

Determining the Effect of Money Supply as a Ratio of GDP on Economic Growth in Kenya from 1985–2020

Authors

Purity Wambui Gachugu⁽¹⁾; Kenneth Andayi Luseno⁽²⁾

Main author's email: purityne@yahoo.com

(1,2) Egerton University, Kenya.

Cite this article in APA

Gachugu, P. W., & Luseno, K. A. (2023). Determining the effect of money supply as a ratio of GDP on economic growth in Kenya from 1985-2020. *Journal of policy and development studies*, 2(1), 100-110. <https://doi.org/10.51317/jpds.v2i1.349>



A publication of Editon Consortium Publishing (online)

Article history

Received: 30.03.2023

Accepted: 06.04.2023

Published: 11.05.2023

Scan this QR to read the paper online



Copyright: ©2023 by the author(s). This article is an Open Access article distributed under the terms and conditions of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (CC BY-NC-SA 4.0).



Abstract

The study investigated the relationship between financial deepening and economic growth using money supply as a financial deepening proxy. Data on GDP was used as proxy for economic growth. The study was based on financial intermediation theory backed up by other theories related to financial deepening. The study adopted a historical research design. A bivariate Autoregressive model (bVAR) was used in the study. Data was analysed using both descriptive and inferential statistics where. The findings reveal that a unit rise in the money supply as percentage of GDP will result in a 0.3215 unit decrease in GDP growth in the long-run. This is because money supply is harmful to the economy in the long-run. There are controversies on the relationship between economic growth and financial deepening, that is, there are no universal conclusions on the nature of relationship between financial deepening and economic growth and only a few studies have been done on the relationship between financial deepening and economic growth in the recent years. The study established that money supply has a negative effect on economic growth in the long-run in Kenya. In this regard, the study recommends that the government should tighten the monetary policy, which could either be through slowing down the open market operation activities such as floating of infrastructure bonds.

Key Terms: Economic growth, financial deepening, gross domestic product (GDP), money supply.

INTRODUCTION

Shaw and McKinnon (1973) defines financial deepening as the increase in the pool of financial services in all levels of the society. It may also be defined as the improvement in the ratio of money supply to the Gross Domestic Product, which in turn implies that more money is available in the economy. The increased amount of liquid money in the economy gives more opportunities for investment and for growth purposes. Increased opportunities for investment then leads to economic growth. It may also be defined as the process, which leads to improvement in quality, quantity and efficiency of the services offered by financial intermediaries (Sackey & Nkurumah, 2012).

Economic growth is associated with the growth in working population, increased capital formation, technological advancement and increase in the number of resources. Economic growth is measured in quantitative terms. Iram and Nishat (2009) argue that health of an economy can be indicated by the economic growth. They also state that capital is a prerequisite, which can be used to maintain and enhance the momentum of growth.

In the last two decades, several reforms have taken place in the Kenyan banking sector, which have impacted on financial deepening in the sector (KIPPRA, 2009). The deepening has been driven by financial innovations in the sector. A good example of such innovation was the reduction of retention ratio by the CBK from 6 to 5.25 per cent which made loans more affordable to the citizens (KIPPRA, 2009). There was also the transformation of NBFIs like family bank and equity into commercial banks and the introduction of new financial services and products in the banking sector all which lead to financial deepening in the banking sector. The rationale behind the reforms was to strengthen the sector, which was experiencing challenges in 1980's. The reforms have resulted into deepening the banking sector leading to expansion of financial assets and techniques to meet the new demands and circumstances. The development in the sector is evident through the increase in money supply, growth of domestic credit with private sector credit dominating the sector and increase in net domestic and foreign asset.

Over the past few years financial deepening has attracted much attention from finance and development experts. In the current years, there has been a shift from saving money in terms of real assets into financial assets. Kenya has been undergoing fluctuations in the trend of economic growth. Working on financial sector development through the changes in money supply is likely to have an influence on the economic growth. The recent changes in the financial market and how it affects the real sector of the economy has not been given enough attention. Much controversies have been generated which means that further research needs to be done on the nature of relationship between financial deepening and economic growth using a number of variables. One controversy is that financial growth may promote economic growth by its ability to mobilize more investments thus increasing returns to financial resources, and thereby raising productivity. Another controversy is that economic growth is a response to the expansion of financial markets and its progress. The existing literature show no universal agreement on the nature of relationship between economic growth and financial deepening. The study addresses this factor by establishing the nature of relationship between Financial deepening and Economic growth both in the long-run and short-run. In addition, only a few studies have been done on the relationship between financial deepening and economic growth in the recent years.

LITERATURE REVIEW

Financial liberalization is defined as the process of liberalizing financial systems of a nation aimed at creating favourable environment in order to increase money demand in the economy. Liberalization takes place in two ways. The first way is through increasing the financial resources of a country so as to cause supply induced demand for money. The second way through which financial liberalization takes place is through creating favourable environment for investments within the economy.

This theory was pioneered by Mic Kinnon and Shaw (1973) where they advocated for liberalization of financial sector thereby accelerating economic growth. According to this theory financial sector liberalization gives room for financial deepening. Financial deepening in turn reflects increased use of

financial intermediation by savers, investors and monetization of the economy. Lowering the financial market frictions causes domestic savers to increase and also ends up attracting foreign capital. The theory by Mic Kinnon and Shaw (1973) is anchored on assumption that higher rate of interest results to high degree of financial deepening which implies that there will be high savings. These financial savings will be efficiently allocated than if the savings were invested without the financial intermediaries (Thirlwall, 2005). This theory suggests that there is complimentary relationship between the financial assets and physical capital accumulation causing economic growth in developing countries. The theory has a limitation in that it does not offer a complete definition of financial liberalisation.

There are also studies conducted on the effects of money supply on economic growth in Kenya. Odhiamboh (2007) conducted a study on the role of financial development in South Africa. He used three proxies of financial development against economic growth proxies using the real GDP. The proxies used included the ratio of M_2 to GDP, ratio of currency to narrow money and bank claim ratios on private sector to GDP. Odhiamboh employed Johansen-Juselius co-integration approach together with the vector error correction model to reveal the demand following response between economic growth and financial development. The results rejected the supply-leading hypothesis which states that financial growth causes economic growth. The study found out that economic growth leads to financial deepening.

Safder (2014) investigated the effects of financial development on economic growth in Pakistan. The study examined the long run relationship between financial deepening and economic growth using foreign direct investment and the level of inflation. Safder examined stationarity among variables using ADF and the results showed that all variables are integrated of order zero. Johansen's Co-integration test showed that financial deepening, inflation, foreign direct investment and economic growth are co-integrated which implied that there is long run relationship among variables in Pakistan. VECM analyses showed existence of short-run relationship among the variables used. Error Correction Model for economic growth and foreign direct investment

showed that there is adjustment effect towards the long run. The granger causality test showed unidirectional relationship among variables.

Ghildiyal et al. (2015) assessed the causal impacts of financial deepening on economic growth in India. The study analyzed the long term equilibrium relationship using autoregressive distributed lag (ARDL) between financial deepening and growth. The study established that the level of financial deepening influences the level of economic growth of an economy. The study established that for development to occur in a nation then the financial sector of an economy must be well developed though efficient intermediation functions. Economic growth was measured using the GDP per capita while financial deepening was measured using the ratio of M_2 to GDP. Stock market development was measured by getting the ratio of market capitalization and GDP. Ratio of credit to private sector to GDP was used to measure banking sector development. This study concluded that there is bidirectional causality between financial deepening and economic growth.

Ngugi et al. (2006) studied capital market, financial deepening and economic growth in Kenya. Their study focused on the stock market and bonds market development. The study showed that there is significant relationship between economic growth and capital and financial deepening. The study also found out that the non-bank financial services showed no significant relationship. The effect of financial deepening and economic growth get affected by cost of doing business and investment.

Chogii et al. (2014) examined the change in GDP growth as a result of changes in stock market development in Kenya. The study used the data from NSE for the period between 1992 and 2011 for Kenyan stock market. This study was conducted following controversies in the roles played by financial deepening on economic growth. This study used correlation study design. The findings indicated that capital market deepening causes economic growth.

FINDINGS AND DISCUSSION

Descriptive Statistics

Summary statistics for all variables used in this study were explored before fitting in the data for

estimation. This enabled the researcher to establish the distributional characteristics of variables which is a necessary step in data analysis. Summary statistics primarily involved measures of central tendency, in this case, the arithmetic mean of all the variables was

calculated, and the standard deviation was used as a measure of distribution, minimum and maximum values were also provided. Summary Statistics results are presented in Table 1.

Table 1: Summary Statistics

Variables	N	Mean	Standard Deviation	Skewness	Kurtosis	Max	Min
GDP growth	35	4.1046	2.3366	-.4674	2.2884	-0.7994	8.4057
Broad money	35	36.3676	4.3225	.4573	2.7570	26.6818	43.2453
Terms of Trade	35	93.5650	10.8144	-.1227	2.3420	70.1493	114.019
Investment	35	18.6017	1.9842	.07404	2.0836	15.3879	22.8797

Table 1 displays summary results in the form of mean, standard deviation, skewness and Kurtosis coefficients. The study focused on Kenya and time series data was collected from a period span of 34 years, ranging between 1985 and 2020. GDP growth has a mean of 4.1046%, broad money supply as a percentage of GDP has a mean of 36.3676%. The mean for terms of trade is 93.5650 while investment as a percentage of GDP has a mean of 18.6017 per cent.

The Table also contains standard deviation results. Kothari (2012) describes the standard deviation as the length at which the data has spread out from the arithmetic mean. Standard deviation is vital in detecting any form of outliers in the data. Larger standard deviation is an indication that the data has gone out further from the mean and vice-versa. GDP growth has a standard deviation of 2.3366, broad money supply as a percentage of GDP has a standard deviation of 4.3225. The mean for terms of trade is 10.8144 while investment as a percentage of GDP has a standard deviation of 1.9842. All these variables have standard deviation that are lower than the mean. This means that there are no outliers in the dataset. Secondly, it means that none of the data is volatile.

Skewness is a measure of asymmetry. It is significant in explaining the deviation of the mean from the median, and therefore, showing the dispersion of the data. From the findings displayed in Table 1 GDP

growth and terms of trade are negatively skewed with skewness coefficients of -0.4674 and -0.1227 respectively. On the other hand, broad money supply as a percentage of GDP and investment as a percentage of GDP are positively skewed with skewness coefficients of 0.4573 and 0.07404 respectively. All the variables have coefficients that are less than 1 in absolute terms, an indication that the data is symmetrical. In economic analysis, these findings denote that the results produced will be accurate and thus the data matches the required conditions of economic modelling (Kothari, 2012).

Kurtosis is a measure of heaviness of the tail relative to normality of data involved. The measure is valuable in detection of outliers in the data that are represented by heavy tail (Kothari, 2012). The kurtosis coefficients for GDP growth is 2.2884, broad money supply is 2.7570, credit to the private sector is 2.3420, value of shares traded is 2.3375, terms of trade is 2.3420 and that for investment is 2.0836. Kurtosis coefficients with absolute values, which are higher than 3 are an indication of the presence of Kurtosis in the data while those with lower absolute values of 3 show the absence of it. The variables in this study have absolute values that are below three and thus they can be termed as Platykurtic as they have less extreme value than a normal distribution. The study can therefore, draw the conclusion that the variables are normally distributed satisfying the parametric requirements.

Correlation Analysis

Correlation refers to the association between two variables. It is measured by coefficients that are scaled in a -1 to +1 range, where 0 denotes no linear or monotonic association - 1 denotes perfect negative association while +1 denotes perfect positive association. Values that are greater than 0.5 in

absolute represent strong correlation while those below 0.5 represent a weak association. The relationship becomes stronger and eventually approaches a straight line as the coefficient approaches an absolute value of 1. Pearson's correlation results are presented in Table 2.

Table 2: Pearson's Correlation Matrix

	GDP growth	Broad Money	Credit to private sector	Shares traded	Terms of trade	Investment
GDP growth	1					
Broad money	0.0415	1				
Terms of Trade	-0.0662	0.5925**	0.3989*	0.4656**	1	
Investment	0.5479**	0.1552	0.2897	-0.2416	-0.3166	1

* Significant at 5 percent (2-tailed)

** Significant at 1 percent (2-tailed)

Table 2 displays a matrix of Pearson's correlation results. It is shown that there is a strong positive and significant (at 1%) correlation (0.5479) between investment as a percentage of GDP and GDP growth. This implies that an increase in investment will lead to rise in the growth of GDP. There is a moderate positive (0.5925) correlation between terms of trade and broad money supply as a percentage of GDP which means that an increase in terms of trade will lead to rise in broad money supply as a percentage of GDP. These findings reveal that most variables are not significantly associated with each other and those that are have very weak correlation which suggests that there is no multicollinearity among the variables in the dataset. The study shows that the variables are

positively but are insignificantly correlated. The data can thus be used as it is.

Unit Root Test

Time-series data are always prone to problems of unit root which refers to a state where the mean and variance of the variable are not consistent over time rendering the data non-stationary. If ignored and the researcher goes ahead with estimation, it is likely to result in spurious approximations (Gujarati, 1995). The study used Augmented Dickey-Fuller and Phillips Perron tests to diagnose for unit root. Results are displayed in Table 4.3

Table 3: Unit Root Test

Variables	ADF Test Z(t)		PP test Z(t)		Order of Integration
	At level	First Difference	At level	First Difference	
GDP growth	-3.204*	-	-3.194*	-	I(0)
Broad money	-2.555	-6.464**	-2.563	-6.411**	I(1)
Terms of Trade	-2.055	-5.691**	-2.176	-5.696**	I(1)
Investment	-2.819	-5.855**	-2.810	-6.287**	I(1)

* Significant at 5 percent (2-tailed)

** Significant at 1 percent (2-tailed)

Table 3 presents Unit root results using Phillips Perron and Augmented Dickey-Fuller Approaches. GDP growth is found to be stationary in levels. On the other hand, Broad money supply, terms of trade and investment are found to be non-stationary in levels and had to be differenced once to become stationary. According to Harris and Sollis, (2003) ARDL model requires the variables to be either integrated of order zero or integrated of order one even though the data is estimated in levels. It can, therefore, be concluded

that all the variables in the dataset have met this condition.

Lag Selection

Before estimation, it is vital to determine the optimal length of lags in an ARDL model due to their sensitivity to length. The study used Akaike Information Criteria (AIC) due to its suitability for smaller samples, that is, with less than 60 data points. Results are displayed in Table 4.

Table 4: Selection-Order Criteria

Lag	LL	LR	df	P	FPE	AIC	HQIC	SBIC
0	-413.995				58252.1	27.9997	28.0893	28.2799
1	-338.702	150.59	36	0.000	4471.08	25.3801	26.0077	27.3418
2	-303.077	71.248	36	0.000	6284.34	25.4052	26.5706	29.0483
3	-242.178	121.8	36	0.000	3233.99	23.7452	25.4486	29.0697
4	418.936	1322.2*	36	0.000	5.3e-14*	-17.929*	-15.688*	-10.921*

From Table 4 it can be inferred that the model should have a maximum lag length of 4 going by the Akaike Information Criterion (-17.929*). The same is suggested by other tests; Final Predicted Error (5.3e-14*), Hannan-Quinn Information Criterion (-15.688*) and Schwarz Bayesian Information Criterion (-10.921*).

Cointegration Test

The conducted cointegration tests in a bid to determine whether there is a long-run relationship

that existed among the variables. In this quest, Pesaran, Shin, and Smith (2001) Bounds Cointegration test was carried out. The test is based on a null hypothesis that postulates a no long-run relationship in the model and an alternative of an existence of relationship among the variables. Decision is determined by evaluating how far or near the F and t values are from zero compared to the critical values. Cointegration is displayed in Table 5.

Table 5: Bounds Contegration Test

Test	10 percent		5 percent		1 percent		P-value	
	1(0)	1(1)	1(0)	1(1)	1(0)	1(1)	1(0)	1(1)
F statistic	2.571	4.016	3.177	4.861	4.720	6.997	0.000	0.004
t- statistic	-2.477	-3.789	-2.873	-4.274	-3.703	-5.296	0.000	0.004
F = 8.403 t = -5.817								

The F- statistic 8.403 is higher than critical values of I (1) regressors, while, t-statistics -5.817 is less than the critical values of I (1) regressors. The null of no cointegration is rejected and concludes the model containing GDP growth, terms of trade, broad money supply and investment exhibits a long-run relationship.

Regression Results

The model estimated an ARDL (2,0,2,2,1,0) regression using the AIC procedures. The data was regressed in levels as suggested by (Pesaran, Shin, and Smith, 2001) because all the variables were either integrated of order one or zero. The long-run regression results are presented in Table 6 while the short-run regression results are presented in Table 7.

Table 6: Estimated Long-Run Coefficients Using the ARDL Approach

	D.gdp	Coefficient	Std. Err.	t	P>t
ADJ					
	GDP				
	L1.	-1.3481	0.23176	-5.82	0.000
LR					
	Money supply	-0.3215	0.11283	-2.85	0.011
	Terms of Trade	0.08511	0.0322	2.64	0.017
	Investment	0.65102	0.13764	4.73	0.000

Table 6 displays ARDL regression results. The speed of adjustment coefficient is -1.3481 and significant at 1 per cent (P-value=0.000). This confirms the presence of long-run association that had been previously established by Pesaran, Shin, and Smith (2001) Bounds cointegration test. Specifically, the results illustrate that any deviation in the long-run will be stabilized at 13.48% adjustment rate per year. These findings imply that instead of monotonically converging to the equilibrium path directly, the error correction process fluctuates around the long-run value in a dampening manner. However, once this process is complete, convergence to the equilibrium path is rapid (Narayan

& Smyth, 2006). Individual results are discussed in the following subsections.

The estimated long-run coefficient for the money supply as a percentage of GDP is -0.3215 and statistically significant at the 5 percent level. The findings reveal that a unit rise in the money supply as percentage of GDP will result in a 0.3215 unit decrease in GDP growth in the long-run. This is because money supply is harmful to the economy in the log-run. The results are consistent with the findings of a study conducted by Kipkirui (2014). The study found out that increase in money supply as a percentage of GDP has a negative effect on GDP in Kenya for the period 1970 to

2012. The study explains that one cause of such phenomena is rise in domestic credit which raises money supply and in turn affect GDP negatively. The results are also consistent with a study by Kiganda (2014) which found out that money supply is a significant determinant of inflation in the long –run and. Inflation on the other hand affects GDP negatively.

CONCLUSION AND RECOMMENDATIONS

Conclusions: This study concluded that money supply as ratio of GDP has no significant effect on economic growth in Kenya. From the findings, a negative and significant coefficient was obtained for the money supply. Thus, the null hypothesis is rejected and hence in the long-run, money supply has a negative effect on economic growth in Kenya. These findings mean that money supply has the ability to misallocate the prices, inflating the prices of long-term assets such as the

stock and housing markets. This factor is likely to lead to an economic downturn in the long-run, as consumer would not be able to afford some of these assets.

Recommendations: The study established that money supply has a negative effect on economic growth in the long-run in Kenya. In this regard, the study recommends that the government should tighten the monetary policy as far as money supply is concerned. This could either be through slowing down the open market operation activities such as floating of infrastructure bonds. These activities lead to reduction in economic growth in the long-run as they are likely to crowd-out private investment. Increase in money supply leads to an increase in prices and has negative effect on production. This in turn has negative effect on inflation.

REFERENCES

- Adenuga, A. O. (2010). Stock Market Development Indicators and Economic Growth in Nigeria (1990-2009): Empirical investigations, *Journal of Economic Literature* 40, 48(1), 33-70
- Aduda, J., Chogi, R. & Murati, M.T. (2014). The Effects of Capital Market Deepening on Economic Growth in Kenya. *Journal of Applied Finance and Banking*, 4(1), 141-149
- Akinboade, O, A. (2000). The Relationship between Financial Deepening and Economic Growth in Tanzania. *Journal of International Development*, 2(12), 939-950
- Allen, F., & Santomero, A. M. (2001). What do Financial Intermediaries Do. *Journal of Banking & Finance*, 25(2), 271-294.
- Al-Yousuf, Y. K. (2002). Financial Development and Economic Growth: Another Look from Evidence from Developing Countries. *Review from Financial Economics*, 11(2), 131-150
- Audu, N. P., & Okumoko T. P. (2013). Financial Development and Economic Growth in Nigeria. *European Journal of Business and Management*, 5(19). 1-14
- Bakang, M.L (2015). Effects of Economic Growth on Financial Deepening in Kenya. *International journal of business and commerce*, 4(7), 01-50
- Callen, T. (2008). What Is Gross Domestic Product? *Finance & Development*, 48-49.
- Central Bank of Kenya (2018). Annual Report and Financial Statement 2017/18.
- Chogi, R, Aduda, J.O & Murayi, M. T, (2014). The Effect on Capital Deepening on Economic Growth in Kenya. *Journal of Applied Finance and Banking*, 4(1), 141-150
- Choong, C. K., Yusop, Z., Law, S. H., & Sen, V. L. (2004). Financial development and economic growth in Malaysia: The stock market perspective. *Macroeconomics*, 4(8), 211-250.
- Christopoulos, D.K., & Tsionas, E.G, (2004). Financial Development and Economic Growth: Evidence from Panel Unit Root and Cointegration Test. *Journal of Development Economics*, 73(1), 55-74
- Cortina, J. M. (1993). Interaction, Nonlinearity, and Multicollinearity: Implications for Multiple Regression. *Journal of Management*, 19(4), 915-922.
- Davidson, P. (2017). *John Maynard Keynes*. Palgrave Macmillan, Springer.
- Dritsakis, N., & Adamopoulos, A. (2004). Financial development and economic growth in Greece: An empirical investigation with Granger causality analysis. *International Economic Journal*, 18(4), 547-559.

- Eckbo, B. E., & Masulis, R. W. (1992). Adverse Selection And The Rights Offer Paradox. *Journal of Financial Economics*, 32(3), 293-332.
- Favara, G. (2003). An Empirical Reassessment of the Relationship between Finance and Growth. *IMF Working Paper no.03/123*
- Financial Sector Regulators. (2020). *Kenya Financial Sector Regulatory Report. Issue No. 20*
- Fuchs, V. R. (1990). The Health Sector's Share of the Gross National Product. *Science*, 247(4942), 534-538.
- Ghidiyal, V., Pokhriyal, A., & Mohan, A. (2015). Impact of Financial Deepening and Economic Growth in Indian Perspective: ARDL Bound-Testing approach to Co-integration. *Asian Policy Development Review*, 3(3), 49-60.
- Goldsmith, R. (1969). *Financial Structure and Development*. Yale University Press.
- Granger, C. W. J. (1969). Investigating the Causal Relations by Econometric Models and cross-spectral Methods. *Econometrica*, 97(1969), 424-438
- Gujarati, D. N. (1995). *Basic Econometrics*, 4th Edition. United State Military Academy, New York.
- Harris, R., & Sollis, R. (2003). *Applied Time Series Modelling and Forecasting*. Wiley, West Sussex.
- Hassler, J., & Wolters, J. (2006). Autoregressive Distributed Lag Models and Cointegration. *Advances in Statistical Analysis*, 90(10), 59-74.
- IMF Sector Reforms and Economic Growth and Efficiency. (2015). *IMF Working Paper*, 95(103).
- Iram, S., & Nishat, M. (2009). Sector Level Analysis of FDI-Growth Nexus: A Case Study of Pakistan. *The Pakistan Development Review*, 48(4), 875-882.
- Johnston, R. B., & Pazarbaşıoğlu, C., (1995). *Linkages between Financial Variables*.
- Kiganda, E. O. (2014). Relationship between inflation and money supply in Kenya. *Journal of Social Economics*, 2(2), 63-83.
- King, R. G., & Levine, R. (1993). Finance and Growth: Schumpeter Might be Right. *The Quarterly Journal of Economics*, 108(3), 717-737.
- King, R. G., & Levine, R. (1993). Finance and Growth: Schumpeter Might Be Right. *Quarterly Journal of Economics*, 108(23), 713-737.
- KIPRA. (2009). *Kenya Economic Report: Building a Globally Competitive Economy*, Nairobi. Kenya Institute for Public Policy Research and Analysis.
- Kiyotaki, N., & Moore, J. (2005). Financial deepening. *Journal of the European Economic Association*, 3(2-3), 701-713.
- Kipkirui, W. C. (2014). The effect of money supply on the gross domestic product in Kenya. *Journal of Financial International*, 9(2), 1-75
- Kothari, C. R. (2012), *Research Methodology: Methods and Techniques*, New Age International Publishers.
- Levine, R. (2002). Bank-Based or Market-based Financial Systems: Which is Better? *Journal of Financial International*, 11(4), 398-428
- Lewis, W. A. (2013). *Theory of Economic Growth*. Routledge, United Kingdom.
- M'amanja, D., & Morrissey, O. (2006). *Foreign Aid, Investment and Economic Growth in Kenya: A Time Series Approach* (No. 06/05). CREDIT research paper.
- Mbate, M. (2013). Domestic Debt, Private Sector Credit and Economic Growth in Sub-Saharan Africa. *African Development Review*, 25(4), 434-446.
- McDonald, C. A., & Schumacher, L. B. (2007). *Financial deepening in Sub-Saharan Africa: Empirical Evidence on the Role of Creditor Rights Protection and Information Sharing*. Available at SSRN 1033203.
- MicKinnon, J.G. (1999). *Critical Values for Cointegration Tests*. In R.F. Engle and C.W.J. Granger (eds.). *Long-Run Economic Relationships: Readings in Cointegration*. Oxford: Oxford University Press.
- Miller, D. C., & Salkind, N. J. (2002). *Handbook of research design and social measurement*. Thousand Oaks, CA: Sage.
- Musyoka, M. (2012). *Effect of Stock Market Development on Economic Growth: A Case of Nairobi Securities Exchange, Kenya* (Doctoral dissertation, University of Nairobi).

- Narayan, P. K., & Narayan, S. (2006). Savings behaviour in Fiji: an empirical assessment using the ARDL approach to cointegration. *International Journal of Social Economics*.
- Ndako, U. B. (2010). Financial development, Economic Growth and Stock Market Volatility: Evidence from Nigeria and South Africa. *PhD diss., University of Leicester*.
- Ndebbio, J. E. (2004). Financial Deepening, Economic Growth and Development: Evidence from Selected Sub-Saharan African Countries. *African Economic Research Consortium, Nairobi. Research Paper, 142(9), 215-234*.
- Ngugi, N., Amanja, D., & Maana, L. (2006). *Capital Market, Financial Deepening and Economic growth in Kenya*. <http://www.csae.ox.ac.uk/conferences/2009-EDiA/papers/513-Isaya.pdf>
- Nyasha, S., & Odhiambo, N. M. (2016). The impact of bank-based and market-based financial development on economic growth: Time-series evidence from the United Kingdom. *Global Economy Journal, 16(2), 389-410*.
- Nzotta, S. M., & Okereke, E. J. (2009). Financial Deepening and Economic Development of Nigeria: An Empirical Investigation, *African Journal of Accounting, Economics, Finance and Banking Research, 5(5), 205-254*.
- Odhiambo, N. M. (2007). Supply-Leading versus Demand-Following Hypothesis: Empirical Evidence from Three SSA Countries. *African Development Review, 19 (2), 257-79*.
- Okoli, M. N. (2010). Evaluating the Nexus between Financial Deepening and Stock Market in Nigeria. *European Scientific Journal, 8(15), 1-42*.
- Omounga, M, S. 2014. Financial Development and Economic Growth in Kenya. An Empirical Analysis 1990-2011. *International Journal of Economics and Finance, 5(7), 26-54*.
- Osho, A.E. 2014. The role of Stock Market in Nigeria's Economic Development, *International Journal of Scientific and Research Publication, 4(4), 1-7*.
- Ouattara, B. (2004). *Modelling the Long Run Determinants of Private Investment in Senegal (No. 04/05)*. Credit Research Paper.
- Pauly, M. (1968). The Economics of Moral Hazard: Comment. *American Economic Review, 58(1968), 531-536*.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of the level relationship. *Journal of Applied Economics 16, 289-326*.
- Petkovsk, M., & Kjoevsk, J. (2012). Does Banking Sector Development Promotes Economic Growth? An Empirical Analysis for Selected Countries in Central and South Eastern Europe. *Journal of Economic Research-Economics, 27(1), 1-13*.
- Pyle, D.H. (1971). On the Theory of Financial Intermediation. *Journal of Finance, 26(3), 737-747*.
- Radu, M. (2015). Political stability-a condition for sustainable growth in Romania? *Procedia Economics and Finance, 30, 751-757*.
- Rahman, M., & Mustafa, M. (2015). Financial Deepening and Stock Market Returns: Panel Cointegration Analyses for Selected Developing and Developed Countries. *International Journal of Monetary Economics and Finance, 10(1), 96-109*.
- Rajan, R. G., & Zingales, L. (2003). The Great Reversals: The Politics of Financial Development in 20th Century. *Journal of Financial Economics, 69(2), 5-50*.
- Ram, R. (1999). Financial Development and Economic Growth. Additional Evidence. *Journal of Development Studies, 35(4), 164-174*.
- Robinson, J. (1952). *The Generalization of the General Theory in the Rate of Interest and Other Essays*. Macmillan.
- Sackey, F. G., & Nkurumah, E. M. (2012). Financial Sector Deepening and Economic Growth in Ghana. *Journal of Economic and Sustainable Development, 3(8), 122-140*.
- Schumpeter, J. (1934). The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle. *Harvard University Press*.
- Schumpeter, J. A. (1911). The Theory of Economic Development. Reprinted 1969, *Oxford University Press, Oxford*
- Shahbaz, M., & Rahman, M. M. (2014). Exports, financial development and economic growth in Pakistan. *International Journal of Development Issues*.

- Solow, R. M. (1956). A Contribution to the Theory of Economic Growth. *The Quarterly Journal of Economics*, 70(1), 65-94.
- Towey, R. E. (1974). Money Creation and the Theory of the Banking Firm. *The Journal of Finance*, 29, 57-72.
- Victor, O., & Samuel, E. (2014). An Empirical Assessment of Financial Deepening and Economic Growth in Nigeria. *International Review of Management and Business Research*, 3(1), 139 - 149.
- Were, M. (2001). *The impact of external debt on economic growth and private investment in Kenya: 1970-1996. An assessment* UNU. WIDER Discussion Paper, No. DP2001-120. Helsinki.
- White, H. (1980). A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. *Econometrica: Journal of the Econometric Society*, 2(22)817-838.
- White, H. (1982). Maximum Likelihood Estimation of Misspecified Models. *Econometrica: Journal of the Econometric Society*, 50, 1-25.
- Wolde, R. (2009). Reexamining Financial Development and Economic Growth Nexus in Kenya. *Economic Modelling*, 26(6), 1140-1146.
- Al-Yousif, Y. K. (2002). Financial development and economic growth: Another look at the evidence from developing countries. *Review of Financial Economics*, 11(2), 131-150.