THE CAUSAL RELATIONSHIP BETWEEN FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN TANZANIA 1980-2010

COSTANTINE RICHARD MBELLENGE

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE (ECONOMICS) OF THE OPEN UNIVERSITY OF TANZANIA

2013

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Open University of Tanzania this dissertation entitled: **'***The Causal Relationship between Financial Development and Economic Growth in Tanzania 1980-2010***'** in partial fulfillment of the requirements for the degree of Masters of Science (Economics).

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Dr. J .Aikaeli

(SUPERVISOR)

Date

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DECLARATION

I, Constantine Richard Mbellenge**,** declare that this dissertation is my original work and that it has not been presented and will not be presented to any other University for a similar or any other degree.

Signature…….

DEDICATION

This dissertation is dedicated to the following people: my beloved the late mother Juliana Manyanza, my Fiance Hyasinta and my family respectively, for their love, wisdom and great care that made me what I am today.

ABSTRACT

The study determines the causal relationship between financial development and economic growth in Tanzania. In order to test for existence of long run relationship between the variables, the study employs a cointegration and vector error correction model (VECM) technique. Granger causality test was applied to the variables to test for the direction of causation between variables. The study uses annually data for the period of 1980 to 2010. Economic growth is proxied by gross domestic product (GDP), and financial development is proxied by ratio broadly money supply (M2) to nominal GDP; and credit to domestic private sectors to nominal GDP. The result shows that there is a stable long-run relationship between financial development and economic growth. The Granger causality test indicates that the causality runs from financial development to economic growth. The study suggest that the government need to develop more strategies that will further enhance the functioning of the financial system such as improvement of macroeconomics environment, remove of the remained element of financial repression, improvement of regulation and supervision of the local banks. Also the government should play a role of creating an enabling environment for development of financial private sectors to grow fast in order to promote a further economic growth.

ACKNOWLEDGEMENT

A number of people from the academic and non- academic gave me Intellectual Material and Moral support to complete this study. First and Foremost I would like to thank my Almighty God for his blessing and grace to a successful completion of my study. I would like also to express my sincere appreciation to the numerous groups, families and individuals who contribute to making the successfully completion of this study. I am greatly indebted to my supervisor Dr Jehovaness Aikaeli the current Coordinator of post graduate study department of Economics University of Dar es salaam, who maintained and lively interest on this study throughout its duration. Despite he has been committed on Department obligations, as a coordinator of post graduate study his encouragement, criticism, suggestion and useful comment at every stage of this study have been valuable in shaping its overall direction. I also wish to express my heartfelt appreciation to the Open University of Tanzania staff specifically department of economics Dr. Felician Mutasa, (the coordinator of MSc economics) Dr Khatib Kazungu, Mr. Ally who taught MSc Economics during 2010/2012 academic year. I say thank you to all of them.

My special thanks should go to my classmates particularly Mr. J. Mushumbuzi, F. Assenga, E. Longino, R. Mazingwa, A. Honesty, A. Elinaza, J. Mbogo, J. Alfred, M. Jaffer, C. Mabula, C. Msangi, V. Kidole, Y. Juma Katunzi and M. Niwael for the co – operation I received from them throughout the period of my study.

Also my heartfelt gratitude should go to my fiancé Hyasinta Anthony, and special thanks to my friends Njau Allen, Mwingeka Samwel, Joseph Cornel, Japhary Ongera for both moral materials support and their good luck wishes. They cheered me up while I strived to climb the mountain of academic for success.

Lastly I with express my profound thanks to my family member including my uncles Dr. Kinda Mbellenge, Elias Mbellenge, my brother Vincent Mbellenge my sister Josephine Mbellenge and my young brother John Mbellenge for their encouragement, constant helping to materialized my dreams. As usual I would like to state categorically that any undetected errors or short coming in this work remain solely my own responsibility and therefore should not to be ascribed to any other person or institutions mentioned in this acknowledgement.

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LIST ABBREVIATION

2SLS	Second Least Square Estimation Method
ADF	Augmented Dicker – Fuller
AIDS	Acquired Immune Deficiency Syndrome
BOT	Bank of Tanzania
CMSA	Capital Market Security Act
CRDB	Co-operative Rural Development Bank
DSE	Dar es Salaam Stock of Exchange
EADB	East African Development Bank
ECM	Error Correction Mechanism
ECT	Error Correction Term
FD	Financial Development
FDI	Foreign Direct Investors
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IFMS	International of Financial Management System
ILFS	International Labour Force Survey
LDCs	Less Developing Countries
LR	Likelihood Ratio
M_2	Broader Money Supply 2
NBC	National Bank of Commerce
NIC	National Insurance Co-operation
OLS	Ordinary Least Square
PER	Priority assessment Expenditure review
PS	Credit to Private Sector
SSA	Sub Sahara Africa
SSRA	Social Security Regulatory Authority
TATEPA	Tanzania Tea Packer Limited

TBL	Tanzania Breweries Limited
TCC	Tanzania Cigarette Company
TOL	Tanzania Oxygen Company Limited
TRA	Tanzania Revenue Authority
U.S	United States of America
VAR	Vector Auto Regression
VECM	Vector Error Correction Model

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

The nature of the relationship between finance and economic growth has been one of the most debated in the recent past, yet with little consensus. Central to this debate is the question of whether strong economic performance is finance-led or growth driven. The question is germane because the determination of the causal pattern between finance and growth has important implications for policy makers' decisions about the appropriate growth and development polices to adopt. The fact that strong correlation exists between finance and economic growth has been well documented in the economic development literature. However, previous empirical studies have produced mixed and conflicting results on the nature and direction of the causal relationship between finance and economic growth.

In Africa, the most recent studies about the subject include the following: Ghirmay (2004), Agbetsiafe (2004), Abu-Bader and Abu-Qarn (2008), Baliamoune-Lutz (2008), Atindehou et al. (2005) and Odhiambo (2007). As it is elsewhere, there is no consensus on direction of causality between financial development and economic growth. For example, the results by Ghirmay (2004) provided evidence in support of finance-led growth in eight out of the thirteen Sub-Saharan countries investigated. In the same way, Agbetsiafe (2004) found unidirectional causality running from financial development to economic growth in seven African countries lending credence to finance-led growth hypothesis. Abu-Bader and Abu Qarn (2008) equally provided evidence in support for finance-led growth in Egypt, Morocco and Tunisia. However, Odhiambo (2007) found conflicting results for three sub-Sahara Africa

countries investigated. He found evidence in support of demand-following hypothesis in Kenya and South Africa while in Tanzania the supply-leading hypothesis was supported.

Similarly, Baliamoune-Lutz (2008) obtained mixed results for North African countries. Atindehou et al (2005) however, found weak causal relationship in almost all the twelve West African countries included in their study. Essentially, given the plethora of reforms implemented in Sub Saharan African countries over the study period and the conflicting results on the direction of causality between finance and economic growth, it is important to revisit the issue of finance-growth nexus in the sub-Saharan region.

Generally, it is believed that the financial system in sub-Saharan Africa is relatively less developed and diversified compared to other regions of the world (World bank, 1994). As can be seen from Table all the selected sub-Saharan African countries lagged behind in all the measures of financial development when compared to the various regions of the world. The interest rate spread which measures the efficiency of financial intermediation is equally high compared to other regions. The two countries with single digit figure are Kenya and Nigeria. Until the implementation of the reforms in most African countries in the mid 80s, commercial banks dominated the banking system. These commercial banks were largely owned by the government. However, with the reforms in 1980s, new structure has started to emerge. One, the number of banks in the region has increased. The number of commercial banks increased from 213 in 1982 to 245 in 1992. In addition, government ownership of the bank has decreased significantly in most sub-Saharan African countries. Moreover, non-bank financial institutions have begun to play an increasingly important role in saving mobilization. Conversely, owning to limited

range of financial instruments and investment opportunities, their assets have typically been concentrated in government securities or deposited at banking institutions, where they have not been mediated for productive investment owing to banks' limited lending operation and portfolio management.

Most governments in SSA region embarked on financial sector liberalization in the mid 1980s as their financial sector were highly repressed before the reform with selected credit controls and fixed interest rates. Right now; African countries are working towards integrating with the world economy with liberalized financial system as the key policy instrument for engendering high growth performance. However, inspite the massive liberalization programme embarked upon in many African countries, the fruits of liberalization are not yet to be realized in many of these countries. This could be attributed to their failure to meet the basic prerequisites for successful financial reforms that resulted not only in high and increasing inflation but also deteriorating economic performance. Indeed, for some of these countries it has been extended and recurrent banking crisis, for examples Nigeria and Kenya. Egbetunde (2009) shows that most of the indicators of financial development were declining from their peaks in the early 90s. Only few countries in SSA actually experienced positive growth in M2/GDP over the period 2000-2005. Many of the countries had negative growth in one or two years or even throughout the entire period example Central African Republic and Kenya.

Table 1.0 Financial Depth and Efficiency in Some Selected Sub-Saharan African Countries (2005)

Countries	Domestic credit Provided by Banking sector % of GDP	Domestic credit to Private sector % of GDP	Liquidity M3 as% of GDP	Broad money M2 as % of GDP	Interest rate spread(leading minus deposit rate)
Central Africa	17	7	18	17	13
Chad	7	3	9	8	13
Gabon	10	9	20	18	13
Kenya	38.4	25.9	40.3	36.9	7.8
Nigeria	9	15	20	19	7
Zambia	22	8	18	17	17
Tanzania	10.2	12.8	23.18	17	10.51

Source: World Bank, World Development Indicators (2007)

The growth of the African economies has not measured up to expectation with the reforms. The GDP growth rates for many of the countries in SSA are far below 5 per cent. In short, limited progress has been made by financial sector reforms in Africa towards improved savings mobilization and intermediation. As observed in the literature, many of the problems associated with the difficulties in the financials have their origins in the past poor administration of the region's economy as a whole and the financial sector in particular. The potential for financial development as an instrument for economic development is greatly undersized as long as financial services are failing in reaching the majority of other population with a lower income, often resided in the rural areas. Many growth models assume that savings is an important component for growth and development. The idea is that capital accumulation increases growth, and to accumulate capital there is need for increased savings. Thus enabling saving services to the people and further on mobilizing savings is presumably an important element in Tanzania's development.

Savings enables investments, which on a micro level can improve people's livelihood, and ultimately on a macro level is likely to result in economic growth. A precondition for achieving sustainable growth is sufficient institutions, hence financial institutions plays an important role when aiming for economic development. Therefore the development of the financial system has shown to be an important factor in determining growth performance. It is important with a well functioning system, where people have access to secure financial services. An adequate financial system facilitates economic transactions, stimulates savings and channel savings to productive investment activities. Consequently it can successfully mobilize resources and improve their allocation.

In Tanzania, the establishment of financial institution that would serve the attainment of the economic growth and development started more vigorously after the attainment of independence in 1961. Between 1960 and1967 the financial system in existence was however very narrow .It was constituted of few branches of foreign oriented commercial banks whose operation were largely in the urban areas. Following the adoption of Arusha declaration in 1967 that put Tanzania into socialist development path, all the major means of production including the private financial intermediaries were nationalized and put under state control the nationalization of financial institution was mainly done to create a financial system conducive to growth and development of key sectors of the economy.

The overall government in the financial sectors resulted in an inefficient and non competitive financial market. The regulated financial system inhibited development of financial institutions and discourage private saving, interest rate control which together with high revenue requirement coupled with the deteriorating

macroeconomic conditions political interference and directed credit policies depressed profit margin for bank and reduce return on financial assets for the saver (Brown 1996). These developments from state involvement in the financial sector constitute what McKinnom (1973) and Shaw (1973) referred to financial repression.

1.2 Statement of the Problem

The relationship between the financial development and economic growth is important because the interest in investigating the relationship between economic growth and financial development in Tanzania is motivated by two factors. First, a well developed domestic financial sector can contribute significantly to raising the savings rate, the investment rate, and therefore this will transmit to the economic growth (Huisen, 1999). A well developed financial system mobilises savings by channeling the small denomination savings into profitable large scale investments. These savings might not be available for investment without the participation of financial institutions because mobilising savings of disparate savers is usually costly due to the existence of information asymmetries and transaction costs. Second, financial development can also affect productivity of capital in two major ways, one, by collecting and processing information needed to evaluate the alternative investment projects therefore improving the allocation of resources, and two, by providing opportunities to investors to diversify and hedge risks, thereby inducing individuals to invest in riskier but more productive investment alternatives (Huisen, 1999).

On the other side an increase in demand for financial services might induce the expansion in the financial sectors as a real economy grows thus, (financial sector respond positively to economy growth). In Tanzania, there has been scanty research

examining relationship between financial development and economic growth. The direction of causality between financial development and economic growth is crucial because it has different implications for development policies. One could argue that, only in the case of supply-leading, policies should aim to financial sector liberalization; whereas in the case of demand-following, more emphasis should be placed on other growth-enhancing policies. In the light of this, the focus of this study is to find out the direction of causality between financial development and economic growth for the case of Tanzania.

1.3 Significance of the Study

The significance of this study is explained by the following: first as an academic work this study aimed to fulfilling the master's degree requirements. Also it raises an important issue that policymakers may use in implementation of monetary policy directed to the economic growth, the policies include manage liquidity within desired levels, interest rate policy, exchange rate policy and maintaining price stability conducive to a balanced and sustainable growth of the national economy. The study also carried out to assess the impact of financial intermediaries to economy growth in post liberalization of financial institutions. The analysis of the study contributes to the existing debate by assessing econometrically the causal relationship between financial development and economic growth nexus, and this to be done by analyzing the time series data for in Tanzania.

1.4 Objective of the Study

The main objective of this study is to determine the causal relationship between financial development and economic growth in Tanzania, and if the relationship is found, the study also seeks to establish the nature and extent of that relationship.

1.4.1 Specific Objectives of the Study

(i) To determine the linear dependence between financial development and economic growth in Tanzania.

(ii) To explore the feedback mechanism between the financial development and economic growth in Tanzania.

1.5 Research Hypotheses

Econometric theories reveal causality between the two variables which have influence from each other these variables are financial development and economic growth, these causality can be clearly explain as the responsiveness one variable to change of another variable as a granger cause. On the basis of theoretical background the hypotheses to be tested are.

(i) H_0 : Financial development does not cause economic growth.

(ii) H_1 : Economic growth does not cause financial development.

1.6 Organization of the Study

The study organized in six chapters. Apart from this introductory chapter, chapter two present an overview of economic development, trend and financial system in Tanzania .Chapter 3 review the theoretical and empirical literature .Chapter 4 carries the methodology of the study .In chapter 5 various tests and estimation results are presented, and compared with findings from other studies in LDCs. Chapter 6 concludes the study ,specifically the chapter carries a summary of the study ,policy recommendation and suggestions for further research.

CHAPTER TWO

2.0 OVERVIEW OF THE ECONOMIC DEVELOPMENT AND FINANCIAL SYSTEM IN TANZANIA

2.1 Introduction

This chapter presents an overview of economic development and financial system in Tanzania. Sections 2.1 explain the introduction part, section 2.2 explores economic development in Tanzania, sections 2.3 describe the financial system in Tanzania and section 2.4 is a summary of the chapter.

2.2 Economic Development

Tanzania achieved independence on the 9 December 1961. Tanzania's population stood at 18, 1 million in 1980, it is however estimated to be 41.9million in 2010. (National Bureau of statistics 2010). The country's population growth rate of 2.8 percent per annum has had an adverse effect on development. Though not the only obstacle to development, it aggravates the situation and renders remedial measures more difficult. Rapid population growth has tended to increase outlays on consumption, drawing resources away from savings for productive investments and therefore retarding growth in national output through slow capital formation.

In particular, rapid population growth has aggravated the problems of poverty, environmental degradation and poor social services. Furthermore, the problems of sexually transmitted diseases including HIV/AIDS and those facing specific segments of the population like children, youths, the elderly and persons with disabilities have became wide spread in the Country. Unemployment has been growing since 1980 at annual rate of 2.8 and 5.8percent. According to the 2000/01 International Labour Force Survey (ILFS), the labour force was estimated to be 17.9 million people. Out of which about 65 percent were youth between the age of 15 and

35. Youth unemployment rate stands at 55 percent in Dar es Salaam while 41.4 percent for all urban and 8.6 percent for rural areas.

The economy of Tanzania is largely driven by primary sectors where Agriculture is a fundamental of Tanzania economy underpinning employment, food production and export. It employ about 80 percent of the population account for 49.1 percent of GDP in 1999 and slightly dropped to about 46.8 percent in 2003, and about 45.65 percent in 2005, food production dominate in the agriculture economy totaling 36.5 percents of total GDP. In 2009 the contribution of GDP by agriculture was 26.5 percent while in 2010 it was 27.7 percent where between 2002 and 2010 agriculture sector grew at the rate of 3 percent and 6 percent with high rate recorded in 2004 and lowest in 2009. Tourism also is the booming sector in the economy recorded earning over $ 500 million annually it is growing in line with the growth of whole sale and retail trade restaurant and hotels ,export of mineral account earning around $ 50 millions ,however transportation sector also has bearing on the performance of economic sectors such as agriculture tourism , mining, manufacturing and trade generally, transportation sector has becoming a catalyst to the economic growth .The growth rate of transportation sector in GDP in the last decade peaked in 2004 with a growth rate of 8.2 percent . In 2009 the contribution of GDP by industrial sector was 18 percent while in 2010 was 22.4 percent, on other hand industrial export also have been rise following the adoption of trade liberalization of public enterprise Manufacturing.

Table 1.0, show the sector contribute to the GDP mining and quarrying sector was the highest contributor to GDP followed by Trade , Agriculture being the lowest sector to the share of GDP.

Table 2.0: Annual Growth Rates and Share to Real GDP

sectors	1996	1997	1998	1999	2000	2003	2004	2005
Agriculture	3.9	2.4	1.9	4.1	3.4	4	5.8	5.1
Mining	9.6	17.1	27.4	9.1	13.9	18	15.4	15.7
Manufacturing	8.4	5.1	8.0	3.6	4.9	8.6	8.6	9
Transport and communication	1.1	4.9	6.2	5.8	6.1	5	6	6.4
Trade	3.5	5	7.4	6.0	6.5	6.5	7.8	8.2

Source: National Bureau of Statistics

The real sector development as measured by the economic growth rate has remained either high or modest throughout the post-reform period. For example, between 1980 and 2010 Tanzania recorded an average annual percentage GDP growth rate of about 3 percent. In 1991 and 1992 Tanzania recorded low annual GDP growth rates of about 2.8 percent and 1.8 percent respectively (see African Development Indicators 2002). However 1993 the rate increased to 0.4 percent. Following the liberalization in 1992 and 1993, the real GDP growth rate increased phenomenally. The rate increased from 0.4 percent in 1993 to 1.4 percent in 1994 and thereafter to 3.7 percent in 1995. By 1996, the Tanzanian annual GDP growth rate reached 4.2 percent. Although the rate decreased to 3.3 percent in 1997, it later increased to 4.0 percent in 1998, before declining slightly to 3.6 percent in 1999. However, in 2000 the country's GDP growth rate increased significantly to about 4.9 percent the highest GDP growth rate recorded in Tanzania it was 7.8 percent in 2004 and decline slightly in 2009 to 6.0 percent and late increase to 7.0 percent in 2010.

Figure 2.0 shows annual economic growth rate for the period 1980-2010 the lowest growth was recorded in 1993 registering a decline of 0. 4 percent. The highest growth recorded so far was in 2004 where the growth rate was 7.8 percent.

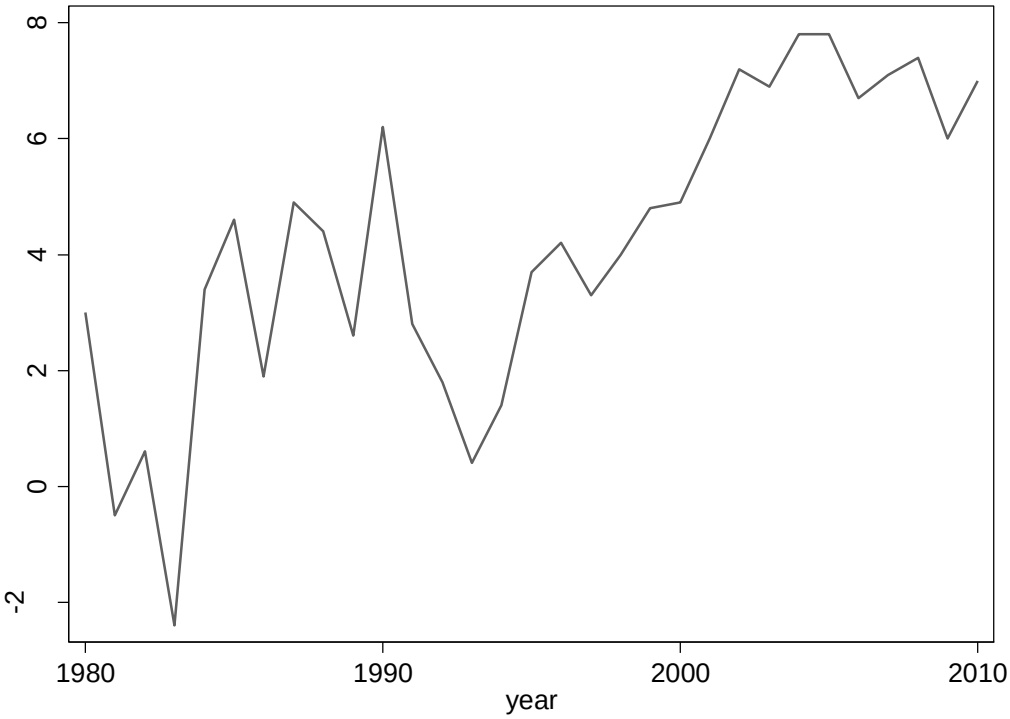

Figure 2.1: GDP Growth Rate
Source: Authors own construction from the various reports of national accounts

Recently Tanzania has made economic progress in spite of unfavorable climatic conditions. (Although annual economic growths remain below the target of 6 percent) the 4.2 percent attained on average permitted some rise in per capita income. Looking the performance in term of GDP particular in recent years, Tanzania's economy appeal to be stabilizing and hence poised for high level of economic growth in long term. Notwithstanding adverse weather to agriculture output the country has managed to maintained positive GDP growth rate. The main driving force behind in the improvement of economic performance has been the various economic reforms the country has pursued and the commitment to that reform. Nevertheless the economy still vulnerable to external shock, low domestic saving, heavy external debt burden and high poverty incidence, Tanzania continues to face a number of major challenges. The economy responded to this reforms and the general improvement in

macroeconomic management, annual growth recorded to an average of 4 percent during the 1986 to 1993 and an average of 6 percent during 2000 to 2008 reflecting continued central bank financing the economy.

Macroeconomic management deteriorate significantly during the 1993 to 1995 resulting the large fiscal deficit ,a sharp decline in international reserve and continuing high inflation rate. during 2000 to2001 the focus of macroeconomics policy and reform was on contamination prudent monetary and fiscal policy in order to lower the inflation rate and maintain a strong external position in the context of market determined exchange rate and adequate level of international reserve, also improving of public expenditure planning execution and control including through quarterly cash realize for priority of sector, assessment of expenditure review (PER) exercise, the implication of plan elimination domestic arrears and the roll-out of integrated of financial management system (IFMS) to central government expenditure and Dar es salaam based revenue efficiency of the Tanzania revenue authority TRA.

Figure 2.1 shows annual GDP growth rates and M2 growth rates for the period of 1980 to 2010. The graph shows a positive growth for both GDP and M2 one of the measures of financial development.

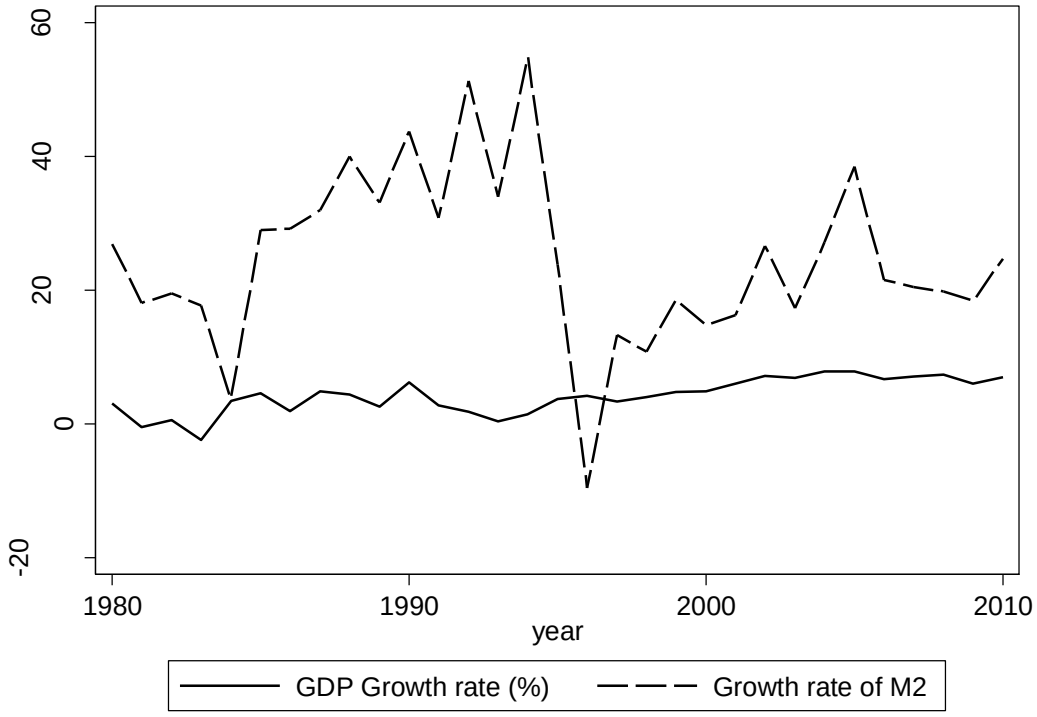

Figure 2.2: GDP and M2 Growth Rates
Source: Author's own computation

Foreign direct investment (FDI) also has becoming important of private investment in Tanzania because of its economic significance which are tax revenue, technological capacity and export performance ,it has been increasingly since 1992 when an investment proportional policy was adopted and implemented. Currently more than half of all approved new investment in Tanzania have been directed to industrial holding ,mining, financial sector and agriculture during the 1998 to 1999,the flow of FDI is estimated to have increasing by 0.8 percent to US$178.8 million from US$165.6 million recorded in 1997/98. However the country's indebtedness has been growing despite debt reduction measure undertaken by the government. The overall total debt stock amounted to US$ 8871.7 million at 1999as an increase of 1.0 percent when compared to US$ 8779.1 million registered at the

end of 1998, during the financial year 1998 /99 the actual debt service amounted to US$ 315.9 million where the debt increasingly hurriedly up to US$ 7.9 billion in 2010.

2.3 Financial System in Tanzania

The Tanzania financial system can be classified into bank and non-bank financial institutions, all of which are operating under the banking under financial institution Act of 1991.The banking sectors including central bank, commercial bank, development bank and other specialized banks such as community banks. The non bank financial institution encompass a wider range of institution which include deposit taking institution, finance institutions contractual saving institutions (including pension fund and insurance) bureau de charge and the stock exchange (ziorkluiet *al*. 2001) parallel with these formal institutions are organization associations and companies in the informal financial sector, which provide financial intermediation services. An overview of the functions, size and performance of the institutions in the formal financial sector is presented here under.

2.3.1 Central Bank

The Bank of Tanzania was established under the Bank of Tanzania act of 1965 to perform all tradition central Banking function. After established Arusha declaration was pronounced in 1967 in which all private Banks were nationalized. This made most of traditional instrument of indirect monetary policy as monetary operation were based on government activities. Act of 1965 was emended in 1978 to empower the Bank with additional development function of providing refinance and offer

Table 2.1 Performance of Selected Macroeconomic Indicators (1980-2010

Year	GDP (%)	M2 (%)	GDP	MS2	M2/GDP	PS
1980	3	26.9	44,228	17,519.80	0.41	3.65
1981	-0.5	18.1	51,753	20,694.70	0.339	1.96
1982	0.6	19.5	61,923	24,728.60	0.339	10.34
1983	-2.4	17.7	69,522	29,127.40	0.418	4.43
1984	3.4	3.7	85,392	30,218.10	0.35	6.78
1985	4.6	29	112,213	38,971.00	0.347	7.84
1986	1.9	29.2	148,391	50,353.40	0.339	10.27
1987	4.9	32	329,586	66,442.90	0.2	9.43
1988	4.4	40	506,426	92,987.70	0.18	1.58
1989	2.6	33.1	633,752	123,800.10	0.195	14.06
1990	6.2	43.8	830,693	178,061.80	0.214	13.9
1991	2.8	30.8	1,086,273	232,900.10	0.214	14.03
1992	1.8	51.3	1,369,874	352,272.20	0.257	9.74
1993	0.4	34	1,725,535	472,017.30	0.273	10.8
1994	1.4	54.9	2,298,866	647,840.30	0.28	9.7
1995	3.7	23.8	3,020,499	765,908.40	0.253	6.66
1996	4.2	-9.6	3,767,642	684,906.00	0.18	3.09
1997	3.3	13.3	4,708,627	760,353.30	0.16	3.55
1998	4	10.8	6,283,970	844,292.40	0.134	3.86
1999	4.8	18.6	7,222,561	972,088.60	0.135	4.18
2000	4.9	14.8	8,152,789	1,093,610.90	0.134	4.09
2001	6	16.3	9,100,274	1,221,919.80	0.134	5.38
2002	7.2	26.6	10,444,507	1,516,807.30	0.145	6.83
2003	6.9	17.3	12,107,060	1,745,738.00	0.144	8.08
2004	7.8	27.2	13,971,591	2,125,838.90	0.152	9.24
2005	7.8	38.5	15,965,293	2,960,415.60	0.185	10.18
2006	6.7	21.5	17,941,268	3,454,491.00	0.192	12.74
2007	7.1	20.5	20,948,403	4,394,622.70	0.209	14.89
2008	7.4	19.8	24,728,005	5,468,460.80	0.22	16.08
2009	6	18.4	28,058,587	6,603,404.40	0.24	15.33
2010	7	24.7	32,293,479	8,042,113.20	0.25	16.21

Source: BOT report-50 Years of independence, Economic Bulletins, Operation Report and Bank of Tanzania and various issues

guarantee facilities Bank to other financial institution. The law also empowers the Bank to inspect and supervise banks and other financial system. In conduct monetary policy, the Bank of Tanzania introduce indirect instrument of monetary policy namely. Open market operation, purchases agreement, discount window and lambord

facility Foreign exchange market operation, statutory minimum reserve requirement and moral suasion.

A central Bank or monetary authority is an institution whose primary function is to issue currency, formulate and implement other monetary policy. Other duties include managing a country's foreign exchange reserves and acting as a lender of last resort to government and Banks. It may also have supervision powers, to ensure that Banks and other financial institutions do not behave recklessly or fraudulently. In co-operation with other authorities' central Bank also play a major role in the oversight and develop financial system. In 1980 the government deliberate takes the effort to free the economy from financial repression which including the elimination of state controls and introduction of market mechanism such as imposition of ceiling on government, devaluation of shillings to reflect the prevailing market conditions and elimination of foreign exchange market. The presidential commission of ancquiry (Nyirabu commission) was formed in 1988 to set milestone for liberalization of the financial sector in Tanzania. On the basis of Nyirabu commission the Bank embarked on series of reform effort in an effort to promote the development of market based financial sector as a strategies to return around the deteriorating economy and accelerate growth. The strategy was kicked off by the Banking and the financial Institutions act adopted in 1991 which pave way for entrance of private, foreign and domestic investors in the financial sector. The financial sector was Liberalized to allow private sector and foreign bank participation while remaining centrals were eliminated, financial market were introduced and use of indirect instrument of monetary policy.

The financial sector intermediation process and financial sector deepening in general have also improved quite substantially over time; this is reflected by increase in the ratio of commercial Banks private sector credit to GDP and to private sectors deposits as well as the decline the Ratio of currency in circulation to commercial Banks private sector deposit. Although Government of Tanzania has implemented a number of reforms since early 1980 the trend of Tanzania financial depth as measure of economic growth remain mixed and is an average lower than the pre – reforms depth. Analogously, this could means that Tanzania real sector growing than monetary sector for example during 1979 and 1983 the Ratio increased further to about 0.408. Between 1984 and 1988 the country suffered a sharp contraction of financial depth and by 1988 the Ratio reached a historic low ratio about 0.174 the Ratio later increased to about 0.184 in 1989 and 0.199 in 1990 but later declined slightly to 0.198. Immediately after interest rate Liberalization in 1992 and 1993 the ratio rose considerably. The ratio rose to about 0.248 in 1994 and 0.251 in 1995 from about 0.244 in 1993. However between 1996 and 1998 the Ratio decline considerably. The ratio decline from about 0.251 in 1995 to about 0.218 in 1996 and later to 0.18 in 1997 and 0.184in 1998. In 1999 and 2000 the ratio improved to about 0.189 and 0.193 respectively. Although the financial depth ratio has shown upward trend it is still lower than the average ratio recorded in 1980. Currently there are about 22 commercial banks 3 non financial institution and 102 foreign exchange bureaux of which 80 are operating in Tanzania main land while 22 operating in Zanzibar.

Figure 2.1, the degree of financial intermediation increased between 1980 and 2010 and this indicates that the growth of the financial sector is in line with output

growth.

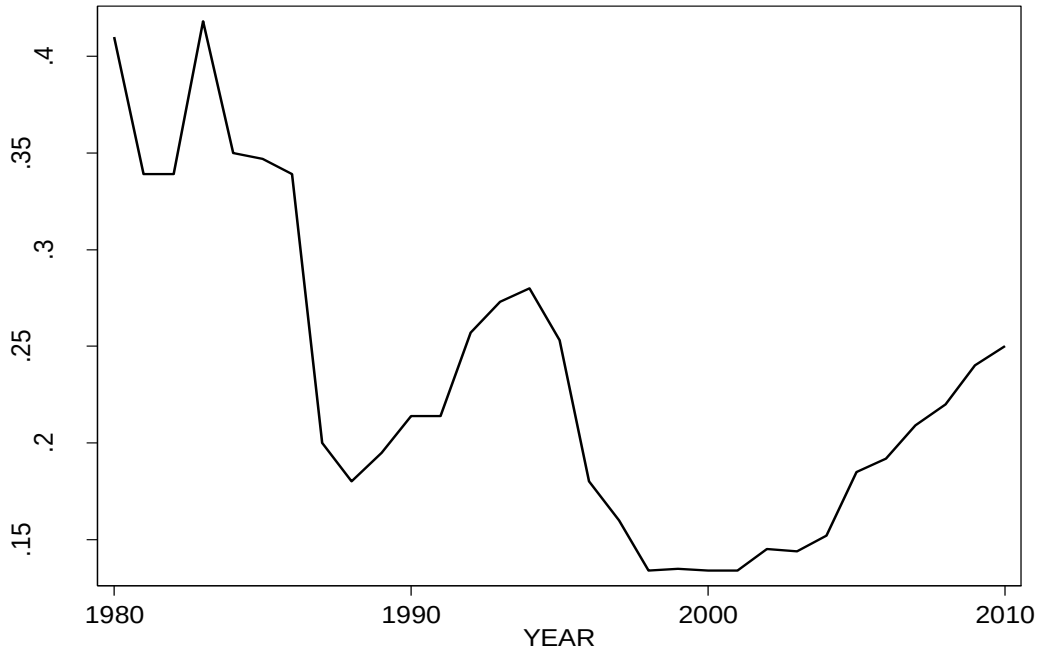

Figure 2.3: M2 as Ratio of GDP

Source: Bank of Tanzania & National Bureau of Statistics

Figure 2.2 show the domestic credit to private sector to nominal GDP in Tanzania. The highest value over the past 30 years was 16.21 in 2010 while its lowest value was 1.58 in 1998.

2.2.2 Commercial Banks

Commercial Bank is most important lending and deposit taking institution in Tanzania. The formal financial sector is dominated by commercial Banks and its share accounts for over 75 percent of the deposits mobilized by all formal financial institutional (BOT, 1981). Domestic saving mobilization is crucial for promoting investment. The commercial banking sector has undergone a number of reforms since the implementation of the 1991 Nyirabu recommendation on financial sector reforms. The importance of commercial banks in the mobilization of deposits has

been increasing over time. Since the financial reforms started, deposit mobilization has been improved due to entry of new banks in the sector. The volume of domestic lending grew from Tshs. 2714.657 million in 1986 to Tshs 2896.801 million in 2002, that was, an increase of 7percent.

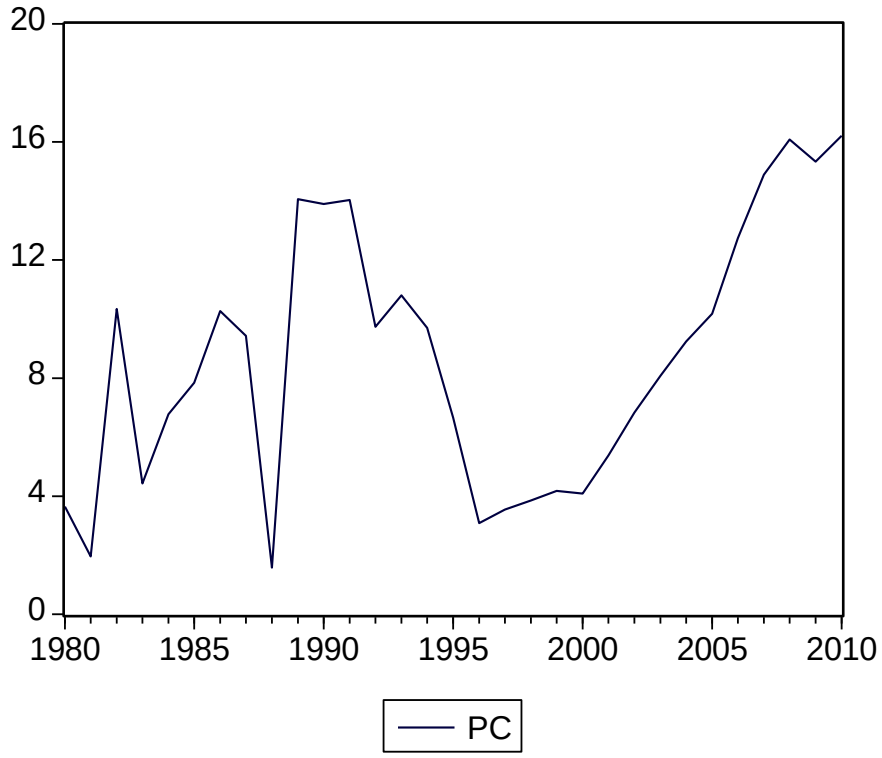

Figure 2.4: Domestic Credit to Private Sector to Nominal GDP
Source: International Monetary Fund, International Financial Statistics and data files, and World Bank.

Until the adoption of financial sector reform in 1991, credit to public sectors had accounted for about 80 percent of the total domestic credit. The dominance of the public sector crowded out the private investor. Since then, public sector borrowing from the domestic financial sectors decrease to 55 percent in 2000.The policy thrust in this regard was to increase the amount of credit to private sector in order to increase the economic growth through private investment considered to be the central

for the attainment of economic growth. During the reform period the share of private sector credit in the total domestic credit increase from 26 percent in1991 to about 36.4 in 1994 before it declined to 27 percent in 1996.The declined could have resulted from the restructuring of public owned commercial banks, privatization of Co-operative Rural Development Bank (CRDB) in 1996 and the splitting and partially privatization of National Bank of Commerce (NBC) in 1997.These institutions provided for the flow of credit to the parastatal sector in the country prior to the restructure and subsequent privatization. In this respect the privatization of parastatals enterprises served to reduce their share in total bank credit to Government. As the public enterprises became increasing privatized, the share of private sector credit rose from 38.2 percent in 1997 to 45 percent in 2000. In relation the share of credit to publicly owned commercial enterprises and government agencies dropped from 78 percent in 1991, 55 percent in 2000. Nevertheless some gaps to the provision of credit still remain especially when viewed from the perspective of lending to the productive sector.

2.3.3 Non Banking Financial Sectors

Traditionally, Insures and pension fund have not generally been seen as being a significant potential source of systematic risk. The insurance and pension fund sectors are mostly regarded relatively stable segment of financial system. They are not interlinked to the same extent as a Bank are for example are interbank market and payment system. But the interaction between insurers and pension fund, financial market, bank and other financial intermediaries has been growing considerably over time. Indeed, Insurance companies and pension fund are important player for financial development depending on their size inter connectedness and the importance of their economic functions.

Pension fund and insurance are among the large investor in financial market for instance, pension fund deposits in the top ten (10) banks in Tanzania represented about 10 percents of the total private sector deposits in the banking system at the end of June 2010. Furthermore, pension fund and insurance companies have strong and important link with other financial institutional. Together, pension fund and insurance companies hold between 30 percent and 20 percent of the total amount of outstanding government debt securities. From the Financial development perspective, there is need to have a good understanding of the linkages among the financial system subsector in order to assess the potential transmission of problem from one sector to another. It is recognition of the contribution of pension and insurance sector in financial development, the bank of Tanzania is expending it is monitoring and assessment of the financial system development, to include the following sector.

2.3.4 Pension Sector in Tanzania

The key role of the pension is to provide security for retirees. However, a sound of pension system can also be a powerful force in developing capital market and support the provision of long term finance. By the end 2010 the sector had six pension funds covering formal sector employee. Although pension coverage is mandatory to formal employees, only 40 percent are covered. Pension fund's assets account for 21 percent of the total assets of the financial system while the investment portfolios of these pension funds are concentrated mainly in two areas namely government securities and in the illiquid commercial real state

Social Security Act which was passed by the parliament in June 2008 provided for the establishment of the SSRA which will share supervisory responsibilities with the

Bank of Tanzania which has been given the mandate of supervising financial matter of pension funds. The CEO and the Board of SSRA have been appointed, while the government is finalizing the procedures to make SSRA operation.

2.3.5 Insurance Sector in Tanzania

The role of insurance sector is to act conduct for household and firms to transfer risk entities that are more suitable to handle them. Therefore, insurers help to safeguard the stability of household and business balance sheet by insuring their risk. In conducting their function, insurance firms are directly affected by economic events such as interest rate movement which impact can assess valuation and inflation which can result in policy holder cashing out policies. More over economic distress leading to deteriorating social or economic conditions or obligations to pay damage as a result of judicial ruling, can result in new liabilities and potentially catastrophic loss.

By the end of 2010 the insurance industry in Tanzania was comprised of 22 insurance companies with the total assets amounted to TZS 331.38 billion compared to TZS 304.26 billion recorded in 2009 representing an annual growth of 8.9 percent. The insurance sector shows a high concentration of total assets in few companies. Five companies hold about 70 percent of the market share in term of total assets which state owned NIC accounting for about 39 percent of the assets. The increase of insurance companies has contributed positively to the increase nation GDP growth at current price in a year 2002, the contribution of insurance sector to GDP was 0.6 percent in 2002 and it increased to 0.8 percent in 2006, however its contribution to GDP registered high at 0.86 percent in 2010 compared to 2009 where it was 0.82 percent. The total contribution of the finance and insurance sectors GDP was 29

percent compared to 23 percent in 2002 and increase to 31 percent in 2010, this increase of insurance sectors has continued to contribute the growth of GDP at the satisfactory level up to 2010.

2.3.6 Stock Exchange in Tanzania

Following the enactment of capital market and security act CMSA in 1994 an institution frame work was put in the place with the responsibility of promoting and facilitating the development of orderly, fair and efficient capital market and security in Tanzania CMSA which become operational in 1995 has been instrumental in the establishment of development of Dar es salaam Stock Exchange (DSE) market and promotion of stock brokers and investment advisor. The DSE was incorporated in September 1996 and became operational in April 1998. The DSE market provides for wide private share ownership of previously government owned companies and other private companies in Tanzania and by so doing it enhances implementation of government reform. The basic law and regulation for stock exchange operation have been in place and trading post trading and central depository system is in existence and operating.

In December 2002, securities listed at DSE: Treasure bond (7.5 percent five years bond and 7 percent five years bond) five government bond (5.5 percent two years bond 5 percent two years bond 7 percent five years bond, 6.2 percent five years bond and 7.75 percent seven years bond). Two East Africa Development Bank (EADB) corporate bonds and ordinary share of five companies. The companies are, Tanzania Oxygen Company limited (TOL) Tanzania Breweries Limited (TBL) Tanzania Tea packers Limited (TATEPA) Tanzania Cigarette Company Limited (TCC) and Tanga Company Limited (Simba Cement). Of these listed firms only TATEPA is purely

private company the remaining companies are former parastalals now partially privatized and owned jointly with the government in Tanzania.

The total market capitalization was an average 7.1 billion at the end of the first day, thus making it one of smallest exchange market in the world. However the total market capitalization of DSE as at the end of December 2010 was Tsh. 4895.5 billions. Generally lasting of companies has been a success. However with the exceptional of TOL, all companies have grown in size since the listing, as evidenced by the growth of their market capitalization. Dividends per share have also been improving over time offering a good signal for investor

2.4 Limitations of Financial Sectors

Tanzania Financial system play a significant role in Tanzania's economy and that depth and efficiency fall down short of what is needed to support economic growth. Accesses for financial services by majority are still inadequate as the large segments of the economy are working with little formal credit and interest rates on loan are very high. Also there existed macroeconomic risk due to the structure of the real economy which is dependent on agriculture, volatile aid in flow as well as constraining regulation on leading. The financial markets which are expected to bridge the saving investment gape are also largely underdevelopment.

CHAPTER THREE

3.0 LITERATURE REVIEW

3.1 Introduction

This chapter surveys the theoretical and empirical literature relating to the link between financial development and economic growth. To achieve these objectives the chapter is divided into four sections. Sections 2.1 introduction parts, section 2.2 present the theoretical augments on the link between financial development and economic growth. 2.3 present and discuss the empirical finding on the link between financial development and economic growth Section 2.4 provides a brief summary to the chapter.

3.2 Theoretical Review

Traditionally, the focus of the economic growth theory was on labor usage and capital accumulation as the cause for long run growth, thus growth is exogenously determined. However, this approach excluded any specific role for the financial sector. During the past twenty years, new theories have been developed that moved away from the view that growth is exogenously determined and therefore government cannot influence it. New theories states that growth is endogenously determined, thus institutions and policies matters for economic growth.

3.2.1 Exogenous Growth Model

This was an extension to the Harrod-Domar model which included the new term, ‘productivity growth”. The most important contributor to this model, Robert Solow; in 1956 developed a relatively simple growth model which fit available data on US economic growth with some success. The key assumption of the Solow growth model is that capital is subjected to diminishing returns. Given a fixed stock of labor,

the impact on output of the last unit of capital accumulated will always be less than the one before. Assuming for simplicity no technological progress or labor force growth, diminishing returns implies that at some point the amount of new capital produced is only just enough to make up for the amount of existing capital lost due to depreciation. Let denote total output, L the number of workers employed in the production process, K the capital stock, and suppose that the production function is Cobb – Douglas, so that:

$$Y = Ak^{\alpha}L^{1-\alpha} \quad 0 < \alpha < 1 \qquad (1)$$

A measures level of technology.

Output per labour ratio is y = Y/L. So that,

$$Y = Ak^{\alpha} \qquad (2)$$

k denotes K/L ratio

Capital accumulation is given by

$$\dot{k} = sy - (n + \delta)k \quad , 0 < s, \delta < 1. \qquad (3)$$

s = propensity to save, n > 0 = exogenous population growth rate, δ = rate of depreciation of physical capital.

Equation (3) gives the goods market equilibrium, thus, saving – investment balance,

1 = sy.

Suppose A is constant over time and substitute (2) into (3) and then divide both sides by k to have

$$g_k = \frac{\dot{k}}{k} = sAk^{\alpha-1} - (n- \delta) \qquad (4)$$

From this equation we can derive output per worker growth rate as

$g_y = \frac{\dot{y}}{y} = \alpha \dot{k}\ A k^{\alpha-1} / A k^{\alpha} = \alpha\ g_k$ (5)

generally, if technology (like population) at a constant rate, it can be shown that in the Solow – Swan model the steady – state values of output / labour and the capital / labour ratio are also constant and proportional to the rate of (labour – augmenting) technological change.

According to (Sorensen & Jacobsen, 2005) beyond some point, the marginal returns to new capital will be smaller than the marginal cost of adding new capital. At this point because of the assumptions of no technological progress of labour force growth, the economy ceases to grow. Thus, in the exogenous growth models financial markets have no role in promoting the long run economic growth**.** Limitations of the model include its failure to take account of entrepreneurship (which may be catalyst behind economic growth) and strength of institutions (which facilitate economic growth). In addition, it does not explain how or why technological progress occurs.

3.2.2 Endogenous Growth Model

This model based on two broad approaches, the first one sees all inputs as reproducible, and the second one is based on externalities (in the form of human capital). In both approaches, the savings rate plays a key role in the growth of capital and output per worker. The first approach consist of viewing all production inputs as some form of reproducible capital, including not only physical capital (as emphasized in the basic neoclassical framework), but other types as well, especially human capital (Lucas, 1988; Romer, 1986; Rebelo, 1991). This results from setting $\alpha = 0$ in Equation, thus:

$$y = Ak \quad (6)$$

Where $k = \frac{K}{L}$ as before, but now is interpreted as a broad measure of capital, a composite measure of the physical and human capital stock.

Using the capital accumulation Equation (4), the steady – state growth rate of the capital stock per worker can be shown to be equal to

$$g_k = sA - (n + d). \quad (7)$$

With the steady – state growth rate per capita given by

$$g_y = sA - (n + d) \quad (8)$$

Which implies that the growth is, for $sA > n + d,$ positive (and constant y over time) and that the level of income per capita rises without bound. An important implication of the model is thus that, in contrast to the neoclassical model, an increase in the saving rate permanently raises the growth of capital and output per worker.

The second approach is based on the assumption that externalities in the production process such as increase in the output level by one firm positively affects factor of productivity in another firm. This implies that if, say, one firm doubles its inputs, the productivity of the inputs of other firms will also increase. Introducing spillover effects leads to a relaxation of the assumption of diminishing returns to capital. In most models, externalities take the form of general technological knowledge that is available to all firms, which use it to develop new method of production. An exception to this specification is in Lucas (1988), where externalities take the form of public learning, which increase the stock of human capital and affects the productivity of all factors of production. The presence of externalities is closely

associated with the existence of increasing returns to scale in the production function productivity of all factors of production. The presence of externalities is closely associated with the existence of increasing returns to scale in the production function.

However in this approach, labour is endogenously determined and it is not just the quantity of labour which is relevant, but the quality of such labour. Households can save bin vesting in human capital in addition to physical capital investments. Therefore, households will produce labour with skills that will create ideas needed to handle new technologies. In this approach savings occurs in two ways: a fraction is saved for capital accumulation and a fractions saved to increase human capital quality. With this approach both savings rates have effects on the growth rates. As a result, growth is no longer determined by the arbitrary technological changes, but it is endogenously determined by decision to invest in physical or human capital without introducing financial market explicitly, there are grounds to believe that incentives for the population to save and more efficient channeling of saving can affect growth. The growth models discussed so far do not have the financial sector intermediation explicitly modeled. The models only state that the share of aggregate output saved by the economy is available for investment. The problem inherent with this assumption is that it does not take into account the leakages and costs associated with financial intermediation process. However financial development contributes to growth in various ways. For instance, financial institutions are better suited than individuals to identify potentially successful projects, because these institutions are big enough to pay high costs of collecting information about individual projects and to analyze this information more efficiently. To ensure that the saver resources are used productively; the institutions also do supervise these projects.

Financial markets can also enhance growth, firstly, by mobilizing resources from the savers necessary to invest in large projects. Secondly, they facilitate the pooling and hedging of risk inherent in individual projects and industries. Thus, well developed financial markets can generate growth by increasing the pool of funds and by reducing the risk and enhancing the productivity of fund transfers from savers to investment projects. The relationship between financial development and economic growth has received a great deal of attention in the modern history of economics. This theoretical relationship dates back to the work of (Schumpeter, 1911), who emphasized that financial services are paramount in promoting economic growth.

3.2.3 The Roles of Financial Intermediation in Economic Growth

Several studies have addressed the potential links between financial development and economic growth (Levine, 1997). Alternative views on the links between financial development and economic growth focus on the key functions of the financial systems. These include first, acting as an effective conduit for channeling funds from surplus to deficit units by mobilizing resources and ensuring an efficient transformation of funds into real productive capital. Second, financial intermediation transforms the maturity of the portfolios of savers and investors, while providing sufficient liquidity to the system as the need arises. The third functions risk reduction from the system through diversification and the technique of risk sharing and pooling. By so doing, a modern financial system may spur economic growth. However, despite the rapidly growing literature, the debate concerning the role played by the development of financial intermediaries in economic growth is far from settled. The early models on financial intermediation and economic growth lacked solid modeling of the exact mechanisms of the relationship between the two variables. In the 1990's many new theoretical contributions on how financial

development may affect economic growth emerged (Greenwood &Jovanovic, 1990). The wave of new theoretical models on the relationship between financial development and economic growth has triggered new empirical interest into the relationship between finance and growth (King & Levine, 1993), which extended the cross country framework introduced in Barro (1991), by adding a financial variable to the standard growth regression.

Most of the cross-country studies do not pay much attention to the direction of causality. They seem to implicitly assume that financial development causes economic growth in line with the supply-leading view (Patrick, 1996). However, financial development may also be demand driven (Saint & Paul, 1996). In addition, there may be a two-way causation where, on the one hand, growth stimulates the creation and growth of financial intermediaries, whereas, on the other hand, these intermediaries contribute to higher growth (Greenwood &Jovanovic, 1990). Recently, some studies emerged with effort to come around the above mentioned problems. In these studies, explicit attention is given both to the question of whether sample countries can be pooled and to the time series properties of the data. Moreover, Johansen's method based on vector error-correction mechanisms (VECM) is used to test for long-run cointegration between financial development and economic growth (Fan, Jacobs, & Lensik, 2005).This methodology allows formal testing of short run and long-run causality between finance and growth. By specifying and estimating models for individual countries, these studies show that results are country specific. The studies deny that financial sector development in general is a determining factor in the process of economic development.

Alternative views on the links between financial intermediation and economic growth focus on the key functions of financial systems in the saving-investment-

growth nexus these include acting as an effective conduit first for channeling funds from surplus to deficit units by mobilizing resources and ensuring an efficient transformation of funds into real productive capital. Second, financial intermediation transforms maturity of the portfolios of savers and investors, while providing sufficient liquidity to the system as the need arises. The third function is risks reduction from the system through diversification and techniques of risk sharing and pooling (Nissanke and Stein 2003). `

Schumpeter was among the first to point out that banks facilitate Technological innovation in their role as financial intermediaries. His argument focuses on the ability of banks to allocate savings more effectively. On the other hand authors like Goldsmith (1969) McKinnon (1973) and Shaw (1973) emphasize the role of financial intermediation in supplying the capital accumulation required in economic growth. By lowering financial market frictions, domestic savings are increased and foreign capital is attracted.

Recent theoretical studies have tried to establish precise mechanism through which financial Systems influence economic development. For example, Greenwood and Jovanovic (1990) developed a model in which both financial development and growth are endogenously determined. With respect to the growth effects of financial development, they demonstrated that by pooling personal investment risks and eliminating before back uncertainty about rates of returns, financial development can lead to faster growth. In the model proposed by Bencivenga and Smith (1991), it was shown that the role of banks increases economic growth by channeling savings to the activity with high productivity but offering risky and illiquid assets, while allowing individuals to reduce the risk associated with their liquidity needs. In their model,Roubini and Sala-i-Martin (1992) showed that financial repression reduces the

productivity of capital and lowers savings, thus hampering growth.

The upshot of these theoretical studies is that financial development leads to stronger economic growth. By extending these lines of arguments spatially to cross-border financial transactions and intermediation, it can be shown theoretically that the effects of financial integration on economic growth can be positive. Finance and Economic Growth: Theory Evidence to assess the current state of knowledge on finance-growth nexus, we describe and appraise theoretical research on the connections between the operation of the financial sector and economic growth. Theoretical models show that financial instruments, markets and institutions help to mitigate the effects of information and transaction costs. To ameliorate market frictions, financial arrangements change the incentives and constraints facing economic agents. Thus, financial systems may influence saving rates, investment decisions, technological innovation, and hence the long-run growth rates (Levine, 2005).

These possible directions of causality between financial development and growth are labeled by Patrick (1966) as the supply-leading and demand-following hypothesis. The supply-leading hypothesis posits a causal relationship from financial development to economic growth, which means deliberate creation of financial institutions and markets, increases the supply of financial services and thus leads to real economic growth. Numerous theoretical and empirical writings on this subject have shown that financial development is important and causes economic growth. McKinnon (1973), King and Levine (1993a, b), Neusser and Kugler (1998) and Levine, Loayza and Beck (2000) support the supply-leading phenomenon. On the other hand, the demand-leading hypothesis postulates a causal relationship from

economic growth to financial development. Here, an increasing demand for financial services might induce an expansion in the financial sector as the real economy grows (thus, financial sector responds passively to economic growth).

Growth hypothesis, scholars such as Robinson (1952), Kuznets (1955) and Stem (1989) have argued that increase in growth generally leads to increased financial development. In the opinion of Robinson (1952), it seems to be the case that where enterprises lead finance follows. Kuznets (1955) equally states that financial markets begin to grow as the economy approaches the intermediate stage of growth process and develop once the economy becomes matured. The argument is that high economic growth generates demand for some categories of financial instruments and arrangement and that financial market effectively respond to these demands and change.

3.2.5 Bi-directional Causality

The most interesting scenarios suggest two ways (bidirectional) causal relationship between finance and growth. Lewis (1955), one of the 'pioneers' of development economic, postulate a two ways relationship between financial development and economic growth. That financial market develops as a consequence of economic growth which in turn feeds back as a stimulant to real growth. Several studies have equally noted this type of feedback. These include Patrick (1966), Greenwood and Jovanovic (1990), Wood (1993), Greenwood and Bruce (1997) and Luintel and Khan (1999). Apart from these two competing hypotheses, Patrick (1966) proposes the stage of development hypothesis. According to this hypothesis, supply-leading financial development can induce real capital formation in the early stages of economic development. Innovation and development of new financial services opens up new opportunities for investors and savers and, in so doing, inaugurates self-

sustained economic growth. As financial and economic development proceeds, the supply-leading characteristics of financial development diminish gradually and are eventually dominated by demand-following financial development. Surprisingly, there has been little literature of Patrick's hypotheses, for either developed or developing countries.

Early studies focused on the role of financial development in economic growth. More recently attention has been shifted to the direction of causality between financial development and economic growth. However, these studies are still scarce, and the causal relationship between financial and economic growth has not been resolved. This paper will improve upon the existing literature by using vector error correction mechanism and granger causality that would allow us to test the hypotheses proposed by Patrick and also to quantify the extent and statistical significance of each hypotheses.

3.3 Empirical Review

The majority of the panel and cross- country studies on financial development and economic growth find that financial development has a positive effect on economic growth. These studies also provide some empirical evidence for the hypothesis that it is the overall provision of financial services that is important, and not whether a country has a bank-based or market-based financial system (Levine, 1998). However, the cross-country type of studies is not without problems, since they do not properly account for time dimension. Moreover, cross country estimates can give a wrong impression of the impact of financial development on economic growth since they assume that the different countries in the model are homogeneous entities. Since countries may differ greatly with respect to institutions and economic policies used,

results may be country specific. It is argued that while cross-country studies show evidence for positive relationship between financial development and economic growth, the causality between the two remains unclear.

Empirical work on financial development and economic growth in Botswana shows evidence that supports Schumpeter's view that financial development leads to economic growth (Eita & Jordaan, 2007). These empirical results illustrate that the development of the financial sector in Botswana is important for its economic growth and development. This suggests that financial deepening and institutional reforms should be enhanced to promote Botswana's economic growth.

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The empirical results of the study on the causal relationship between financial development and economic growth which used data for South Africa and Kenya show that the direction of the causality between financial development and economic growth is sensitive to the choice of measurement for financial development (Odhiambo, 2007). A demand leading view was found to be stronger in South Africa and Kenya. These findings are also consistent with Patrick's hypothesis (Patrick, 1966), which postulates that the direction of causality between financial development and economic growth changes over the course of development. A study examining the causal relationship between financial development and economic growth in Malaysia, found that economic growth leads to financial development (Ang & Mckibbin, 2005).Levine (1997) provides a comprehensive review of the pre-1997 literature. Based on this review Levine concluded. The preponderance of theoretical reasoning and empirical evidence suggests a Positive, first-order relationship between financial development and economic growth. A growing body of work would push even most skeptics toward the belief that the development of financial markets and institutions is a critical and inextricable part of the growth process and

away from the view that the financial system is an inconsequential side show, responding passively to economic growth and industrialization. There is even evidence that the level of financial development is good predictor of future rates of economic growth, capital accumulation, and technological change. (Levine, 1997: 688-689).From this statement one would almost be tempted financial services on economic growth and development.

Abu-Bader and Abu-Qarn (2008) examine the causal relationship between financial development and economic growth in Egypt during the period 1960-2001. Their results significantly support the view that financial development Granger causes economic growth Niyubahwe, A (2005) examines the empirical relationship between financial development and economic growth in Burundi during the period 1980-2004. Using cointegration and error correction models (ECM) methodology, the results give weak supports to the role of financial development in explaining economic growth in Burundi. These results could be linked to the structural weaknesses of Burundi financial sector. The main characteristics of financial systems in Burundi that may affect economic development include bank-dominated financial systems, wide interest rate spreads, poor corporate governance practices, absence of financial innovation, inefficient payment and clearing systems, informal financial channels, and low levels of financial deepening and scarcity of long term finance. These characteristics influence the impact of either through increasing investment efficiency or through increasing resources for investment Ghirmay (2004) seeks to empirically explore the causal link between the level of financial development and economic growth in 13 sub Saharan Africa countries. The results of the cointegration analysis provide evidence of the existence of a long run relationship between financial development and economic growth in almost all (12 out of 13) of the

countries. The findings imply that African countries can accelerate their economic growth by improving their financial systems.

Jung (1986), Kirakul, Jantarangs and Chatanahom (1992) and Rousseau and Wachtel (1998) examines the causal relationships between economic growth and financial intermediation. Specifically, Jung (1986) finds evidence for the causal relationship between financial development and economic growth. Measures of financial development include the ratios of M1 and M2 to nominal GDP. By employing Granger causality test for 56 countries, the results show that there exists a close relationship between financial and real development. The less developed countries are characterized by the causal direction running from financial to economic development. Developed countries are characterized by the reserved causal direction.

Mushi (1998) investigates the impact of financial development on economic growth in Tanzania. The study uses ordinary least square method to estimate the impact of financial development on economic growth during the period of pre-liberalized and post-liberalized of the economy. The study uses the size of financial system, distribution of financial assets to private sector and interest rate as proxies of financial development. The results shows that the size of financial sector was negative related to growth. It also indicates that the distributional of financial asset to private sector has strong impact on economic growth. The empirical results also give support for financial repression hypothesis in Tanzania.

Akiniboade (2000) examine the relationship between the financial deepening and economic growth in Tanzania. He uses the ratio of bank deposit liability to nominal growth national product as the measure of financial deepening. The relationship between financial deepening with the real per capita income was modeled using the

static ordinary least square (OLS) estimation method. The results indicate that the impact of financial deepening on economic growth is negative during the period of financial repression and positive during the period of financial liberalization. The relationship between financial deepening and economic growth appears to be negative and significant during the period of financial liberalization but insignificant during financial repression.

Lumumba (2004) explores the impact of financial intermediation on saving mobilization and economic growth in Tanzania during post liberalization period (1986-2002). The study employs 2SLS to evaluate the impact of financial intermediaries' development in saving mobilization and economic growth. The study uses different proxies' measure for financial development. The ratio of liquid liabilities financial system to real GDP is used as an indicator for financial deepening while the ratio of credit to private to real GDP is used as a broad measure of banking development the empirical results suggest the existence of a positive and significant relationship between the size of financial sector and economic growth.

Financial development enhances economic growth for all countries. This suggests that financial deepening in many countries has yielded the desired result - a more prosperous economy. We find evidence of bi-directional causality when we split the sample into developing and industrial countries. This implies that financial depth stimulates growth and, simultaneously, growth propels financial development. The expansion of the real sector can significantly influence development of the financial sector, although this is more the case in developed economies. Financial depth contributes more to the causal relationships in developing countries, thus implying that, financial intermediaries have larger relative effects in less-developed economies than in more developed ones. Hence, developing countries have more room for

financial and economic improvement. The financial development may enhance economic growth through both more rapid capital accumulation and technological changes, though it appears that the productivity channel is stronger.

3.4 Summary

Most of the studies conducted have shown a unidirectional relationship between financial development and economic growth. Example, the studies for developing countries show the direction running from financial development to economic growth. Nevertheless the studies from developed countries do not support such relationship. For the case of Tanzania, the number of empirical studies I have reviewed is very limited in time as they covered a short period of time which gives more or less inconsistency results as time series requires a long period of time to be covered for accurate results.

CHAPTER FOUR

4.0 METHODOLOGY

4.1 Introduction

The chapter presents the methodology of the study and techniques employed to determine the causal relationships between the variables of financial development and economic growth in Tanzania for the period 1980 -2010.The chapter is organized in four sections. Section 4.1 present the introduction part, section 4.2presents the testable hypotheses, Section 4.3 present the model specification used in the study, section 4.4 explain estimation techniques, an section 4.5 describes the data sources and limitations.

4.2 Hypotheses

The null hypotheses to be tested are

i) Financial development does not Granger cause economic growth.

   Rejection of this hypothesis means that financial development Granger cause economic growth.

ii) Economic growth does not Granger cause financial development.

   Rejection of this hypothesis means that causality runs from economic growth to financial development.

If none of the hypothesis is rejected, it means that financial development does not Granger causes economic growth and economic growth also does not Granger cause financial development. This indicates that the two variables are independent of each other. If all hypotheses are rejected, then there is bi-directional causality between financial development and economic growth.

4.3 Model Specification

In this study, Granger causality is used to examine the direction of causality between financial development and economic growth. This approach has been used in finance - growth causality studies, among others (Eita & Jordaan, 2007; Odhiambo, 2007). The Granger causality test method is preferred in this study to other alternative techniques because of its favorable response to both large and small samples. The conventional Granger causality test involves the testing of the null hypothesis that financial development (FD) does not cause economic growth (Y) and vice versa by simply running the following two regressions.

$$Y_t = \alpha_0 + \sum \alpha_{1i} \Delta Y_{t-i} + \sum \alpha_{2j} \Delta FD_{t-j} + \mu_{1t} \quad (9)$$

$$FD_t = \beta_o + \sum \beta_{1i} \Delta Y_{t-i} + \sum \beta_{2j} \Delta FD_{t-j} + \varepsilon_{2t} \quad (10)$$

Where Y_t presents real GDP as the proxy of economic growth, and FD_t presents financial development proxies (the ratio of credit extended to private sector to nominal GDP and the ratio of broad money to nominal (GDP) μ_{1t} and ε_{2t} are the white noise error term for the two functions respectively

4.4 Estimation Techniques

The study uses E-view and STATA software packages to analyze data, since the study uses time series data which are subjected to non-stationarity, the study employs unit root test for stationarity. The Augmented Dicker-Fuller (ADF) statistic is applied to test the stationarity or non-stationarity of the variables and their order of integration. A cointegration test is applied using the Johansen full information maximum like hood, Vector error collection mechanism (VECM) used to determine if there is long run relationship between the variables and Granger causality to

determine the direction of the causality in the short run as well as in the long run between the financial development and economic growth.

4.4.1 Test for Stationarity

A time series data is said to be stationary if the mean and variance are constant through time and the value of the covariance between the two time periods depends only on the distance or lag between the two time periods and not the actual time at which the covariance is computed (Gujarati, 2003). However, if the mean and variance change in samples for different time spans then, this type of variable is known as non stationary variables. Regression equations with non stationary variables have serious limitations. Among other problems, their t-ratio and the adjusted R-square will be overestimated by a large magnitude. Therefore, all tests become invalid. This is known as the spurious regression problem. In order to avoid the problem of spurious regression, trended data is differenced a minimum of time to generate a stationary series. The most popular test of stationarity over the past several years is the unit root test. This test was first developed by Dickey and Fuller in 1970 and is named after them. The Dickey-Fuller (DF) test is applied to regression analysis in the following forms:

$$\Delta X_t = \delta X_{t-1} + \varepsilon_t \quad (11)$$

$$\Delta X_t = \alpha_i + \delta X_{t-1} + \varepsilon_t \quad (12)$$

$$\Delta X_t = \alpha_1 + \alpha_2^t + \delta X_{t-1} + \varepsilon_t \quad (13)$$

Where X denotes the variable to be tested and t is the time variable. In each equation the null hypothesis is that δ = 0 for $\rho = 1$ that implies there is existence of a unit root, thus the time series is non-stationary. Rejecting the null hypothesis implies that the series are stationary. The DF test assumes that the error terms ε_t are

uncorrelated, thus the use of the standard DF test critical values would be invalidated if the error terms in the test are correlated over time thus violating the white noise assumption of the DF test. This study uses an Augmented Dickey-Fuller (ADF) test that takes into account any auto correlation present by adding the lagged values of the dependent variable ΔX_t

$$\Delta X_t = \alpha_1 + \alpha_2^t + \delta X_{t-1} + \sum_{i-1}^{m} B_1 \Delta X_{t-1} + \varepsilon_t \quad (14)$$

Where X_t represents the variables whose time series properties are being investigated, Δ is the difference operator, *m* is the number of lagged variables, and where ε_t the random error.

4.4.2 Cointegration Test

Cointegration is defined as a long run relation of variables that are linked to form an equilibrium relationship when the individual series themselves are non-stationary in their levels, but become stationary when differenced. Thus, it can be stated that cointegration highlights the existence of a long run equilibrium to which the system converges overtime. Two of the widely used tests in modern research for cointegration are the Engle-Granger and the Johansen approach. The Engle-Granger procedures investigate the possibility of cointegration in bivariate models. One of the limitations of the Engle-Granger approach is that it assumes uniqueness of the cointegrating vector; moreover for more than two variables the approach does not provide a sufficient framework.

This study uses the Johansen procedure which is based on a vector auto regression (VAR) framework. The Johansen approach (Johansen, 1990) is mostly preferable to test for cointegration for more than two series compared to Engle Granger method.

The procedure is based on likelihood ratio (LR) test to determine the number of cointegration vectors in the regression. It enables to test for the existence of non-unique Cointegration relationships.

4.4.3 Vector Error Correction Mechanism

The short run adjustments are corrected using the vector error correction mechanism (VECM). The major advantage of VECM is that it avoids problems of a spurious correlation between dependent and explanatory variables, and it makes use of short run and long run information in the data. Also, VECM identifies the existence of granger causality between economic growth and financial development equation (17) and (18).

The cointegration equations are stated in equation 15 and 16 while the vector error correction model equations are stated in equations 17 and 18

$$Y_t = \delta + \varphi FD_t + EC_{1t} \quad (15)$$

$$FD_t = \alpha + \vartheta Y_t + EC_t \quad (16)$$

$$\mathbf{\Delta Y_t = \alpha_0 + \sum \alpha_{1i}\, \Delta Y_{t-1} + \sum \alpha_{2j}\, \Delta FD_{t-1} + \alpha_3 EC_{t-1} + \mu_t} \quad (17)$$

$$\mathbf{\Delta} FD_t = \beta_o + \sum \beta_{1i}\, \mathbf{\Delta} Y_{t-1} + \sum \beta_{2j}\, \mathbf{\Delta} FD_{t-j} + \beta_3 EC_{2t-1} + \varepsilon_t \quad (18)$$

Where $\mathbf{\Delta}$ represents the difference operator, FD_t represents the two proxies of financial Development; Y_t represents economic growth, and EC_{t-1} represents one period lagged error correction term captured from the cointegration regression. The causal inference is obtained through the significance of α_3 and β_3.

Once the study has detected the cointegration, there must be either unidirectional or bidirectional Granger causality because at least one of the error correction terms should be significantly different from zero by the definition of cointegration. The VECM approach, besides showing the direction of Granger causality among variables enables one to distinguish between short run and long run causality.

4.4.4 Granger Causality

Evidence of a cointegrating relationship between financial development and economic growth is crucial for the correct specification of a model to test for Granger causality. Using equations 9 and 10 long run and short run Granger causality can be tested. Granger causality in the long run is tested by checking the significance of the parameter estimates of the error correction term $(\alpha_2 EC_{t-1})$ where the null hypothesis to test is stated as H0:= 0 (thus, financial development does not Granger-cause economic growth in the long-run) in equation 17 and H0:= 0 (thus economic growth does not Granger cause financial development in the long run) in equation 18. On the other hand, Granger causality in the short term is tested via restrictions (joint insignificance) of the parameters α_{2j} and β_{2j} in equations 17 and 18 respectively. This is performed using the Wald parameter restrictions test, in which the null hypothesis is H0: α_{2j} = 0 (forinstance financial development does not Granger-cause economic growth in the short-run) in equation and H0: β_{2j} = 0 (forinstance economic growth does not Granger-cause financial development in the short run) in equation.

The use of traditional Granger causality tests suffer from the following methodological deficiencies. First, these standard tests do not examine the basic time series properties of the variables. According to Granger, if the variables are

cointergrated, then these tests incorporating differenced variables will be miss-specified unless the lagged error correction term is included Odhiambo, 2007). Second, the majorities of these tests turns the series stationary mechanically by differencing the variables and consequently eliminate the long run information embodied in the original form of the variables.

Given the two methodological deficiency in the traditional Granger causality method, proper statistical inference can be obtained by analyzing the causality relationship on the basis of the vector error correction model (VECM). The error correction model allows for the inclusion of the lagged error correction term derived from the cointegration equation. By including the lagged error correction term the long run information lost through differencing is reintroduced in a statistically acceptable way.

4.5 Data Sources and Description

4.5.1 Scope and Data Sources

The study uses secondary annually time series data for the period 1980-2010 because it is a period where the financial liberalization was started in Tanzania. Data are obtained from various domestic sources. Data on financial variables such as domestic credit to private sectors, broader money supply (M2) are obtained from the Bank of Tanzania. Data on economic growth such as GDP growth, investment rate are obtained from ,Tanzania Investment Center, Bureau of statistics and Bank of Tanzania Economic Bulletin and Economic operation reports.

4.5.2 Data Description

Economic growth is an increase in real GDP over some time period. Economic growth in this study is proxied by real GDP. Financial development is usually

defined as a process that makes improvement in quantity, quality and efficiency of financial intermediary services. This process involves the interaction of many activities and institutions, and it cannot be captured by a single measure. In this study financial development is proxied by two variables; the first proxy of financial development is defined as the ratio of broad money to nominal GDP (M2/GDP**)** (deepening and widening financial sector in the economy) thus, the ability of financial sector to offer quality and quantity services in the economy this monetization variable is designed to show the real size of the financial sector of a growing economy. The ratio is expected to increase over time if the financial sector grows faster than the real sector of the economy and decrease if financial sector grows more slowly than the real sector of the economy.

The second proxy is the ratios of credit extended to the private sector to nominal GDP. This refers to financial resources provided to the private sectors such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable that establish a claim for repayment. For some countries these claims include credits to public sectors. They assumed to generate increases in investment and productivity to a much larger extend than do credit to the public sector (Eita & Jordaan, 2007).

4.6 Summary

The study employs the stationarity test, cointegration test and Granger causality test on the variables used to establish the relationship between financial development and economic growth. Economic growth is proxied by real annually GDP, while the financial development is proxied by the ratio of broad money to nominal GDP and the ratio of credit extended to the private sector to nominal GDP .Various reports

from the National Bureau of Statistics, Ministry of Finance and economics, and Bank of Tanzania are used as source of data for this study. This study also has been conducted by Abel Ndafetwa Sindano 2009 who examined the empirical relationship between financial development and economic growth in Namibia in the period of 1993-2007.

CHAPTER FIVE

5.0 ESTIMATION AND INTERPRETATION OF THE RESULTS

5.1 Introduction

This chapter presents and discusses the empirical results from various tests necessary to establish the causal relationship between financial development and economic growth in Tanzania. The analysis is based on the econometric estimation of the models described in chapter four. The results are organized in eight sections. Section 5.1 presents the introduction part, section 5.2 statistical descriptive, section 5.3 presents unit root tests, section 5.4 presents cointegration tests, section 5.5 presents and discusses vector error correction model (VECM) estimation, section 5.6 presents the Granger causality test results, section 5.7 compares the result with other findings of previous studies, and section 5.8 presents concluding remarks of the chapter.

5.2 Descriptive Analysis

Descriptive statistics (mean, median, mode, range, standard deviation, skewness, and kurtosis) are useful for exploring and examining data (such as how data are distributed or dispersed) prior to performing statistical tests and subsequently carrying out statistical analysis and data interpretation. In eliminating non-normality of the variables, the variables were transformed by using logarithmic operator. The logarithm operator eliminates the nonstationarity of the variables hence interpretation of the estimated coefficients becomes easier because are expressed in form of elasticity.

Table 5.1: Summary of the Descriptive Statistics of the Variables

	LogGDPR	Log M2	LogGDP	LogMS2	LogM2/GDP	LogPS
Mean	4.377419	25.34516	7357064	1452674	0.232968	8.674194
Median	4.400000	23.80000	3020499	684906.0	0.214000	9.240000
Maximum	7.800000	54.90000	32293479	8042113	0.418000	16.21000
Minimum	0.400000	3.700000	44228.00	17519.80	0.134000	1.580000
Std. Dev.	2.287023	11.77814	9182330	2077763	0.083912	4.452450
Skewness	-0.125267	0.692301	1.292097	1.846886	0.687717	0.147945
Kurtosis	1.883697	3.230340	3.630169	5.531820	2.431514	1.853557
Jarque-Bera	1.690661	2.544813	9.138767	25.90317	2.861032	1.810766
Probability	0.429415	0.280157	0.010364	0.000002	0.239185	0.404387
Sum	135.7000	785.7000	2.28E+08	45032907	7.222000	268.9000
Sum Sq. Dev.	156.9142	4161.737	2.53x 10^{15}	1.30x10^{14}	0.211235	594.7294
Observa	31	31	31	31	31	31

LM2=logarithm of growth rate of M2, LG DP=logarithm of real GDP, LG DPR= logarithm of GDP growth rate, LG MS2= logarithm of broad money supply, LG MS2/GDP= logarithm of ratio of broad money supply and GDP, LG PS=Logarithm of credit to private sector

Most of the variables after transforming them into logarithm were normally distributed as shown in table 5.1; with skewness most variables were close to zero thus the distribution is symmetrical around the mean. For the case of peakedness, most of the variables were flatter than a normal distribution (platykurtic). Moreover, the standard deviations results are nonzero indicating variability of observations over time.

5.3 Unit Root Tests

After transforming data into natural logarithm, the next step was to determine if they are stationary as it is supposed to be before running regression. Augmented Dickey Fuller (ADF) test is used because of its usefulness. ADF ensures that the problem of serial correlation is reduced (Dickey and Fuller, 1981), and it takes into account higher-order autoregressive lags. The presence of unit root requires the variables to be differenced. After differencing once all variables became stationary, implying that the variables were integrated of order one *I*(1). The critical value for each of the variables turned out to be less than the computed t-value thus concluding the time series data to be stationary after differencing once.

The results are in Table 5. 3

The appropriate model for ADF unit root test is

$$Y_t - Y_{t-1} = \rho Y_{t-1} - Y_{t-1} + \mu_t$$

$$= (\rho - 1) Y_{t-1} + \mu_t$$

This can be also written as:

$$\Delta Y_t = \delta Y_{t-1} + \mu_t$$

Where $\delta = (\rho - 1)$ and Δ as usual, is the first difference operator

$H_0 = \delta = 0$ Unit root

$H_1 = \delta <$ 1 No unit root

If $\delta = 0$ then $\rho = 1$ this we have a unit root, meaning the time series under consideration is non stationary.

Where: H_0 presents the null hypothesis which suggest the presence of unit root, and

$H_{1:}$ presents the alternative hypothesis which suggest the absence of unit root

Table 5.2 Presents the ADF Unit Root Test Results in Levels and First Difference

At level		At first difference		
	t-statistic	OI	t-statistic	
Log (GDP)	-2.396(0.1427)	1(1)	-3.008**(0.0007)	1(0)
Log (M2/GDP)	-1.903(0.3309)	1(1)	-4.168***(0.0007)	1(0)
Log (PS)	-3.362(0.0123)	1(1)	-8.857***(0.000)	1(0)

The null hypothesis is that the series are non-stationary and the critical values at 1%, 5% and 10% are -3.723, -2.989 and -2.625respectively. The asterisks (***), (**) and (*) indicate rejection of the null hypothesis of non-stationary at 1%, 5% and 10% levels of significance at all levels of significance, respectively. The numbers in brackets are the probability values

The results shows the variables are not stationary at levels but they became stationary after first difference. This implies that variables are integrated of order one such that they become stationary when differenced once.

5.4 Cointegration Test

With regard to the results in section 5.2, according to Engel and Granger (1987), if two or more time series variables are integrated of order one $I(1)$, there could be a linear combination between them, which are integrated of order zero $I(0)$. This has necessitated the test for the presence of cointegration among the variables. However, this step involve testing independently the existence of cointegration relationship between each of proxies for financial development which are (M2/GDP) and (PS), and proxy of the economic growth which is (GDP). The study uses the Johansen and Juselius bivariate cointegration test statistics, namely maximum eigenvalue and trace

Statisitcs.

Table 5.3a: JohansenCointegration Result between Log (GDP) and Log (M2/GDP)

Null hypothesis	alternative hypothesis	test statistic	critical value (0.05)	P-value
Trace statistic				
r=0	r=1	74.22448	15.49471	0.0000
r=0	r=1	13.42585	3.841466	0.0002
Maximum Eigen value statistics				
r=0	r=1	60.79863	14.2646	0.0000
r=0	r=1	13.42585	3.841466	0.0002

Trace test and maximum Eigen value statistics indicate 2 cointegrating equations at the 0.05 level denote rejection of the hypothesis at the 0.05 level. MacKinnon (1999) p-values
Source: Authors own computation.

Given that computed t-statistics is greater than the critical value for both trace statistics and maximum Eigen value statistics in the table 5.3a, we do not reject the alternative hypothesis (r=1) that is there are two cointegrating vectors between Log (GDP) and Log (M2/GDP).

The computed t- statistics in table 5.3b, is greater than the critical value for both trace statistics and maximum Eigen value statistics, thus we do not reject the alternative hypothesis (r=1) that is there are two cointegrating vector between Log (GDP) and Log (PS) at level 0.05. In Table 5.3a and 5b, the trace statistic and maximum eigen value statistic indicates two cointegrating vectors at the 5 percent critical value.

Table 5.3b: Johansen Cointegration Test Results Between Log (GDP) and Log (PS)

Nully Hypothesis	Alternative hypothesis	Test statistics	critical value (0.05)	probability value
		Trace statistics		
r=0	r=1	74.22448	15.49471	0.0000
r=0	r=1	3.4258	3.841466	0.0002
Maximum Eigen value statistic				
r=0	r=1	60.79863	14.2646	0.0000
r=0	r=1	13.42585	3.841466	0.0002

Trace test and maximum Eigen value statistics indicate 2 cointegrating equations at the 0.05 level denotes rejection of the hypothesis at the 0.05 level MacKinnon (1999) p-values

The presence of two or more cointegrating vectors, as in this case, raises the familiar question: Is it better to have many or only a few cointegrating vectors? According to Dickey et al., (1994), Vamvoukas (1997), and Cheng and Yigletu, (2000), the existence of more than one cointegrating vector indicates that the system under examination is stationary in more than one direction and thus more stable. In contrast, Maddala and Kim (1998) argued that having more than one cointegrating vector raises the problem of interpreting the relationship among variables. If there is only one cointegration relationship, it may be easy to interpret it as a long run relationship. Consequently, the study proceeds with Vector Error correction Model.

5.5 Vector Error Correction Mechanism

The existence of a long run relationship also has its implications for the short run behavior of the *I*(1) variables. There has to be some mechanism that drives the variables to their long run equilibrium relationship (Verbeek, 2008), thus the application of vector error correction mechanism which drives the short run dynamics of the series. When a long-run relationship exists, there must be some

forces that will pull the equilibrium error back towards zero; the vector error correction mechanism does this exactly. The following results were generated from vector error correction mechanism specified in equations (17) and (18).

Tables 5.4a and 5.4b show that equation one (financial development) is significant at 5 percent and coefficient of Error Correction Term (ECT) is negative as required, indicating the existence of dynamic stability. Its magnitude reports the speed for adjustment of around 20.3 and 30.1 percent respectively. This implies that, about 20.4 and 30.1 percent of the deviations from the long run equilibrium are corrected in one period. Equation (economic growth) is insignificant at 5 percent level and the coefficient of ECT is positive. Negative and statistically significant values of the coefficients of the vector error correction terms indicate that the measure of financial development and economic growth are adjusting to their long run equilibrium relationship.

5.6 Causality Tests

The cointegration test reveals that a long run relationship exists between the variables under the study (financial development and economic growth). The cointegration test proves the existence of Granger causality at least in one direction. The inclusion of the error terms in the Granger causality test equations enables us to distinguish between short run and long run causality of financial development and economic growth. Since the Granger causality test has been sensitive to the number of lags of the explanatory variables included in the causality equations.

Table 5.4 (a) Variable Included in the VECM: Log (GDP) and Log (M2/GDP)

Independent variables	Dependent variables	
Error correction	D (Log (GDP))	D (Log (M2/GDP)
ECT	-0.203430 (0.00872) [-2.33384]	0.016443 (0.012207) [1.36256]
D (Log (GDP(-1)))	0.314350 (0.29066) [1.08151]	0.051656 (0.40241) [0.12837]
D (Log (GDP(-2)))	O.120014 (0.25966) [0.46219]	0.004150 (0.35949) [0.01154]
D (Log (M2/GDP(-1)))	-0.046265 (0.22012) [-0.21018]	0.271979 (0.30475) [0.89245]
D (Log (M2/GDP(-2)))	0.160833 (0.19699) [0.81644]	-0.037400 (0.27273) [-0.13713]
C	0.128665 (0.06392) [2.01294]	-0.020906 (0.08849) [-0.23624]
R squared	0.412414	0.142053
Adj R-squared	0.278871	-052936
Sum squared Residuals	0.293173	19370.56
F-statistic	3.088263	0.728519
Long likehood	24.09848	14.98971
Akaike information criterior	-1.292749	-0.642122
Schwarz criterion	-0.007276	-0356650

Standard errors are in ( )
t-statistics in [ ]

5.6.1 Long Run Causality

Long-run causality is performed by testing whether the coefficient of the Error Correction Term (ECT) in each equation is statistically different from zero by a t-test and it has a negative sign (Kirchgässner and Wolters, 2007). In this study, the coefficient of the ECT in the economic growth (GDP) equation is negative and statistically significant. In the equation of ratio of broad money to GDP equation,

(M2/GDP) the coefficient of the ECT is significant but positive; this implies that unidirectional causality runs from financial development to economic growth in the long run. Table 5.5a, presents the long run Granger causality test results.

Table 5.4 (b) Variable Included in the VECM: Log (GDP) and Log (PS

Independent variables	Dependent variables	
Error corrections	D (Log (GDP))	D (Log (PS))
ECT	-0.301042 (0.01287) [-2.41170]	0.013870 (0.03951) [0.3510103]
D (Log (GDP(-1)))	0.299253 (0.20514) [1.45874]	-3.355281 (0.62976) [-5.32784]
D (Log (GDP(-2)))	0.003287 (0.22328) [0.01472]	3.190263 (0.68543) [4.65437]
D (Log (PS(-1)))	-043211 (0.0547) [-0.80806]	-0.273710 (0.16416) [-1.66734]
D (Log (PS(-2)))	-0.027210 (0.04428) [-0.61457]	0.049920 (0.13592) [0.36728]
C	0.160043 (0.06250) [2.56079]	0.067118 (0.19186) [0.34983]
R squared	0.412920	0.728215
Adj-R-squared	0.279493	0.666445
Sum squared residuals	0.292920	2.760477
F-statistic	3.094721	11.78924
Akaike AIC	-1.293611	0.949647
Schwarz	0.463059	

Standard errors are in ( )
t-statistics in [ ].

From Table 5.5a, the null hypothesis of Log GDP does not granger cause Log (M2/GDP) it is not rejected at the 5 percent level and the null hypothesis of Log (M2/GDP) does not granger cause Log GDP is rejected at the 5 percent level. The

results imply that there is unidirectional granger causality runs from financial imply development to economic growth which supports the supply leading hypothesis.

Table 5.5a: Long run Granger Causality Test for the Model

Null Hypothesis	ECT	Observation	t-statistic	Prob
Log GDP does not granger cause Log M2/GDP	0.016443	28	1.362559	0.1868
Log M2/GDP does not granger cause Log GDP	-0.20343	28	-2.333842	0.0291

Source: Own computations,
ECT is coefficient of error correction term

Table 5.5b: Long run Granger Causality Test for the Model

Null Hypothesis	ECT	Observation	t-statistic	Prob
Log GDP does not granger cause Log PS	0.013780	28	0.351029	0.7289
Log PS does not granger cause Log GDP	-0.031042	28	-2.411698	0.0247

From Table 5.5b, the null hypothesis of Log (GDP) does not Granger cause Log (PS) it is not rejected at the 5 percent level and the null hypothesis of financial development Log (PS) does not Granger cause Log (GDP) is rejected at the 5 percent level. Implying that, unidirectional granger causality runs from financial development to economic growth which supports the supply leading hypothesis.

The results in table 5.5a and .5.5b both show that the causality runs from financial development to economic growth. The results provide evidence that the relationship between financial development and economic growth follows a supply hypothesis in Tanzania.

5.6.2 Short-Run Causality

The short-run Granger causality test based on a likelihood ratio test, which follows

the chi-square distribution, test jointly the significance of the coefficients of the explanatory variables in their first differences. It applies on the estimated VECM, where cross-equation restrictions are imposed on the lag differences in each of the equations of the VECM. Table 5.5.1 reports results of the short-run Granger causality. This study fails to reject the null hypothesis that Log (PS) does not Granger's cause Log (GDP). In addition, the study rejects the null hypotheses that Log (GDP) does not Granger cause Log (PS) as shown in Table 5.5.1. This implies that there is unidirectional movement running from Log (GPD) to Log (FD) for one proxy of financial development (PS) because it is statistically significant and its probability is (0.000) which is less than 0.05 percent. However, the causality of the remained variables is independent.

Table 5.6: Short Run Granger Causality Tests for the Bi-variate Model

Dependent variable: Log (GDP)			
Excluded	Ch-sq	df	Probability
D (Log (PS)	0.661264	2	0.7185
All	0.661264		0.7185
Dependent variable (Log (PS))			
	Chi-sq	df	Probability
D (Log (GDP))	37.09274	2	0.0000
All	37.09274	2	0.0000
Dependent variables (Log (GDP))			
Excluded	Chi-sq	df	Probability
D (Log (M2/GDP)	0.666687	2	0.7165
All	0.666687	2	0.7165
Dependent variable: D (Log (M2/GDP))			
Excluded	Chi-sq	df	probability
D (Log (GDP))	0.23794	2	0.9882
	0.23794	2	0.9882

From Table 5.5.1, the null hypothesis that Log GDP does not Granger Log (M2/GDP) is not rejected at the 5 percent level and the null hypothesis that Log GDP does not granger cause economic growth Log (PS) is rejected at 5 percent level. The GDP drives one proxy of financial development Log (PS) in the short run.

The null hypothesis of financial development log (M2/GDP) log (PS) not Granger cause economic growth log (GDP) is not rejected at the 5 percent level. Implying that, unidirectional Granger causality of Log (GDP) and Log (GDP/M2) in short run other remained variables are independently.

5.6.3 Diagnostic test

The diagnostic tests suggest absence of serial correlation and the Autoregressive Conditional Heteroscedasticity (ARCH) reveals the absence of heteroscedasticity in the model. The diagnostic tests for serial correlation using the Breusch-Godfrey LM test suggest the absence of autocorrelation in these models. The tables with test results for autocorrelation are presented in Appendix.

The White's test indicates presence of homoscedasticity, the variance of the variables do not vary over time (observations). The test results obtained do not reject the null hypothesis; results showed that the model is well specified with no omitted variables (Ramsey RESET test) as performed in which the table in the appendix confirms the result. The diagnostic test made indicates that most fundamental statistical requirement have been satisfied in which no serious weakness were identified. Moreover, results showed that the model is well specified with no omitted variables as the Ramsey RESET tests results indicate in Appendix. The study proceeds with interpretation as there is absence of any fundamental statistical problems. Chow test was also conducted; the results show that there are no problems in the observations.

In addition, the Chow tests imply parameter stability for the period of study. The results for chow test have been presented in the Appendix. There is nothing to suggest that the model is mis-specified.

5.7 Comparison of the Results with other Studies

Various studies have been done to investigate the causal relationship between financial development and economic growth. Meanwhile, the confirmation of causality between financial development and economic growth is highly sensitive to the methodologies used, choice of the variables, the frequency of the data and also the sample period, besides other factors. These differences have resulted to different conclusion on the causality in which most developing countries have supported the unidirectional causality running from financial development towards to economic growth while the advanced countries have supported the unidirectional causality running from economic growth to financial development.

As regard in economic growth and financial development, our study compare favorably with other studies on economic growth versus financial development. Ghirmay (2004) provide evidence in support of finance-led growth in eight out of the thirteen sub Saharan Countries investigated. In the same way, Agbetsiafe (2004) found unidirectional causality running from financial development to economic growth in seven African Countries lending credence to finance-led growth hypotheses. Abu-Bader and Abu Qarn (2008) equally provided evidences in support financial led growth in Egypt, Morocco and Tunisia. However, Odhiambo (2007) found conflicting results for three sub-Sahara African Countries investigated He found evidence in supporting of demand following hypotheses in Kenya and South Africa while in Tanzania the supply –leading hypotheses was supported**.**

Table 5.7 Summary of the Variable Results

Statistical Test	Variables to be tested	Results of the test
Unit root	Log (GDP), Log (PS) and Log (M2/GDP)	All variables tested found to be non stationarity (unit root problem) but they became stationary after differencing once.
Cointegraion	Log (GDP),Log M2/GDP Log GDP and Log (PS)	There are two cointegration equations for both Trace test and maximum Eigen value statistics at the 0.05 level for all variables Log GDP) Log (M2/GDP) and Log (GDP), Log (PS)
Vector error correction Mechanism	Log (GDP),Log (M2/GDP) and Log (PS)	The equation one (financial development) is significant at 5 percent and coefficient of Error Correction Term (ECT) is negative as required, Equation 2 (economic growth) is insignificant at 5 percent level and the coefficient of ECT is positive.
Granger causality	Log (GDP),Log (M2/GDP) and Log (PS)	In long run; Log (M2/GDP) granger cause Log (GDP) Log (GDP) does not granger cause (M2/GDP). Log (PS) granger cause Log (GDP) Log (GDP) does not granger cause Log(PS) In short run; The causality running from Log (GDP) to Log (PS) while the direction between Log (GDP) and Log (M2/GDP) are independently.

These findings are also consistent with Patrick's hypothesis (Patrick, 1966), which postulates that the direction of causality between financial development and economic growth changes over the course of development.

As regard to the financial sector (financial depth), a study done in Tanzania by Mushi (1998) found a negative relationship between financial depth and economic growth. However Akniboade (2000) obtained a negative and significant impact of financial development and economic growth in Tanzania during pre and post liberalization period. In contrast Bashagi (2003) found financial depth to exert apositive and significant impact on economic growth. However Bashagi (2003) found that other measures of financial development, such as ratio of private sector credit to either GDP or total credit, exerted negative and significant impact on economic growth.

Notable is that, unlike Mushi (1998) and Akniboade (2000), the finding of this study financial development exerts a positive and significant impact on economic growth in Tanzania .This finding is therefore similar to that obtained by Ghirmay (2004) and Odhiambo (2007).The two measures of financial development, that is, the ratio of private sector credit to GDP and the ratio of broad money supply to GDP exerts positive and statistically significant in explaining the economic growth..However the findings of this study differ with that Akniboade (2000) and Mushi (1998) but concur with the finding of the studies by Hyuha (1982, 1984) Maje (1981). In sum therefore, result of this study support supply-led and demand follow hypotheses as hypothesized.

5.8 Summary

This chapter explored the descriptive analysis and unit root characteristics of the data used in the analysis. The unit root characteristics of the data carried out using ADF unit root test and finds that the data are stationary after differenced once. It followed by cointegration analysis using Johansen's approach and Vector error correction VECM. Granger causality was estimated. The results obtained confirm the short-run

causality running from Log (GDP) to Log (PS) ,there have no causality between Log (GDP) and Log (M2/GDP) found, the study also confirms the long run causality running from financial development to economic growth; hence, supports the supply leading hypothesis developed Odhiambo (2007) Ghimary finance led hypothesis for Tanzania. The next chapter presents the summary, conclusion and policy implications of the results.

CHAPTER SIX

6.0 CONCLUSIONS

6.1 Introduction

This chapter consists of six sections. Section 6.1 presents the introduction part, section 6.2present the summary of the study. Section 6.3 discusses main findings of the study. Section 6.4 present and discusses the policy implications of the study. Section 6.5 describes limitations of the study and 6.6 examine areas for further research.

This study empirically investigated the causal relationship between financial development and economic growth in Tanzania for the 1980-2010 periods. The motivation of this arose from the fact that since the adoption of financial sectors 1991, it was expected to upsurge the economy since the financial sectors was regarded as the judicious for economic growth. Contrary, Tanzania now is still facing many challenges that rise from the financial sectors that hampering to economic growth forinstance the persistence of financial repression which is characterized by low investment and underdevelopment of financial system, restriction on entry into banking, high reserve requirement on deposit, legal ceiling on bank lending and deposit rate, and capital control. All these features act as the catalyst for poor performance of financial sectors such as inadequately access of credit for investors, high interest rate for borrower, very strict condition for borrowers such demanding of collateral from borrowers which finally make many people fail to access the loan.

The study also is motivated to examine the direction between financial development and economic growth in Tanzania. Very few studies have been conducted to investigate the direction between financial development and economic growth, the

direction of this relationship recognized as supply leading or demand leading view or twofold. The study investigate the direction between financial development economic growth and it find that, the financial development leads and economic growth follow thus support the supply leading hypothesis.

6.2 Main Findings

This study aimed to investigate the causal relationship between financial development and economic growth in Tanzania. In order to establish this causality, the study utilizes cointegration, VECM and granger causality techniques in bivariate framework. The properties of data were analyzed to determine their stationarity using the ADF unit root tests which indicates that the series are*1*(1). The result of the cointegration based on Johansen's test of cointegration indicates that there is a long run equilibrium relationship between the financial development and economic growth; however, they may be in disequilibrium in the short run.

The long run causality tests based on t-test statistics reveal that the coefficient of the vector error correction term (VECT) is significantly and negative at 5 percent in the proxies of FD, whereas it is positive and not significant at the 5 percent level in the proxy of GDP. The granger causality show that there is unidirectional causality running from financial development to economic growth, which supports the supply leading hypothesis in the long run for Tanzania.

Short run Granger's causality test based on standard F-test which test jointly the significance of the coefficients of the explanatory variables in their first difference indicating that Log (M2/GDP) and Log (GDP) they are not significant at the 5 percent level, and there are moving independently, the proxy of FD Log (PS) is significant at 5 percent and indicate that causality run from economic growth to

financial development for the proxy (PS) causal relationship between financial development and economic growth running from economic growth to financial development in short run in Tanzania.

6.4 Policy Implications

According to the findings of the study a financial development spur substantially economic growth, the study recommends that the government need to develop more strategies that will further enhance the functioning of the financial system. Some of immediate requirements include improvement of macroeconomic environments, improvement of regulation and supervision of local banks and improvement of regulatory environment for the non bank financial institutions.

Private financial institutions should widen their network to encompass the rural area where the rest of vigorous private entrepreneurial groups can be reached instead of concentrating in major cities only .If this is affected, increase in saving mobilized will result. The government should also play the role of creating an enabling environment for development of private sector. Participation in financial market of foreigners as a potential mechanism of enhancing competition and inflow of foreigner capital to domestic capital market. Thus foreigner participation in the domestic market should be encouraged and promised in order to increase saving. The government also should ameliorate the financial repression policy particularly the restriction on the transfer of asset through the imposition of capital control because this type of repression reduce the productivity of capital and lower saving, which finally hampering the growth Roubin and Sala-Martin (1992) .The challenges however is for government to continue creating a more conducive environment for the financial sector to grow fast in order to promote a further economic growth.

6.4.1 Tools for Policy Implementation

The Bank of Tanzania should to work closely with the Ministry of Finance to implement the following policies.

6.4.1.1 Price Stability Policy

By using the monetary policies such as Open market operations, repurchase agreements, discount window and Lombard facility, foreign exchange market operations, statutory minimum reserve requirements, and moral suasion In general these, monetary policy will spur successful in decline in inflation coupled with the high rate of economic growth.

6.4.1.2 Exchange Rate Policy

The Bank of Tanzania should continue to maintain a flexible exchange rate policy, with the exchange rate obtained in the IFEM being the anchor for exchange rates across the country. The flexibility exchange rate they are highly volatile and may affect economic growth through channel of trade, investment and maintaining the price stability.

6.4.1.3 Interest Rate Policy

Interest rates should continue to be market-determined, with the Bank of Tanzania continuing to structure its use of monetary policy instruments in a manner that will sustain stability in financial markets. In addition, the Bank of Tanzania should continue to collaborate with the government in implementing measures to remove the remaining structural and institutional limitations to monetary policy, and deepen financial intermediation within the framework by enhancing the majority to have a chance to access a financial services for stance provision of health credit to the client by low interest rate, that will stimulate availability of liquidity that will be used for investment.

Limitation of this study rests in its scope, data availability and reliability. The study covers the period from 1980 to 2010 in exploring the causal relationship between financial development and economic growth in Tanzania. Since the study uses secondary data, Tanzania like other developing countries has been facing data problems. Most of data are inconsistent with one source to another in which the reliability and quality is normally low. Measurement errors in variables tend to reduce the significance of the coefficient. The other limitation emanates in data compilation from the International Financial Statistics (IMF). Accurate data are difficult to collect as the common problem among the developing countries.

Furthermore, the model used did not capture all the variables that in the theory ought to influence economic growth for instance the model didn't capture the externality(in terms of human capital) on growth. This because the measuring of the stock of human capital is difficult and with many limitations for a developing country like Tanzania. However, the omission of this variable does not have any impact on our finding.

6.6 Area for Further Research

Due to the time constraint and limited data, further work to be done on the causal relationship between financial development and economic growth is to introduce more variables that measures economic growth. Future research may need also to explore further by using indicators of capital market development and examines whether such indicators performs better in predicting economic growth than in bank based ones.

REFERENCES

Abu-Bader, S. and Abu-Qarn, A. M. (2005). Financial development and economic growth: time series evidence from Egypt, Discussion Paper No.05-14a

Abu-Bader, S. and Abu-Qarn, A. M. (2008). Financial development and economic growth empirical evidence from MENA countries. Review of Development Economics 12. 803—817

Agbetsiafa, D. K. (2003). The finance growth nexus: evidence from sub-Saharan Africa. International Advances in Economic Research 9, 172—189

Agbetsiafa, D., (2004). The finance growth nexus: evidence from Sub-Saharan Africa. Savings and Development 38, 271-288

Akinboade, O. A. (1998). Financial development and economic growth in Botswana: a test for Causality. Savings and Development 22, 331-348

Akinboade, O.A. (2000). The relationship between Financial Deepening and economic growth economic growth in Tanzania "*Journal of International Development"*, Vol.12, pp.939-950

Amusa, H.A. (2000). Financial International and Economic Growth: The case of South Africa. University of Pretoria South Africa.

Ang. B. J., & McKibbin, W. J. (2005). "Financial liberalization, financial sector development and growth" *Finance and growth: Institutional considerations and causality. University of East London, Department of Economics Working Paper.*

Aziakpono, M. J. (2003). "Financial development and economic growth in Southern Africa" National University of Lesotho, Department of Economics.

Bank of Tanzania (1981). Tanzania's Twenty Year of Independence (1961-1981): A Review of Political and Economic Performance" BOT mimeo.

Bank of Tanzania (various issues) *Economic Bulletin*, Dar es Salaam.

Barro (1991). Economic growth in cross section countries. *Quarterly Journal of Economics*, 106(2), 407-443.

Darrat, A. F. (1999). Are financial deepening and economic growth casually related? Another look at the evidence. International Economic Journal 13, 19 -35.

Dematriades P.O. and Hussain, K.A. (1996). Does financial development cause economic Growth? Time series evidence from 16 countries. Journal Development Economics 51, 387 - 4.

Dickey, D. and Fuller, W. (1981). Likelihood ratio statistics for autoregressive time series.

Egbetunde, T. (2009), Financial intermediation and economic growth in sub-Saharan Africa (1980-2005). M. Sc thesis, Obafemi Awolowo University, Nigeria

Eita, J. H., & Jordaan, C. A. (2007).”A causality analysis between financial development and economic growth for Botswana”. *University of Pretoria.Workingpaper2007-22*.

Empirical evidence for three SSA countries” *African Development Review*, 19, 257-28.

Engle, R. F. and Granger, C. W. J. (1987). Cointegration and error correction representation estimation, and testing. Econometrical 55, 252 —276.

Ghali, K. H. (1999). “Financial development and economic growth” The Tunisian experience *Review of Development Economics*, 3, 310-322

Greenwood, J., & Jovanovic, B. (1990). “Financial development, growth and the Distribution of income”. *Journal of Political Economy*, 98, 1076-1108

Gujarati, D. (1995). Basic econometrics. New York: Mcgraw-Hill

, K. A. (1999).” Finance and growth in Egypt”. University of Kent, Department of Economics Canterbury CT2 7NP.

Johansen, S. (1988) Statistical analysis of cointegrating vectors. Journal of Economic Dynamics

Johansen, S. and Juselius, K. (1990).Maximum likelihood estimation and inference integration with application to demand for money.Oxford Bulletin of Economics and Statistics 52, 169 — 210.

King, R. G., & Levine, R. (1993).Finance and growth: Schumpeter might be right *Quarterly Journal of Economics* 108, 717-737.

Levine, R. (1997).” Financial development and economic growth” Views and agenda. *Journal of Economic Literature*, 35(2), 688-726.44

Levine, R. (1998). “The legal environment, banks, and long-run economic growth”. *Journal of Money, Credit and Banking*, 30, 596-620.

Levine, R. (2003). More on finance and growth: “More finance more growth”? *Federal Reserve Bank of St. Louis Review*, 85, 31-46

Loayza, N., & Ranciere, R. (2002). “Financial development, financial fragility, and growth Central Bank of Chile.

Luintel, K.B. and Khan, M. (1999). “A quantitative reassessment of the finance growth nexus: Evidence from a multivariate” VAR. *Journal of development economics*, 60, 381-405

Mohapi, P.L., & Motelle, S.I. (2007). “The finance-growth nexus in Lesotho”: causality revelation from alternative proxies. *J. Stud. Econ Econometrics*, 2007.

Monaster Center for Economic Research, Ben-Gurion University of Negev, Israel.

Mushi, F.A. (1998). ”The impact of financial policies and Economic Growth In Tanzania”. Unpublished MA Dissertation. University of Dar es salaam.

Odhiambo, N. M. (2004). Is financial development still a spur to economic growth? Causal evidence from South Africa. Savings and Development 28, 47-6.

Odhiambo, N. M. (2007). ” Supply-leading versus demand-following hypothesis:

Pagano M. (1993). ’Financial market and Growth: An Overview’, *European Economic Review*, Vol.37.pp613-22.

Patrick, H.T. (1996). ”Financial development and economic growth in underdeveloped Countries *Economic Development and Cultural change*, 14, 174-18.

Shaw, E.S., (1973). “Financial Deepening in Economic Development”. Oxford University Press, London and New York

Singh, A. (1997). ”Financial liberalization, stock markets and economic development” *Economic Journal*, 107, 771-782.

Sorensen, P. B., & Whitta, J. H. J. (2005). *Introducing advanced macroeconomics:* Workingpaper,No.145.Retrievedfromhttp://papers.ssrn.com/so13/papers.cfm? abstract_id=85955

APPENDICES

1.1 : Test on Normality in the Variables

Year	GDP (%)	M2 (%)	GDP	MS2	M2/GDP	PS
1980	3	26.9	44,228	17,519.80	0.41	3.65
1981	-0.5	18.1	51,753	20,694.70	0.339	1.96
1982	0.6	19.5	61,923	24,728.60	0.339	10.34
1983	-2.4	17.7	69,522	29,127.40	0.418	4.43
1984	3.4	3.7	85,392	30,218.10	0.35	6.78
1985	4.6	29	112,213	38,971.00	0.347	7.84
1986	1.9	29.2	148,391	50,353.40	0.339	10.27
1987	4.9	32	329,586	66,442.90	0.2	9.43
1988	4.4	40	506,426	92,987.70	0.18	1.58
1989	2.6	33.1	633,752	123,800.10	0.195	14.06
1990	6.2	43.8	830,693	178,061.80	0.214	13.9
1991	2.8	30.8	1,086,273	232,900.10	0.214	14.03
1992	1.8	51.3	1,369,874	352,272.20	0.257	9.74
1993	0.4	34	1,725,535	472,017.30	0.273	10.8
1994	1.4	54.9	2,298,866	647,840.30	0.28	9.7
1995	3.7	23.8	3,020,499	765,908.40	0.253	6.66
1996	4.2	-9.6	3,767,642	684,906.00	0.18	3.09
1997	3.3	13.3	4,708,627	760,353.30	0.16	3.55
1998	4	10.8	6,283,970	844,292.40	0.134	3.86
1999	4.8	18.6	7,222,561	972,088.60	0.135	4.18
2000	4.9	14.8	8,152,789	1,093,610.90	0.134	4.09
2001	6	16.3	9,100,274	1,221,919.80	0.134	5.38
2002	7.2	26.6	10,444,507	1,516,807.30	0.145	6.83
2003	6.9	17.3	12,107,060	1,745,738.00	0.144	8.08
2004	7.8	27.2	13,971,591	2,125,838.90	0.152	9.24
2005	7.8	38.5	15,965,293	2,960,415.60	0.185	10.18
2006	6.7	21.5	17,941,268	3,454,491.00	0.192	12.74
2007	7.1	20.5	20,948,403	4,394,622.70	0.209	14.89
2008	7.4	19.8	24,728,005	5,468,460.80	0.22	16.08
2009	6	18.4	28,058,587	6,603,404.40	0.24	15.33
2010	7	24.7	32,293,479	8,042,113.20	0.25	16.21

Source: BOT report-50 Years of independence, Economic Bulletins, Operation Report and Bank of Tanzania and various issues

1.2: Diagnostic Test Results

Table 1.2 Ramsey Reset Test Results

F-statistic	12.35832	Probability	0.001514
Log likelihood ratio	67.10228	Probability	0.000761

Table (1.3) Chow Forecast Test: Forecast from 1984 to 2010

F-statistic	0.811833	Probability	0.653060
Log likelihood ratio	83.67738	Probability	0.000000

Table (1.4) White Heteroskedasticity Test:

F-statistic	2.883789	Probability	0.013470
Obs*R-squared	18.68378	Probability	0.028020

Table (1.5) Breusch-Godfrey Serial Correlation LM Test:

F-statistic	3.451354	Probability	0.016264
Obs*R-squared	6.08331	Probability	0.042756

Table (1.6) Autoregressive Conditional Heteroscedasticity Test:

F-statistic	1.13456	Probability	0.025913
Observation R^2	1.168219	Probability	0.027976