's always necessary to conduct unit root test on time series data. Data is assumed to be stationary when mean, variance and covariance remains the same even when shifted by an arbitrary value in time. A variable is non stationary if it has at least one-unit root test. To remove the unit, root the variable has to be differenced. Im *et al*. (2003) technique was employed to conduct the unit root test.

3.8.2 Panel Co integration Test

Cointegration tests is used to identify the degree of sensitivity of two variables and to test whether series of data exhibit a long run property. The researcher tests if a long-run equilibrium exists for a group of data to test for cointegration. Wasterlund approach was used to test for cointegration since accounting for cross sectional dependencies is easy. The basis of the test was on the following hypothesis

H_0: No cointegration

H_1: All panels are cointegrated

3.9 Post-Estimation Tests

3.9.1 Stability Test

Panel VAR model is known to suffer from stability issues. Thus, according to Abrigo and Love (2016) it is crucial to carry out stability test to ensure that the model is robust. This implies that the coefficients obtained from the model have to be consistent. This study carried a stability test for robustness's sake.

3.9.2 Test for Autocorrelation

Autocorrelation also known as serial correlation is an econometric problem that arises whenever two successive error terms in a model are correlated. The study adopted the Woodridge test for autocorrelation. Woodridge test is easy to implement and is considered under general conditions. The null hypothesis of the test is stated as 'there is no first-order autocorrelation' while the alternative hypothesis is; no autocorrelation.

3.9.3 Test for Heteroscedasticity

Heteroscedasticity is an econometric problem that arises when the error term in the model has no constant variance. The outcomes of this is that the standard errors may be biased leading to biasness in the test statistics and confidence levels. Econometrics requires the model to have a constant mean and variance for the error term. The Breusch-Pagan/Cook-Weisberg test was used to check for Heteroscedasticity.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Introduction

The study findings for the dynamic panel analysis begins with the descriptive statistics which provides a central tendency and dispersion assessment of the data are presented in this section. The section enables the researcher to understand how the data behaves that is, the nature of its distribution. The empirical section presents pre and post diagnostics test to ensure that the model is specified well. The data was transformed to logs so as to allow interpretation of coefficients inform of elasticities.

4.2 Descriptive statistics

These statistics forms the initial part of the study. It enables the researcher to understand the dataset in terms of normality and its fitness in empirical analysis. In this regard, descriptive analysis namely measures of central tendency and dispersion were applied in the analysis. The results are shown in Table 2.

Table 2

Summary Statistics of Variables

	N	Mean	Standard eviation	Skewnes	Kurtosis	Min	Max
LnGDP	72	8.8041	1.3512	-.8469	2.3147	5.9810	10.2220
LnMC	72	22.2386	0.7512	-0.2112	2.3958	20.7011	24.0857
LnSTO	72	1.6198	0.6865	-0.3721	2.0790	-.1122	3.3286
LnTVL	72	19.3941	1.1545	-0.1921	1.9000	17.412	21.801
LnTOT	72	1.3967	0.8061	0.8662	2.6723	0.3675	3.2600
LnINV	72	4.6556	0.1278	0.9530	2.9041	4.4773	4.9716

Results in Table 2 show that the total observation was 72. The mean of the variables is shown in the third column. The log of GDP per capita had a mean of 8.8041; stock market capitalization had 22.2386; stock turnover ratio had 1.6198; stock total value traded had 19.3941; terms of trade had 1.3967; investment had 4.6556.

Standard deviation is the spread of the data from the mean. Natural log of GDP per capita had a standard deviation of 1.3512; stock market capitalization had 0.7512; stock turnover ratio had 0.6865; stock total value traded had 1.1545; terms of trade had 0.8061;

investment had 0.1278. All the standard deviation was small, an indication that the values in the data set are closer to the mean. These results denote that the variables do not contain any outliers that is there are no extremely larger or extremely smaller values in any of the variables. This makes the dataset suitable for regression analysis.

Skewness is a measure of normality and it shows whether the data is asymmetric or not. The threshold coefficient for skewness analysis is 1. Values that are less than 1 are an indication that the data is symmetric and vice versa. The natural log of GDP, Stock market capitalization, stock turnover ratio, and stock traded value had a negative skewness of -0.8469, -0.2112, -0.3721 and -0.1921 respectively. On the other hand, terms of trade and investment were positively skewed with skewness coefficient of 0.8662, 0.9530 and 0.1743 respectively. It can however, be concluded that the dataset is moderately skewed because all the coefficients were less than one in absolute terms. This means that the dataset can be used in regression analysis as they are because they conform to the requirements of normality.

Kurtosis is the assessment of the heaviness of the tail of a normal curve. The cut off coefficient is 3 where values larger than 3 are considered to have a heavy tail and those lower than 3 are considered to have a lighter tail. The natural log of GDP per capita had a kurtosis of 2.3147; stock market capitalization had 2.3958; stock turnover ratio had 2.0790; stock total value traded had 1.900; terms of trade had 2.6723 and investment had 2.9041. These findings mean that the dataset is viable in generating robust results as they exhibit normality.

4.3 Correlation Analysis

This study used Pearson's correlation analysis as the dataset exhibited normal distribution property as seen in Table 3. The findings of correlation are displayed in Table 3.

Table 3

Correlation Matrix for the Variables

	LnGDP	LnMC	LnSTO	LnTVL	LnTOT	LnINV
LnGDP	1.0000					
LnMC	0.2642**	1.0000				
	(0.0249)					
LnSTO	-0.2193*	0.1265	1.0000			
	(0.0642)	(0.2895)				
LnTVL	-0.1118	0.5924***	0.7728***	1.0000		
	(0.3498)	(0.0000)	(0.0000)			
LnTOT	-0.0618	0.4861***	0.5043***	0.7927***	1.0000	
	(0.6058)	(0.0000)	(0.0000)	(0.0000)		
LnINV	0.4084***	-0.1441	-0.5390***	-0.4968***	-0.4615***	1.00
	(0.0004)	(0.2272)	(0.0000)	(0.0000)	(0.0000)	

*, ** and *** denote significant at 10%, 5% and 1% respectively

Table 3 indicates the correlation matrix of the variables, from economic theories it's expectation is a significant positive link between GDP per capita and the stock market capitalization although the relationship is weak as indicated by the coefficient of 0.2642. Stock turnover ratio indicates a negative and significant association with GDP per capita, this relationship is weak as shown by the coefficient of -0.2193. This result disagrees with economic theory as the two are expected to have a positive relationship. This could be explained by the declining trends in stock market performance in EAC due to reduced investor confidence and political tensions within the region in the past decade. Stock total value traded had a negative impact on GDP per capita, however this relationship is weak as shown by the coefficient of -0.1118, and insignificant.

On the control variables, Terms of Trade too had a negative association with GDP per capita, this relationship is weak and insignificant, and this violates economic theory. The relationship between investment and GDP per capita is positive and significant, as expected, with a correlation coefficient of 0.4084.

4.4 Panel Data Diagnostic Tests

4.4.1 Panel Unit Root Tests

Using of non-stationarity time series data in the past studies leads to spurious and inconsistent regression outcomes. To avoid these shortcomings, Im *et al*. (2003) test was used to establish whether the unit root in the data present or absent. The IPS method was run on all the variables in levels and on first difference, the results are presented in Table 4.

The test is based on the following hypothesis:

H_0: There is presence of unit root in each panel

H_1: There is absence of unit root in each panel

Table 4

Results for Im-Pesaran-shin (IPS) Panel Unit Root Test

Variable		**IPS (Level)**		**IPS(first Difference)**		**Order of**
		Statistic	P-value	Statistic	P-value	**Integration**
LnGDP	t-bar	-1.3247		-7.0873		
	t-tilde-bar	-1.2333	0.6465	-3.0581	0.0000	I (1)
	z-t-tilde-bar	0.3759		-4.4225		
LnMC	t-bar	-1.4872		-4.1024		
	t-tilde-bar	-1.4168	0.4580	-2.8391	0.0001	I (1)
	z-t-tilde-bar	-0.1054		-3.8472		
LnSTO	t-bar	-3.0424				
	t-tilde-bar	-2.4173	0.0032	-	-	I (0)
	z-t-tilde-bar	-2.7303				
LnTVL	t-bar	-2.1296		-5.5272		
	t-tilde-bar	-1.9068	0.0821	-3.0753	0.0000	I (0)
	z-t-tilde-bar	-1.3909		-4.4676		
LnTOT	t-bar	-1.1327		-11.3800		
	t-tilde-bar	-1.0941	0.7707	-3.4339	0.0000	I (1)
	z-t-tilde-bar	0.7412		-5.4095		
LnINV	t-bar	-1.4049		-5.7282		
	t-tilde-bar	-1.3505	0.5273	-3.0150	0.0000	I (1)
	z-t-tilde-bar	0.0684		-4.3093		

Table 4 shows the panel unit root results. Apart from stock turnover ratio and Stock traded value integrated of order zero, all variables (GDP per capita, stock market capitalization, terms of trade and investment are integrated of order one I (1). The critical values for Im, Pesaran and Shin are presented in appendix A.

4.4.2 Westerlund Panel Cointegration Test

In recent years Westerlund (2007) panel cointegration test has taken much precedence over other traditional tests such as Pedroni and Kao cointegration test. The reason for this is that, Pedroni tests depend on the residuals got from a static relationship. Reproduction contemplates have shown that residual based tests have less force contrasted with those dependent on dynamic models. Another advantage of Westerlund approach is that it is easy to account for cross-section correlation /dependence.

The basis of the test is on the following hypothesis

H_0: No cointegration

H_1: All panels are cointegrated

Table 5

Results for Westerlund Panel Co integration Test

Statistic	Statistic	P-value
Variance ratio	0.9143	0.1803

The results for westerlund panel cointegration test are shown in Table 5. The test fails to reject the null hypothesis and the conclusion is that the panels are not cointegrated. This shows no evidence of a long-run association among the variables. In this case we go ahead to conduct a Panel Vector Auto regression analysis (Panel VAR).

4.5 Panel Vector Auto Regression Model Estimation

The model estimated a panel vector autoregressive (panel VAR). This technique was informed by some variables being non-stationary in level. Only stock turnover ratio and stock traded value were stationary in levels while the rest of the variables were stationary after the first difference. Secondly the choice of the models was informed by lack of co integration among the variables as established by the Westerlund panel co integration test. This means that overall combination of the variables was non-stationary.

Panel VAR was established by estimating three different models; each of the model contained each of the main variables namely stock turnover ratio, market capitalization and stock traded value. The first model was related to the first objective that aimed to find out market capitalization effect on growth of the economy of East African community. The second model sought to investigate effect of stock turnover ratio on growth of economy of East African community. Finally model three was related to the third objective that aimed to evaluate how stock traded value on economic growth of East African community. Further the panel VAR was improved by estimating lags instruments as recommended by (Holtz-Eakin *et al*.,1988). This approach accounts for missing values within the dataset (especially after differencing some variables) by replacing them with zeros. The implication of this is that the results yield more consistent and efficient estimates. Panel data is displayed in Table 6.

Table 6

Results from the Panel Vector Autoregressive Analysis

Dependent variable GDP per capita)	**Market Capitalization (1)**	**Stock Turnover Ratio (2)**	**Stock Traded Value (3)**
D_LnGDP	0.4594***	.2210803	- .0927889
Standard error	(0.112)	(0.150)	(0.181)
Z-Statistics	(4.10)	(1.48)	(-0.51)
D_LnTOT	0.2217***	0.0340954	0.17620**
Standard error	(0.0396)	(0.0349)	(0.0874)
Z-statistics	(5.60)	(0.98)	(2.02)
D_LnINV	.0954714	1.21359**	0.0056128
Standard error	(0.0857)	(0.615)	(0.149)
Z-statistics	(1.11)	(1.97)	(0.04)
D_LnMC	0.1263 ***		
Standard errors	(0.0239)		
Z-statistics	(5.28)		
D_LnSTO		0.1705**	
Standard errors		(0.0686)	
Z-statistics		(2.49)	
D_LnTVL			0.0348685*
Standard errors			(0.0204)
Z-statistics			(1.71)

Standard errors and Z-statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01

Table 6 displays results of panel VAR analysis. The results show that stock market capitalization has a positive impact on growth of the economy in EAC. These results are represented by the first model. The coefficient of stock market capitalization has a positive hypothesized sign and statistically significant at 5 percent level. This implies that a one percent increase in stock market capitalization leads to economic growth by 0.1263 percent. The study also rejects the null hypothesis that stated that stock market capitalization has no effect on the growth of the economy in EAC. The findings supported Kirui *et al.* (2014) who established a positive coefficient between market capitalization and the economic growth in Mauritius.

The second objective aimed to find out the stock turnover ratio effect on growth of the economy in EAC. These results were displayed in the second model. A positive and significant effect between the stock turnover ratio and GDP per capita in EAC was found. The partial slope regression coefficient for stock turnover ratio is 0.1705 and a 5 percent statistical significance. These results show that a one percent increase in stock turnover ratio leads to 0.1705 percent increment in GDP per capita. These findings reject the null hypothesis that stock turnover ratio does not affect growth of the economy in the EAC. The findings are in line with Okonkwo's works, Ananwude and Echekoba (2015) who by the use of Ordinary least squares approach established that turnover ratio had a strong positive effect on growth of the economy in Nigeria. Similarly, findings conform to the study by Halkos and Polemis (2017) that used system GMM approach The approach found a positive impact between the stock turnover and the GDP growth. Study findings can be construed to point out that liquidity in the market has the capacity to stimulate economic expansion in the EAC.

The third objective aimed to investigate the effect of stock traded value on growth of the economy of EAC. These results are linked to the third model. The partial slope coefficient for stock traded value is 0.0348685 with 10 percent statistical significance at. The results imply that a percentage increase in value of traded stock results in an increase in GDP growth by 0.034 percent. Based on the results, the null hypothesis is rejected that stock traded value has no affect growth of the economy in EAC. These results are in tandem with the works of Ullah and Wizarat (2016) which found out that traded stock value positively affects growth of the economy in a panel of twelve Asian countries. High sales in shares denote a vibrant economy. A possible explanation for this is that the more shares are traded the more their prices rise, leading to a rise in confidence regarding future prospects among investors and consumers. This optimism spills over into increased spending, which can lead to major purchases, such as houses and cars.

All the sub-variables for stock market performance positively affect the GDP growth. This means that stock market performance positively affects GDP growth in EAC. These conclusions are in tandem with empirical literature as highlighted above they are also consistent with the theories. According to equilibrium theory, economic growth comes to equilibrium through contributions from several markets including the stock market. Going by this assertion, economically growth is partially influenced by the stock market in EAC. In addition, stock market is mainly driven by financial intermediaries especially in settlements as suggested by the financial intermediary theory. The basic idea here is that stock market helps in filling the liquidity gap and enhances financial deepening thereby economic growth.

Controls variables used in the study are terms of trade denoted by TOT and Investment denoted by INV. To begin with the effect of terms of trade on GDP per capita, the model containing market capitalization as the main independent variable had a coefficient of 0.2217 meaning that an increasing terms of trade by 1 percent leads to a percentage increase of 0.2217 in GDP per capita and vice versa. The effect of terms of trade was also significant in the third model that contained the stock turnover ratio as the main explanatory variable with a coefficient of 0.17620. These results indicate that a change in terms of trade by 1 percent leads to a percentage increase of 0.17620 in GDP per capita. These results are as expected and are in agreement with obtained by other empirical literature. Terms of trade represents the international trade performance in a country. It leads to higher export values and consequently economic growth (Mputu, 2016).

On the other hand, investment was significant on one model and insignificant in the other models. It was statistically significant in the second model that contained stock traded value as the primary independent variable. The coefficient for investment in the model was 1.21359 and was statistically significant at 5 percent. These results indicate that a percentage rise in private investment in EAC leads to a percentage increase 1.21359 in GDP per capita in EAC. These findings are in tandem with previous literature. Investment is expected to lead to increased productivity and efficiency in labour and ultimately economic growth (Albedafattah & Al Shabib, 2012).

4.6 Granger Causality

The fourth objective aimed to find out causal link between performance of stock market and the economic growth of EAC. This test is used to show the of causality direction among the variables. VAR models are endogenous in nature meaning that the explanatory variables in the first model become dependent variable in the next model in a system of VAR

equations. In this regard, the study determined the causality direction among the variables of study. From the previous analysis it is clear that all the sub-variables of performance of stock market have a positive effect on GDP, this section confirms these findings and also checks whether GDP affects stock market performance. Granger causality results are displayed in Table 7, 8 and 9.

Table 7

Granger Causality Results between Market Capitalization and GDP

Equation \ Excluded		chi2	Df	Prob > chi2
D_GDP				
	D_MC	27.870***	1	0.000
	D_TOT	31.381	1	0.000
	D_INV	1.240	1	0.266
	ALL	59.589 ***	3	0.000
D_MC				
	D_GDP	4.331**	1	0.037
	D_TOT	3.275*	1	0.070
	D_INV	0.131	1	0.717
	ALL	4.883	3	0.181

**** denotes significant at 1 percent, ** denotes significant at 5 percent, * denotes significant at 10 percent

Table 7 displays the Granger causality results between market capitalization and GDP. Form the analysis Market capitalization granger causes GDP (Chi2=27.870, p-value=0.000). It is also evident that GDP granger causes market capitalization (Chi2=4.331, p-value=0.037) an indication that shows presence of a bi-directional link between GDP and market capitalization. These results conform with the paper of Ullah *et al*. (2016) who established bi-directional link between market capitalization and the GDP growth in four East Asian countries namely China, the Philippines, Singapore and Taiwan.

Table 8

Granger Causality Results between Stock Turnover Ratio and GDP

Equation \ Excluded		chi2	Df	Prob > chi2
D_GDP				
	LnSTO	6.176**	1	0.013
	D_TOT	0.955	1	0.329
	D_INV	3.891**	1	0.049
	ALL	6.283*	3	0.09
LnSTO				
	D_GDP	3.365*	1	0.067
	D_TOT	0.035	1	0.851
	D_INV	3.352*	1	0.067
	ALL	15.594	3	0.001

*** denotes significant at 1 percent, ** denotes significant at 5 percent, * denotes significant at 10 percent

Table 8 displays results for link between stock turnover ratio and GDP. From the analysis, stock turnover ratio granger causes GDP (Chi2=6.176, p-value=0.013). In the same breath, GDP granger causes stock turnover (Chi2=3.365, p-value=0.067). These findings indicate a bi-directional association between GDP and stock turnover ratio. These results conform with the study by Nabieu *et al*. (2016) that found out a bi-directional link between stock turnover ratio and growth of the economy in Ghana

Table 9

Granger Causality Results between Stock Traded Value and GDP

Equation \ Excluded		chi2	Df	Prob > chi2
D_GDP				
	D_TVL	2.929*	1	0.087
	D_TOT	4.061**	1	0.044
	D_INV	0.001	1	0.970
	ALL	8.149**	3	0.043
D_TVL				
	D_GDP	1.136	1	0.286
	D_TOT	1.541	1	0.214
	D_INV	1.386	1	0.239
	ALL	2.791	3	0.425

**** denotes significant at 1 percent, ** denotes significant at 5 percent, * denotes significant at 10 percent

Table 9 displays the Granger causality results of stock traded value and GDP. Results reveal that stock traded value granger causes GDP (Chi2=2.929, p-value=0.087). It is however, evident that GDP does not granger causes stock traded value an indication of the presence of a uni-directional association between GDP and stock traded value implying that stock traded value has an effect on growth of GDP but GDP growth has no effect on stock traded value. This can be attributable to the fact that value of stock is affected by the market forces to a larger extent as opposed to the performance of the economy.

4.7 Post-estimation Diagnostic Test

This section presents results for post estimation test. Several tests were undertaken to enhance the robustness of the model. These tests included a test for stability of the panel VAR model, test for heteroscedasticity and test for serial correlation.

4.7.1 Stability Test

Stability test was conducted to evaluate the suitability and effectiveness of the model. Results for the models containing stock turnover ratio, market capitalization and traded stock value are displayed in Figure 7, 8 and 9 respectively.

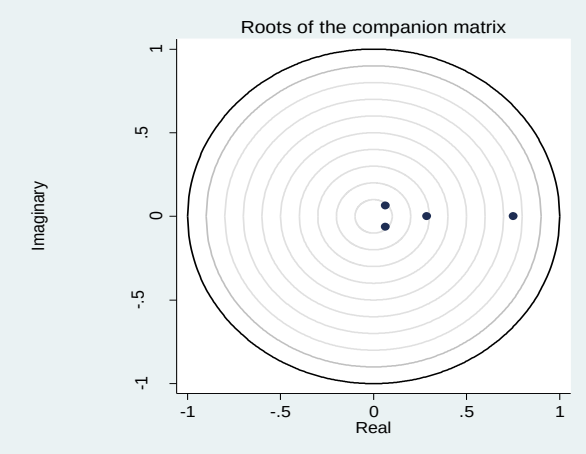


Figure 7: Stability test for market capitalization model

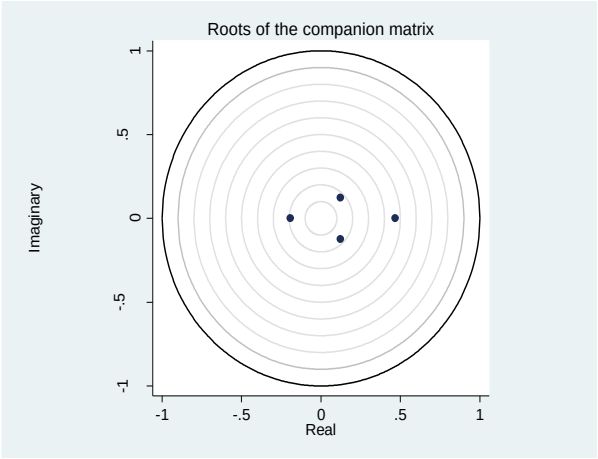


Figure 8: Stability test for stock turnover ratio model

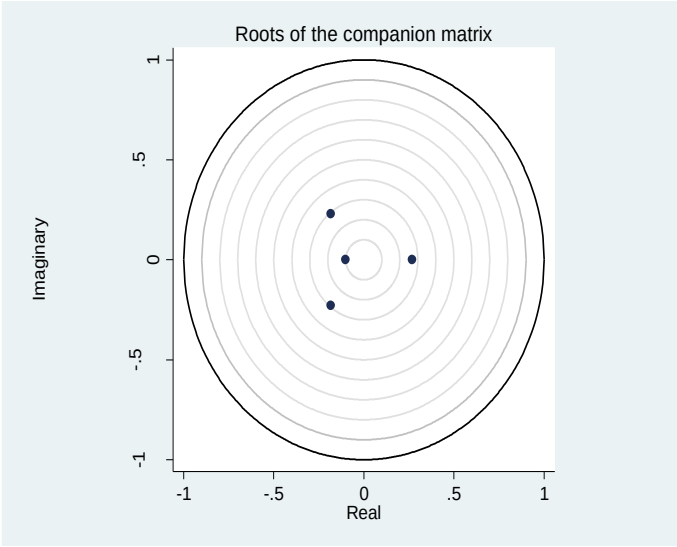


Figure 9: Stability Test for Stock Traded Value

Figure 7, 8 and 9 display results for stability test of the three panel VAR models containing stock traded value, market capitalization and stock turnover ratio as the independent variables of interest respectively. From the results, the unit circle contains all the eigenvalues. Meaning the values are less than 1 in absolute terms. For this reason, we can conclude that the three Panel VAR satisfy stability condition these results indicate that the model was robust as it was stable and stationary (Abrigo & Love, 2016)

4.7.2 Autocorrelation Test

Testing for autocorrelation in the data, that is whether two successive error term are correlated, Woodridge technique was applied. The null hypothesis of the test is; 'there is no first-order autocorrelation' while the alternative hypothesis is; no autocorrelation. The models were separately tested and the results shown in Table 10.

Table 10

Wooldridge Test for Autocorrelation in Panel Data

Model one: Market capitalization and GDP	F(1, 3) = 1.707
	Prob > F = 0.1913
Model 2: Stock turn over and GDP	F(1, 3) = 0.034
	Prob > F = 0.8432
Model 3: Stock traded value and GDP	F(1, 3) = 2.376
	Prob > F = 0.1749

From the 10 does not provide any evidence of first order autocorrelation in the three models. This is as shown by the p-values for the three model that is; 0.1913, 0.8432 and 0.1749 respectively. We therefore, fail to reject the null hypothesis and conclusion is that that the three models do not have first order autocorrelation.

4.7.3 Heteroscedasticity Test

Heteroscedasticity was tested using Breusch Pagan/CookWeisberg test for heterosced asticity. Under the null hypothesis that the change of the error term is consistent while the alternative expresses that the variance of the error term is not steady. Table 11 provides the results for heteroscedasticity.

Table 11

Test for Heteroscedasticity

Model one: Market capitalization and GDP	$Chi^2 = 0.38$
	Prob > chi2= 0.5432
Model 2: Stock turn over and GDP	$Chi^2 = 1.606$
	Prob > chi2= 0.1814
Model 3: Stock traded value and GDP	$Chi^2 = 1.707$
	Prob > chi2= 0.1913

The Chi-square coefficient obtained for the first model was 0.38 while the p-value was 0.5432, the second model has a chi-square of 1.606 and a p-value 0.1814, on the other hand the third model had a chi-square 1.707 and a p-value of 0.1913. In this regard we fail to reject null hypothesis and the conclusion is; all the three models have constant variance or are homoscedastic. They therefore, do not violate the econometric assumption of constant variance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section presents a summary of the findings of research, conclusions from the research work, recommendations and finally suggests future areas of research.

5.2 Summary

The East African Community has made an incredible improvement in fiscal liberalization and instituted raft measures that encourage financial deepening within the bloc. Some of these steps taken include, advisory to member states to grant autonomy to the Central Bank, transfer of ownership of government owned and controlled financial institutions to the private sector, advocacy for reduced interest rates, and trade liberalization. It is however, worth noting that despite these various reforms undertaken by the bloc, the money market and stock market have persistently recorded dismal performance. Similarly, stock market performance has been low compared to other trade blocs and has been on a declining trend in the past decade (UNECA, 2019).

In view of the aforementioned, the study investigated whether the performance of stock market affect the GDP growth in EAC for the period covering 2002 to 2019. This was achieved through disaggregating the stock performance data into three sub-variables namely stock turnover ratio market capitalization and stock traded value. The research used secondary data obtained from the capital markets authorities of the respective EAC member countries. Data for GDP growth was sourced from the World Bank website. Empirical and descriptive operations were performed on the data.

In the correlation analysis, the study found a positive association coefficient between market GDP and capitalization an indication that market capitalization is positively related with GDP per capita in EAC. The research also obtained a negative and significant link between stock turnover ratio and GDP an indication that the two variables are negatively related. It however failed to identify a significant relationship between stock traded value and GDP per capita. Since correlation analysis forms part of the preliminary examination, the data had to be subjected to further tests to ensure that the variables met all the conditions required for panel data analysis and that the results obtained are a true reflection of the population.

To achieve the above mentioned, the data was tested for unit root. In this operation, Im, Pesaran and Shin approach was used. Among the variables, it is only stock turnover ratio

and stock traded value that was stationary in levels. The rest of the variables namely GDP, market capitalization, stock traded value, terms of trade and private investment were integrated of order implying that they became stationary after the first difference. Variables were further tested for cointegration to establish whether there is linear combination result in stationarity of the data. This test is also important in establishing presence of relationship in the model that is long run which is also critical in determining the choice of the model to use in panel regression analysis. In this quest, wanderlust approach was used and the variables were found to be non-cointegrated, an indication that the model has no long run relationship.

Based on cointegration findings using non-cointegration, panel VAR tests was conducted to determine independent variables effects of interest that is stock traded value, stock turnover ratio and market capitalization on per capita GDP which was the dependent variable. The partial slope coefficient for market capitalization was 0.1263 that was significant at 1 percent. These results indicate that market capitalization positively affects GDP in the EAC. Secondly the partial slope coefficient for stock turnover ratio was 0.1705 and significant at 5 percent. This signifies a positive effect of stock turnover on GDP in EAC. Lastly, the partial slope coefficient for stock traded value was 0.0348685 and significant at 10 percent denoting that its stock traded value positively impacts GDP in EAC. All the models were stable as indicated by the stability test.

Finally, granger causality test conducted to establish the causality direction between GDP growth and the study variables. Research obtained significant chi square values for both Market capitalization (Chi2=27.870, p-value=0.000) and GDP (Chi2=4.331, p-value=0.037). Similarly, the study obtained significant chi square values for both stock turnover ratio (Chi2=6.176, p-value= 0.013) and GDP (Chi2=3.365, p-value=0.067). On the other hand, the study only obtained significant chi square value for stock traded value (Chi2=2.929, P-value=0.087).

5.3 Conclusions

Drawing from the empirical and descriptive results of this research, it can be concluded that the study has successfully accomplished its objective which was to determine the effect of stock market performance on GDP per capita growth in the EAC, and to establish the directional causality.

Research framework had conceptualized that stock turnover ratio, market capitalizatio n and stock traded value had a positive effect on GDP per capita growth of EAC bloc.

The first objective aimed to evaluate the effect of capitalization of the market on growth of the economy of EAC. Research findings concluded that market capitalization has a positive effect on the GDP growth in the EAC. The finding is consistent with previous theoretical and economic theory. Market capitalization is a vital indicator of the vibrancy in the stock market. Increased levels of market capitalization ought to spill over to the overall economy by attracting foreign investors, improve human capital, technology diffusion thereby leading to increased GDP levels and development of the economy.

Objective number two investigated the effect of stock turnover ratio on growth of the economy of the EAC. The results reveal a positive link between stock turnover ratio and the growth of the economy in the EAC. Stock turnover ratio signify a higher liquidity in the market. Higher liquidity increases private investment and consumption levels in the economy, that stimulating economic expansion in the EAC region.

The third objective evaluated the implication of stock traded value on growth of the economy of East African community. The research concludes that stock traded value positively affects the growth of the economy of EAC bloc. Stock traded value is likely to raise the price of stock and this inspires optimism among consumers. The resultant spillover effect of this is that aggregate demand of products is increased. Thus, further boosts growth of the economy.

The fourth objective sought to determine causal link between stock market performance and GDP growth of EAC. Granger causality was tested for the three models containing the sub-variables of performance of stock market. Thus, three conclusions can be made from this objective. Firstly, the study concludes that there is a bi-directional causality between market capitalization and economic growth. Secondly, the study confirms that there is two-way directional relationship between stock turnover ratio and economic growth in the EAC. Finally, the study concludes that there is a uni-directional relationship between stocks traded value and economic growth in EAC.

5.4 Recommendations

It was noted that stock market performance has a positive impact on the growth of the economy in EAC through its proxies; stock turnover ratio, market capitalization and stock traded value. Going by these findings the study recommends that the CMA of the EAC states should design policies that ensure that there is improved stock market efficiency among the member states. This can be achieved through coming up with initiatives that would facilitate increased market capitalization.

Secondly, the EAC member governments and EASRA policy makers should pursue policies that can contribute to increased liquidity as this would in turn lead to a higher stock turnover rate. This is justified by the connection between growth of the economy and stock market through increased liquidity as suggested by vast literature. This can be fulfilled by encouraging more companies to go public to increase liquidity in the securities market. Liquidity in the market has been shown to attract more foreign investment and portfolio that can spill over to the economy through human capital formation, innovation diffusion and increased investment opportunities.

Thirdly, the governments in East Africa Community and EASRA should strive to create a conducive environment to ensure that the value and volume of shares traded increase. This can mainly be achieved through formulation of favourable policies that will help lift corporate profits and share price which ultimately increase the value of shares. Such policies may include a currency boosts, lowering of interest rates among other measures that impact business performance.

The fourth objective established a bidirectional causality between stock trade value and GDP as well as market capitalization and GDP. These results indicate that the economic growth has critical influence on stock market performance. The EAC governments should account for this influence while designing economic growth policies.

5.5 Suggested Areas for Future Studies

The Research was limited in terms of the study period, thus it recommends that this study can be replicated and include a bigger number of observations in terms of the study period. This would be important as a longer period would help the study to explain the effects of seasonal variations, structural changes and breaks in the data. In addition, future studies should add more regressors in the study to account for under parameterization.

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APPENDICES

Appendix I: Critical values for Im-Pesaran-Shin (IPS) (2003) Panel Unit Root Test

Fixed-N exact critical values		
1% significance level	**5% significance level**	**10% significance level**
-2.500	-2.190	-2.040

Appendix II: Regression Results

Model 1: Effect of market capitalization on GDP per capita

```
Panel vector autoregresssion


GMM Estimation

Final GMM Criterion Q(b) =        .36
Initial weight matrix: Identity
GMM weight matrix:     Robust
                                                No. of obs       =         59
                                                No. of panels    =          4
                                                Ave. no. of T    =     14.750
```

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
D_GDP						
D_GDP L1.	.4594375	.1120424	4.10	0.000	.2398384	.6790366
D_MC L1.	.1263493	.0239336	5.28	0.000	.0794403	.1732582
D_TOT L1.	-.221749	.039585	-5.60	0.000	-.2993343	-.1441638
D_INV L1.	.0954714	.0857482	1.11	0.266	-.072592	.2635347
D_MC						
D_GDP L1.	-1.357823	.6524449	-2.08	0.037	-2.636592	-.0790549
D_MC L1.	-.0247143	.1257462	-0.20	0.844	-.2711723	.2217437
D_TOT L1.	.7869853	.4348679	1.81	0.070	-.0653401	1.639311
D_INV L1.	-.1756073	.485365	-0.36	0.717	-1.126905	.7756906
D_TOT						
D_GDP L1.	-.0960312	.2048786	-0.47	0.639	-.4975859	.3055235
D_MC L1.	.2041814	.0361774	5.64	0.000	.1332749	.2750879
D_TOT L1.	.0213489	.1130285	0.19	0.850	-.2001829	.2428807
D_INV L1.	-.2957895	.1663455	-1.78	0.075	-.6218207	.0302418
D_INV						
D_GDP L1.	-.0252586	.152402	-0.17	0.868	-.323961	.2734437
D_MC L1.	-.0284091	.0189678	-1.50	0.134	-.0655852	.0087671
D_TOT L1.	-.0207077	.0720365	-0.29	0.774	-.1618967	.1204812
D_INV L1.	.063041	.0966349	0.65	0.514	-.1263599	.2524419

```
Instruments : l(1/2).(D_GDP D_MC D_TOT D_INV)
```

Model 2: Effect of stock turnover ratio on GDP per capita

Panel vector autoregresssion

GMM Estimation

Final GMM Criterion Q(b) = .302
Initial weight matrix: Identity
GMM weight matrix: Robust

No. of obs = 63
No. of panels = 4
Ave. no. of T = 15.750

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
D_GDP						
D_GDP L1.	.2210803	.1497069	1.48	0.140	-.0723398	.5145004
D_TOT L1.	.0340954	.0348965	0.98	0.329	-.0343005	.1024912
D_INV L1.	1.21359	.6152637	1.97	0.049	.0076951	2.419485
LogSTO L1.	.1704808	.0686022	2.49	0.013	.036023	.3049386
D_TOT						
D_GDP L1.	.4232599	.2028407	2.09	0.037	.0256996	.8208203
D_TOT L1.	.0700799	.0522183	1.34	0.180	-.0322661	.172426
D_INV L1.	1.30974	.7491318	1.75	0.080	-.1585314	2.778011
LogSTO L1.	.1101214	.0833387	1.32	0.186	-.0532195	.2734622
D_INV						
D_GDP L1.	-.0010689	.036538	-0.03	0.977	-.0726821	.0705444
D_TOT L1.	.0087278	.0078768	1.11	0.268	-.0067105	.0241661
D_INV L1.	.280968	.1712619	1.64	0.101	-.0546992	.6166352
LogSTO L1.	.0176389	.0244724	0.72	0.471	-.0303261	.0656038
LogSTO						
D_GDP L1.	.4611775	.2514104	1.83	0.067	-.0315778	.9539328
D_TOT L1.	.0160038	.0851523	0.19	0.851	-.1508918	.1828993
D_INV L1.	-1.375166	.751064	-1.83	0.067	-2.847225	.0968919
LogSTO L1.	.5944378	.1508518	3.94	0.000	.2987736	.890102

Instruments : l(1/2).(D_GDP D_TOT D_INV LogSTO)

Model 3: Effect stock traded value on GDP per capita

Panel vector autoregresssion

GMM Estimation

Final GMM Criterion Q(b) = .263
Initial weight matrix: Identity
GMM weight matrix: Robust

No. of obs = 56
No. of panels = 4
Ave. no. of T = 14.000

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
D_GDP						
D_GDP L1.	-.0927889	.1809108	-0.51	0.608	-.4473676	.2617899
D_tvl L1.	.0348685	.0203746	1.71	0.087	-.0050651	.074802
D_TOT L1.	.1762052	.0874426	2.02	0.044	.0048208	.3475896
D_INV L1.	.0056128	.1492228	0.04	0.970	-.2868584	.298084
D_tvl						
D_GDP L1.	-.994972	.9334744	-1.07	0.286	-2.824548	.8346043
D_tvl L1.	-.0553561	.1234092	-0.45	0.654	-.2972338	.1865215
D_TOT L1.	.8946721	.7206971	1.24	0.214	-.5178682	2.307212
D_INV L1.	-.8783309	.7459574	-1.18	0.239	-2.340381	.5837187
D_TOT						
D_GDP L1.	.0370953	.2780746	0.13	0.894	-.5079209	.5821116
D_tvl L1.	.064518	.031483	2.05	0.040	.0028124	.1262236
D_TOT L1.	.0946555	.1360718	0.70	0.487	-.1720404	.3613514
D_INV L1.	-.2889807	.2321108	-1.25	0.213	-.7439096	.1659482
D_INV						
D_GDP L1.	-.3636488	.1172767	-3.10	0.002	-.5935069	-.1337907
D_tvl L1.	-.0299443	.0135527	-2.21	0.027	-.0565072	-.0033814
D_TOT L1.	.1821661	.0570012	3.20	0.001	.0704458	.2938863
D_INV L1.	-.1462514	.1260891	-1.16	0.246	-.3933814	.1008786

Instruments : l(1/2).(D_GDP D_tvl D_TOT D_INV)

Appendix III: Abstract of the publication

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Effect of Market Capitalization on Economic Growth of East African Community

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Abstract
Stock markets in developing nations are faced with various constraints such as thin trading, liquidity issues and lack of developed investor base. Most stock markets in Africa are dominated by a single Industry as the backbone of the economy. Therefore, the main aim of this study was to establish effect of market capitalization on economic growth of east African community. The study was guided by Financial Intermediary theory. This study adopted causal research design. Data were obtained from: capital markets, Stock Exchanges (USE NSE, RSE and DSE) of the EAC member countries, annual Statistical report from the EAC website and World Bank as well. Analysis of the data was done using descriptive and inferential statistics. This study adopted a Panel Vector Autoregressive (Panel VAR) model. The results of this study indicated that stock market performance variables have a long run positive effect on the economic growth in the EAC and a bi-directional causality between market capitalization. Therefore, this research is beneficial to East Africa Securities Regulatory Authority (EASRA) in designing of policies that creates favorable business environment for stock markets to flourish. The study recommends that the EAC member governments should pursue policies that can contribute to increased liquidity as this would in turn lead to a higher stock turnover rate.

Keywords: Capitalization, Market, Economic Growth, East Africa Community.
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Appendix IV: Research Permit

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