

## Examining the Effect of the Value of Shares Traded as Ratio of GDP on Economic Growth in Kenya from 1985-2020.

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### Abstract

The study aims at examining the effect of the value of shares traded as a ratio of GDP on economic growth in Kenya from 1985-2020. The study was based on financial intermediation theory backed up by other theories related to financial deepening. The study adopted a historical research design. An Autoregressive bivariate model (bVAR) was used in the study. Inferential statistics and descriptive are used in data analysis. This study was conducted in Kenya for the period 1985 to 2020. The study uses a historical research design. Descriptive statistics such as standard deviation, mean and correlation are calculated. Tables and graphs are also used to present the results. Inferential statistics help make inferences and predictions of a population based on the selected sample. The study established a positive effect of the value of the traded share on economic growth both in the long run and in the short run in Kenya. The study recommends that the Kenyan government create policies that would foster participation in the stock market by Kenyan investors and foreign investors.

**Key Terms:** Economic growth, Gross Domestic Product (GDP), Terms of Trade and values of shares, Traded.

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### INTRODUCTION

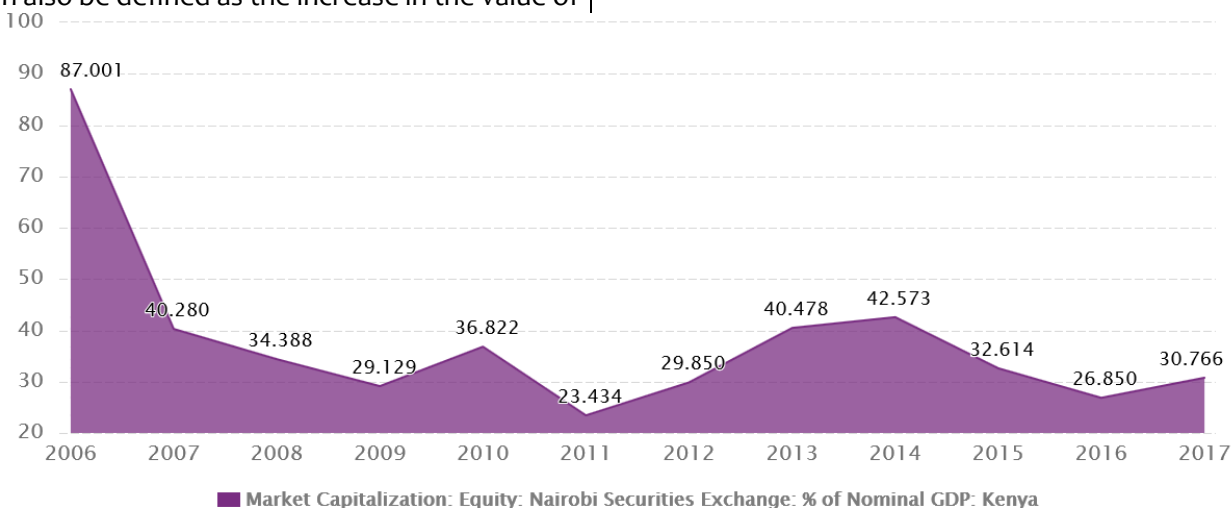
The bank's growth and the stock market worldwide, with their importance, have led to the opening of a new avenue of research on the relationship between financial deepening and economic growth (Petkovsk & Kjovsk, 2012). Globally, financial deepening has led to economic development by reducing poverty levels, reducing

unemployment, improvement in government budgets, and improvement in living standards. However, the development of financial sectors shows differences in different countries. In some countries, growth in the financial sector increases economic growth, while economic growth leads to financial growth in other

countries. Developments and reforms in the financial sector influence economic growth by causing reconstruction in the real sector (Johnston & Pazarbaşıoğlu, 1995). KIPPRA (2009) found out that focusing on financial sector development by developing countries in African cases is likely to spur economic growth. However, the study found that economic growth may not be attained due to government controls and policies hindering financial sector development.

Economic growth can be referred to as the increase in an economy's ability to produce goods and services (Bakang, 2015). It can also be defined as the increase in the value of

goods and services produced over a given period. Thus, in measuring the economic growth of an economy, the market value of goods and services is taken into account. To measure economic growth, the GDP (Gross Domestic Product) and GNP (Gross National Product) of a country are used. GDP is the maximum value of goods and services produced within the boundaries of a country. Consequently, GNP measures the value of goods and services produced by the citizens, whether within or outside the boundaries of a country over a given period of time.



**Figure 1: Market Capitalisation as of the year 2018.**

The above graph shows that financial markets accounted for 30.8 per cent of nominal GDP in Dec 2017 compared to the previous year, which was 26.8 per cent. In 2011, the financial market contributed less to the nominal GDP, while in 2006, it accounted for the highest value. It implies that changing policies on financial deepening would change the national GDP. High growth in the data for market capitalisation is provided by Nairobi Stock Exchange. Market capitalisation shows the number of publicly-traded outstanding shares. There are fluctuations, and this has an impact on GDP. Therefore, there is a need to determine the

relationship between financial deepening and economic growth from 1985 to 2020. The period is chosen to capture the long-term and short-term impacts.

Economic growth is essential, and one of the drivers of economic growth is financial deepening. Over the past few years, financial deepening has attracted much attention from finance and development experts. There has been a shift from saving money in terms of real assets into financial assets in the current years. Kenya has been undergoing fluctuations in the trend of economic growth. Working on financial sector development through the

changes in money supply, private sector credit and value of shares traded is likely to influence the economic growth. The recent changes in the financial market and how it affects the real sector of the economy have not been given enough attention. Many controversies have been generated, which means that further research needs to be done on the relationship between financial deepening and economic growth using several variables. One controversy is that financial growth may promote economic growth by mobilising more investments, thus increasing returns to financial resources and raising productivity. Another controversy is that economic growth responds to the expansion of financial markets and their progress. Therefore, the study examined the effect of the value of shares traded as the ratio of GDP to economic growth in Kenya from 1985-2020.

#### LITERATURE REVIEW

Ndako (2010) study focused on finding out the relationship between financial development, economic growth, and market volatility in South Africa and Nigeria. The study on South Africa aimed to find the causal relationship between economic growth and stock market development. The study used multivariate Autoregressive (VAR) and Vector Error Correlation Model (VECM). The variables used in the study included bank credit to the private sector, turnover ratio, the value of shares traded and market capitalisation. In South Africa, the results concluded a bidirectional relationship between economic growth and financial development using the banking system. However, when stock market variables are used, the results showed unidirectional causality from economic growth to the stock market.

Adenuga (2010) study analysed the hypothesis that stock market development causes economic growth in Nigeria. This study used quarterly data from 1990 to 2009 in Nigeria using VECM. The study found that the total value of shares traded had the best fit, followed by the market capitalisation and turnover ratios. The conclusions were

that the value of shares traded affected economic growth, although the nature of the relationship was not explicit.

Rahman and Mustafa (2015) studied the effects of stock market turnover and liquidity to measure financial deepening on stock market returns in 19 developed and 21 developing countries from 1988 to 2013. They implemented Pedroni's panel co-integration methodology and the panel vector error correction models. The results showed that stock market turnover contributes more to stock market returns than stock market liquidity, which was the case in both developed and developing countries. However, the results were weak in developing countries than in developed countries.

The available theoretical and empirical review shows that the development of financial institutions and financial instruments plays an important role in economic growth (Levine, 2003). King and Levine (1993) found that financial development as proxies by measures of financial deepening results in economic growth, capital accumulation, and increased productivity. The study by King and Levine (1993) was done for a sample of 77 countries from 1960-1989. Even though the relationship between economic growth and financial deepening is strong, the channels in which financial deepening causes growth is still under discussion (McDonald & Schumacher, 2007).

Nzotta and Okereke (2009) conducted an empirical study on how different levels of financial development affected economic growth in Nigeria for 11 years. Their work was informed by scholars who studied the role of financial development on economic growth in the world. They concluded that financial development plays a key role in mobilising savings and allocating the savings in an optimal way. This study applied two-stage least squares to analyse the data. The findings showed that financial systems do not effectively play intermediary roles in credit allocation and the monetisation of the economy.

## RESULTS AND FINDINGS

### 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 were 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
Shares Traded	35	1.9272	1.0473	.6965	2.3375	0.3921	4.5352
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 mean, standard deviation, skewness and Kurtosis coefficients. The study focused on Kenya, and time-series data was collected from 34 years, ranging between 1985 and 2020. GDP growth has a mean of 4.1046 per cent, and shares traded as a percentage of GDP have a mean of 1.9272 per cent. 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. GDP growth has a standard deviation of 2.3366, and shares traded as a percentage of GDP have a standard deviation of 1.0473. 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 a standard deviation that is lower than the mean. First, 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, the value of shares traded as a percentage of GDP and

investment as a percentage of GDP are positively skewed with skewness coefficients of 0.6965 and 0.07404, respectively. All the variables have coefficients less than 1 in absolute terms, indicating 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).

A weigh of the heaviness of the tail relative to the normality of data involved is a Kurtosis. The measure is valuable in the detection of outliers in the data that are represented by the heavy tail (Kothari, 2012). For example, the kurtosis coefficient for GDP growth is 2.2884, the value of shares traded is 2.3375, terms of trade is 2.3420, and 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. In contrast, those with lower absolute values of 3 show its absence. The variables in this study have absolute values below three, and thus they can be termed Platykurtic as they have less extreme values than a normal distribution. Therefore, the study can draw the conclusion that the variables are normally distributed, satisfying the parametric requirements.

### Correlation Analysis

Correlation can be referred to as the association between two variables. It is measured by coefficients 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 greater than 0.5 in absolute represent a 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	Shares traded	Terms of trade	Investment
GDP growth	1			
Shares Traded	-0.1619	1		
Terms of Trade	-0.0662	0.4656**	1	
Investment	0.5479**	-0.2416	-0.3166	1

\* Significant at 5 per cent (2-tailed)

\*\* Significant at 1 per cent (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 a rise in the growth of GDP. There is a weak positive correlation (0.3652) between the value of traded shares as a percentage of GDP and credit to the private sector as a percentage of GDP which means that an increase in the value of shares traded as a percentage of GDP will lead to an increase in credit to the private sector. However, this correlation is not significant at any conventional level. Finally, there is a weak correlation (0.4656) between terms of trade and the value of shares traded as a percentage of GDP, which again implies that an increase in trade will result in an increase in the value of shares traded as a percentage of GDP. These

findings reveal that most variables are not significantly associated with each other. Those have very weak correlations, which suggests 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 unit root problems, 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 Person tests to diagnose unit root. Results are displayed in Table 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)
Shares Traded	-3.005*	-	-2.992*	-	I (0)
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 per cent (2-tailed)

\*\* Significant at 1 per cent (2-tailed)

Table 3 presents Unit root results using Phillips Perron and Augmented Dickey-Fuller Approaches.

GDP growth and the value of shares traded as a percentage of GDP are stationary levels. On the other hand, terms of trade and investment are 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. Therefore, the study used Akaike Information Criteria (AIC) due to its suitability for smaller samples 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 is deduced 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

They conducted co-integration tests to determine whether a long-run relationship existed among the variables. In this

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

**Table 4: Bounds Cointegration Test**

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

The F- statistic 8.403 is higher than the critical values of I (1) regressors, while t-statistics -5.817 is less than the critical

values of 1 (1) regressors. The null of no co-integration is rejected and concludes the model containing GDP growth, terms of trade, shares traded and investment exhibits a long-run relationship.

### Regression Results

The model estimated an ARDL (2, 0, 2, 2, 1, and 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 5: 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					
	Value of traded shares	-1.2655	0.3574	-3.54	0.002
	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 a long-run association that had been previously established by Pesaran, Shin, and Smith (2001) Bounds co-integration test. Specifically, the results illustrate that any deviation, in the long run, will be stabilised at a 13.48 per cent adjustment rate per year. These findings imply that instead of directly monotonically converging to the equilibrium path, the error correction process fluctuates in a dampening manner around the long-run value. However, once this process is completed, convergence to the equilibrium path is rapid (Narayan & Narayan, 2006). Individual results are discussed in the following subsections.

The long-run coefficient for the value of traded shares is negative (-1.2655) and statistically significant at 5 per cent. These results mean that in the long run, a unit increase in the value of traded shares as a percentage of GDP will lead to a 1.2665 unit decrease in GDP growth and vice-versa. The findings conform to those of Nyasha and Odhiambo (2016),

which found that bank-based financial growth in Kenya has a negative effect on economic growth. The results were consistent in both short-run and long-run analyses. Another study conducted by Alajekwu and Achugbu (2012) found that shares traded value negatively impacts Nigeria's economic growth. The study applied time series with the aim of establishing the role of stock market development on GDP growth in Nigeria.

The long-run coefficient for investment is positive and statistically significant at 1 per cent. The result means that a unit increase in investment will lead to a 0.65102 unit increase in GDP growth in the long run. This is consistent with a study conducted by M'amanja & Morrissey (2006) in Kenya. The study found that investment increases per capita income, increasing GDP growth in Kenya. Another variable that leads to an increase in GDP is shared by the private sector, while external loans were found to have a negative effect on GDP growth in the long run. The idea behind this is that investment increases income, which has a positive effect on GDP growth.

**Table 6: Estimated Short-run Coefficient Using the ARDL Approach**

	D.gdp	Coefficient	Std. Err.	t	P>t
SR					
	<b>GDP</b>				
	LD.	0.34202	0.16142	2.12	0.048
	<b>Value of Traded Shares</b>				
	D1.	1.20613	0.43388	2.78	0.012
	LD.	1.25147	0.35769	3.5	0.003
	<b>Terms of Trade</b>				
	D1.	-0.1597	0.05435	-2.94	0.009
	<b>Constant</b>	-14.573	5.28273	-2.76	0.013
	<b>R-squared</b>	0.7853			
	<b>Adjusted R-Squared</b>	0.6422			

The coefficient adjusted of determination for the model is 0.6422, meaning that 64.22 per cent of the variation in the economic variation is explained by the factors included, namely; private sector credit, the value of shares traded, and terms of trade, while the 35.78 per cent is explained by other factors not included in the model. Therefore, it can be said that the model is a good fit.

There is a positive short-run relationship between the value of traded shares and GDP growth in Kenya. The current coefficient for the value of traded shares is 1.2061 and significant at a 5 per cent level, meaning that a unit increase in the value of the traded share will lead to a proliferation in GDP growth by 1.2061 units vice-versa. The same results are obtained for the first lag, which has a coefficient of 1.2515 and is significant at 1 per cent. These results indicate that a unit increase in the value of traded shares in the current year will increase GDP growth in the following year by 1.2515. This can be described by the fact that change in the value of shares traded triggers investment and economic efficiency. In addition, an increase in shares traded results in resource mobilisation, which increases income earned by the citizens (Musyoka,

2012). Therefore, an income increase leads to an increase in the level of GDP.

There is a short-run negative relationship between GDP growth and terms of trade. The current coefficient is -0.1597 and significant at 1 per cent. This means that a unit increase in tot will lead to -0.1597 decrease in GDP growth. The same results are obtained for the first lag, which has a coefficient of -14.573. The results can be explained by how external shocks affects the Kenyan economy. This is explained by Kenya's low production and is a great importer of capital goods. Therefore, strict terms of trade can lead to macroeconomic vulnerability, which reduces GDP growth. The results are consistent with those of Ouattara (2004).

#### **CONCLUSION AND RECOMMENDATION**

**Conclusion:** Beginning with the first hypothesis: the value of traded shares as a ratio to GDP does not affect significantly economic growth in Kenya. The study obtained a positive and significant coefficient in the long run, and thus, the null hypothesis is rejected. The study concludes that the value of traded shares has a positive effect on



economic growth in Kenya in the long run. The study also established positive and significant coefficients in the current period. This means that the short-run value of traded shares positively affects economic growth. The null hypothesis for the first lag is also rejected. It is concluded that the value of a traded share in the current period will positively affect the next period's economic growth. Regarding Granger causality, share traded and GDP has a bidirectional causality as they cause each other.

**Recommendation:** The study established a positive effect of the value of a traded share on economic growth in

Kenya both in the short-run and in the long run. The study recommends that the Kenyan government create policies that would foster participation in the stock market by Kenyan investors and foreign investors. This may include sensitisation and creating awareness of the stock market products. This would raise the stock market's value, creating more capital for the firms listed on the Nairobi Stock exchange and, ultimately, economic growth in Kenya.

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