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Nexus between Dividend Policy and selected macroeconomic Factors in Kenya: An empirical time series analysis.

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Abstract*: Kenyan economic environment has been unstable for the last one decade. The economy has experienced challenges which are believed to be caused by international economic environment, business environment, climatic conditions, technological environment and domestic environment. A midst the challenging economic environments such as the 2007/2008 global melt down, listed firms don't perform well. However, listed firms in Kenya as at 2020 contributed up to 21.26% of the total GDP in Kenya despite the difficult business environment. Therefore, this study sought to investigate the nexus between dividend policy and selected macroeconomic factors which are inflation, Gross Domestic Product and interest rate. The study employed longitudinal research design using secondary time series data sourced from Kenya National Bureau of Statistics, The Central Bank of Kenya and Nairobi Securities Exchange. The study used quarterly data spanning from 2009 to 2018. Results of the study revealed that there is insignificant relationship between dividend policy and macroeconomic factors in Kenya. Specifically, results revealed that there is insignificant relationship between dividend policy and Gross Domestic Product (p= 0.6430, R^2 = 2.42, there is insignificant relationship between dividend policy and interest rate (P= 0.2316, R^2= 7.80) and there is insignificant relationship between dividend policy and inflation (p= 0.7262, R^2 = 1.76). This study maybe important to policy makers such as the government or its agencies, firm managers, shareholders or investors and scholars who would want advance knowledge in this important area of the study.*

Keywords: Dividend Policy, macroeconomic factors, Inflation, Gross Domestic Product, Inflation, Dividend Per Share, Dividend payout ratio and Dividend Yield.

1.0. Introduction

The current study established the relationship between dividend policy and macroeconomic factors. Macroeconomic factors are key parameters that affects citizens in many ways. First, inflation which is the general increase in prices of goods and services relates to cost of living. Secondly, interest rates affect the level of borrowing by Small and Medium Enterprises and Corporates; interest rate also affects money in circulation. Finally, Gross Domestic Product reveals the general health of economy in terms of economic growth. It is against this back drop that the current study sought to establish the nexus between dividend policy and macroeconomic factors in Kenya.

Figure 1.1 shows trends of inflation, gross domestic product and interest rate between 2009 and 2018. It is evidenced that both inflation and interest rate spiked around quarter 12 (last quarter of 2010 and first quarter of 2011. It is also evidenced that gross domestic product is relatively stable during the years under investigation.

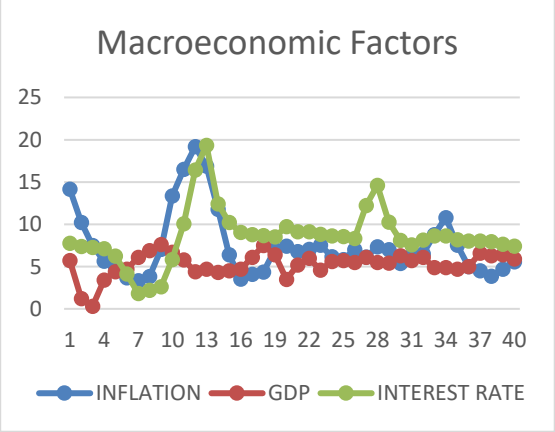

Figure 1.1: Trend Analysis of Inflation, GDP and Interest Rate.

Source: Kenya National Bureau of Statistics and The Central Bank of Kenya.

Figure 1.2 shows the trend analysis of dividend policy variables which are Dividend Per Share, Dividend Yield and Dividend Payout Ratio. The trend reveals that dividend per share spiked at quarter sixteen (end of 2012) while both dividend yield and dividend payout ratio remained relatively stable but in later quarters dividend payout ratio seem to have little spikes.

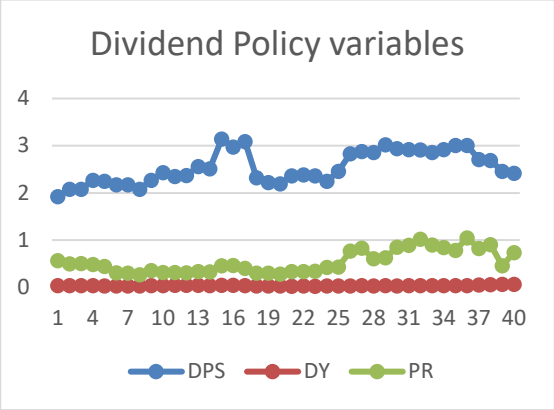

Figure 1.2: Trend Analysis of Dividend Per Share, Dividend Yield and Divided Payout Ratio
Source: Nairobi Securities Exchange.

From the empirical front, studies reviewed indicated mixed results. Ochieng & Kinyua (2018), Bosse (2009), Khan *et al.* (2013) have found positive relationship between inflation, interest rate and dividend policy using correlation, co-integration and ordinary least square model. On the contrary, Ali & Khan (2018) found negative relationship between interest rate, inflation rate and Gross Domestic Product growth with dividend payout. However, while Khan *et al* (2018) focused on textile firms in Pakistan using annual time series data ranging from 2001 to 2017 (longer period) and adopted ordinary least squares in their data analysis revealing an inverse association between interest rate, inflation rate and Gross Domestic Product with dividend payout ratio, Ochieng and Kinyua (2013) used secondary data and revealed that inflation does not affect dividend payout.

Bosse (2009) studied inflation and dividend payments in Australia, his study adopted co integration tests to test the variables and his study revealed an association between inflation and dividend payments. Khan *et al* (2013) studied inflation and dividend policy using a sample of KSE 30 Index for the period ranging 2007 to 2011; their study adopted regression models and revealed inverse relationship between dividend yield and inflation. These studies were done in different geographical areas, using different methodologies, that is, research design, different population, different sampling procedures, and different data analysis techniques hence arriving at different results. However, the present study sought to establish the relationship between dividend policy and macroeconomic factors in Kenya.

1.3. Conceptual Framework

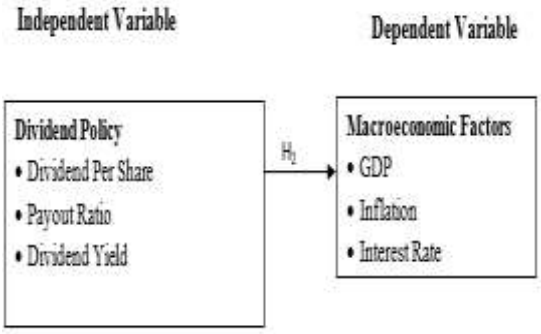

Figure. 1.3: Association between Dividend Policy and Macroeconomic Factors.

2.1. Literature Review

Khan *et al.* (2018) sought to investigate macroeconomic variables and dividend payout ratio. Their study was specific to listed textile firms in Pakistan. Their study was an empirical research and they used annual time series analysis with data from 2001 to 2017. Their study used ordinary least squares for data analysis. Results of their study revealed an inverse association between interest rate, rate of inflation and Gross Domestic Product with dividend payout ratio. They also assessed various diagnostic statistics such as multicollinearity tests, stationarity tests, serial correlation tests and heteroscedasticity tests. However, they did not perform data transformation by differencing natural logarithms of quarterly data to ensure stationarity as in the case in the present study. Secondly, the study period for their study differs from the present study and they used annual data while this study used quarterly data.

Ochieng and Kinyua (2013) sought to study inflation and dividend payout in listed companies in Kenya. They used correlation research design and also used secondary data in their research. Their results revealed that inflation rate does not affect the dividend payout ratio; R^2 being 0.055 thereby implying that only 5.5% of inflation could be explained by dividend payout leaving a hooping 94.5% unexplained.

Bosse (2009) sought to study dividend and inflation in Australia. The study used co-integration analysis. The study reveals an association between inflation and dividend payments. In conclusion, he opined that there might be an artificial growth in dividend that is brought about by inflation, but in real sense, such increase in earnings by firms may only be nominal in nature hence leading to higher dividend payments. The study did not outline sampling procedures and this study was also not a time series research.

Khan *et al.* (2013) studied inflation and dividend policy using a sample of KSE 30 index for the period ranging between 2007 and 2011. The study adopted regression models. The study used dividend yield to represent dividend policy, KSE 30 index denoted stock return. Their study showed an inverse relationship between inflation and KSE 30 index.

Consequently, the study also revealed that dividend yield and inflation have insignificant relationship. However, the study did to adopt time series analysis for investigation, the study was not done in Kenya and the study period differed from the study period of the present study.

The studies reviewed indicated mixed results. Ochieng & Kinyua (2018), Bosse (2009), Khan *et al.* (2013) have found positive relationship between inflation, interest rate and dividend policy using correlation, co-integration and ordinary least square model respectively. On the contrary, Ali & Khan (2018) found negative relationship between interest rate, inflation rate and Gross Domestic Product growth with dividend payout. However, while Khan *et al* (2013) focused on textile firms in Pakistan using annual time series data ranging from 2001 to 2017 (longer period) and adopted ordinary least squares in their data analysis revealing an inverse association between interest rate, inflation rate and Gross Domestic Product with dividend payout ratio, Ochieng and Kinyua (2013) used secondary data and revealed that inflation does not affect dividend payout. On the other hand, Bosse (2009) studied inflation and dividend payments in Australia, his study adopted co-integration tests analysis and the study revealed an association between inflation and dividend payments. Khan *et al* (2013) studied inflation and dividend policy using a sample of KSE 30 Index for the period ranging 2007 to 2011; their study adopted regression models and revealed inverse relationship between dividend yield and inflation. These studies were done in different geographical areas, using different methodologies, that is, research design, different population, different sampling procedures, and different data analysis techniques hence arriving at different results. The present study therefore used a more robust longitudinal time series approach to establish the relationship between dividend policy and macroeconomic factors.

Most of the studies reviewed indicated mixed results. Some studies revealed positive associations; others revealed inverse associations while others have not shown any significant influence between the variables under study. Furthermore, the strengths of the observed associations in terms of model fit differ from one study to another. Finally, some reviewed studies revealed contradicting results. Furthermore, most studies were conducted in foreign and industrialized countries where securities exchanges are more developed with few studies from developing countries like Kenya. Most of the studies reviewed also used panel data as opposed to the current study which used time series analysis. None of the studies reviewed was done at the industry level hence it is not clear how the results could have been, assuming the studies were done at the industry level. From the literature reviewed, few studies reviewed have been done using the variables in the present study.

3. Methodology

The study is a time series study and it adopted longitudinal research design. The study was done at industry level where quarterly aggregate indices and ratios as reported by Nairobi Securities Exchange and quarterly inflation (CPI), interest rate (91 Treasury bill rates) and Gross Domestic Product were used. Quarterly 91 Treasury bill rates were sourced from Central Bank of Kenya and quarterly Consumer Price Index (CPI) and quarterly Gross Domestic Product data were sourced from The Kenya National Bureau of Statistics (KNBS). The total variables in this study are six, with 40 quarters; this resulted to 240 data points.

3.1. Model Specifications

A model was developed to establish the relationship between dividend policy and macroeconomic factors as indicated below.

$In_{t-1}=\beta_0 + \beta_1 X_{1t-1} + \beta_2 X_{2t-1} + \beta_3 X_{3t-1} + e_t$……3.1

$I_{t-1}=\beta_0 + \beta_1 X_{1t-1} + \beta_2 X_{2t-1} + \beta_3 X_{3t-1} + e_t$……3.2

$\mathrm{Gdp}_t=\beta_0 + \beta_1 X_{1t-1} + \beta_2 X_{2t-1} + \beta_3 X_{3t-1} + e_t$……3.3

Where:

X_{t-1} = dividend (DPS) per share at quarter t,

X_{2t-1} = payout ratio (POR) at quarter t

X_{3t-1} = dividend yield (DY) at quarter t,

β_0 = Constant representing the multiple regression coefficients,

β_1= coefficient of inflation factor (In),

β_2 = coefficient of interest rate (I),

β_3 = coefficient of gross domestic product (GDP), and

e_t = the error term at timer t.

3.2. Diagnostic Statistics

In time series study, data are first transformed (standardized) by converting them to their natural logarithms and their differences before proceeding with analysis; when stationarity is not achieved before data analysis, the results may be considered invalid hence may not be used to make inferences and generalizations (Granger & Newbold, 1974, Gujarati, 2006). Most researchers employ the first difference approach, mainly as a result of Nelson & Plosser's (1982) work in which they argued that many macroeconomic time series use difference stationarity and not trend stationary. Granger & Newbold (1974) refer to results obtained from regressions that contain non-stationary data as spurious regression results which are empirical results with high relationship strengths and reduced Durbin-Watson, which can be seen as very good results but are of no use (Gujarati, 2006). Table 3.1 to Table 3.6 therefore reveal stationarity tests of differences of natural logarithms of Dividend Yield, Dividend per Share, payout ratio, Interest Rate, Gross Domestic Product (GDP) and Inflation.

TABLE 3.1 STATIONARITY TEST FOR PAYOUT RATIO

Dickey – Fuller test for unit root	Number of obs = 38
----------Interpolated Dicker-Fuller----------	

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-7.390	-3.662	-2.964	-2.614

Mackinnon approximate p-value for z(t) = 0.0000

Table 3.1 reveal that unit root test for Payout Ratio are stationary after first differencing while at level, the unit root test shown non-stationarity. Stationary data reveal that the data is stationary around zero with constant mean and increased variance over time. Furthermore, this can be confirmed by looking at the absolute value of test statistics which is -7.390 and it is more than absolute value of 5% of critical value which is -2.964 and also more than absolute value of 10% critical value which is -2.614.

TABLE 3.2 STATIONARITY TEST FOR DIVIDEND YIELD

Dickey – Fuller test for unit root			Number of obs = 38
----------Interpolated Dicker-Fuller----------			
Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t) -4.684	-3.662	-2.964	-2.614

Mackinnon approximate p-value for z(t) = 0.0001

Table 3.2 reveal that unit root test for Divided Yield are stationary after first differencing while at level, the unit root test shown non-stationarity. Stationary data reveal that the data is stationary around zero with constant mean and increased variance over time. Furthermore, this can be confirmed by looking at the absolute value of test statistics which is -4.684 and it is more than absolute value of 5% of critical value which is -2.964 and also more than absolute value of 10% critical value which is -2.614.

TABLE 3.3. STATIONARITY TEST FOR DIVIDEND PER SHARE

Dickey – Fuller test for unit root			Number of obs = 38
----------Interpolated Dicker-Fuller----------			
Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t) -6.269	-3.662	-2.964	-2.614

Mackinnon approximate p-value for z(t) = 0.0000

Table 3.3 reveal that unit root test for Dividend per share are stationary after first differencing while at level, the unit root test shown non-stationarity. Stationary data reveal that the data are stationary around zero with constant mean and increased variance over time. Furthermore, this can be confirmed by looking at the absolute value of test statistics which is -6.269 and it is more than absolute value of 5% of critical value which is -2.964 and also more than absolute value of 10% critical value which is -2.614.

TABLE 3.4 STATIONARITY TEST FOR INTEREST RATE

TABLE 3.4 STATIONARITY TEST FOR INTEREST RATE

Dickey – Fuller test for unit root			Number of obs = 38
----------Interpolated Dicker-Fuller----------			
Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t) -3.589	-3.662	-2.964	-2.614

Mackinnon approximate p-value for z(t) = 0.0060

Table 3.4**:** reveal that unit root test for Interest Rate are stationary after first differencing while at level, the unit root test shown non-stationarity. Stationary data reveal that the data are stationary around zero with constant mean and increased variance over time. Also, this can be confirmed by looking at the absolute value of test statistics which is -3.589 and it is more than absolute value of 5% of critical value which is -2.964 and also more than absolute value of 10% critical value which is -2.614.

TABLE 3.5: STATIONARITY TEST FOR GROSS DOMESTIC PRODUCT

TABLE 3.5: STATIONARITY TEST FOR GROSS DOMESTIC PRODUCT

Dickey – Fuller test for unit root			Number of obs = 38
----------Interpolated Dicker-Fuller----------			
Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t) -7.193	-3.662	-2.964	-2.614

Mackinnon approximate p-value for z(t) = 0.0000

Table 3.5 reveal that unit root test for Gross Domestic Product are stationary after first differencing while at level, the unit root test shown non-stationarity. Stationary data reveal that the data are stationary around zero with constant mean and increased variance over time. Next, this can be confirmed by looking at the absolute value of test statistics which is -7.193 and it is more than absolute value of 5% of critical value which is -2.964 and also more than absolute value of 10% critical value which is -2.614.

TABLE 3.6 STATIONARITY TEST FOR INFLATION

TABLE 3.6 STATIONARITY TEST FOR INFLATION

Dickey – Fuller test for unit root	Number of obs = 38

	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
	----------Interpolated Dicker-Fuller----------			
Z(t)	-3.447	-3.662	-2.964	-2.614

Mackinnon approximate p-value for z(t) = 0.0095

Table 3.6 reveal that unit root test for Inflation are stationary after first differencing while at level, the unit root test shown non-stationarity. Stationary data reveal that the data are stationary around zero with constant mean and increased variance over time. Furthermore, this can be confirmed by looking at the absolute value of test statistics which is -3.447 and it is more than absolute value of 5% of critical value which is -2.964 and also more than absolute value of 10% critical value which is -2.614.

TABLE 3.7: MULTICOLLINEARITY TEST AMONGST DIVIDEND POLICY FACTORS

Variable	VIF	1/VIF
Payout Ratio	6.40E+06	0
Dividend Per Share	753301.6	0.000001
Dividend Yield	1.01	0.990054
Mean VIF	3.03	

Table 3.7 reveals that since VIF values are less than 10 except for payout ratio, collinearity is therefore of no concern. For final measurements using regression analysis, the payout ratio was excluded and independent variables remained two.

TABLE 3.8: MULTICOLLINEARITY TEST WITHOUT PAYOUT RATIO (POR)

Variable	VIF	1/VIF
Dividend Per Share	1.03	0.970558
Dividend Yield	1.01	0.993229
Mean VIF	1.02	

Gross Domestic Product, Inflation, and Interest rate did not show any collinearity concern since all VIF values were all less than 10 in Table 3.9 We can also refer to (Adeboye, Fagoyinbo, & Olatayo, 2014; Neter, Wasserman & Kutner, 1989).

TABLE 3.9: MULTICOLLINEARITY TEST BETWEEN MACROECONOMIC FACTORS

Variable	VIF	1/VIF
Interest Rate	1.35	0.738409
Inflation	1.34	0.744401
GDP	1.01	0.989682
Mean VIF	1.24	

Results in Table 3.9 reveal no collinearity between dividend policy and macroeconomic factors since VIF is less than 10.

TABLE 3.10: MULTICOLLINEARITY TEST AMONGST DIVIDEND POLICY AND MACROECONOMIC FACTORS

Variable	VIF	1/VIF
Interest Rate	1.50	0.666201
Inflation	1.38	0.724441
DY	1.14	0.876977
DPS	1.05	0.952006
GDP	1.05	0.952344
Mean VIF	1.19	

TABLE 3.11: SERIAL AUTOCORRELATION TEST FOR GROSS DOMESTIC PRODUCT (GDP), DIVIDEND YIELD AND DIVIDEND PER SHARE

SOURCE	SS	DF	MS	NUMBER OF OBS = 39			
				F (2, 36) = 0.45			
MODEL	.279333416	2	.139666708	PROB > F = 0.6430			
RESIDUAL	11.2447683	36	.312354674	R-SQUARED = 0.0242			
				ADJ R-SQUARED = -0.0300			
TOTAL	11.5241017	38	.303265834	ROOT MSE = .55889			
GDP	COEF.	STD. ERR.	T	P>|T|	(95% CONF. INTERVAL)		
DIVIDEND YIELD	.8264134	.8927281	0.93	0.361	-.9841231	2.63695	
DIVIDEND PER SHARE	.1775133	1.152843	0.15	0.878	-2.16056	2.515587	
_CONS	.0107372	.0904413	0.12	0.906	-.1726864	.1941607	

Durbin-Watson d-statistic (3, 39) = 1.875604

Durbin_ Watson statistics in Table 3.11 show autocorrelation test for Gross Domestic Product, dividend yield and dividend

per share. Durbin_ Watson test statistics tests the null hypothesis that residuals from ordinary least squares regression are not auto correlated against the alternative hypothesis that the residuals are AR1 process. The Durbin _Watson statistics ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation; a value toward 0 indicates positive correlation; a value toward 4 indicates negative autocorrelation. Table 3.11 show that d statistics is 1.88 and n =3, k= 39. The d statistics is neither closer to 0 nor closer to 4. It is concluded that the d statistics is closer to 2 therefore Gross Domestic Product (GDP), dividend yield and dividend per share show no serial autocorrelation

TABLE 3.12: SERIAL AUTOCORRELATION TEST FOR INTE REST RATE, DIVIDEND YIELD AND DIVID PER SHARE.

Durbin-Watson d-statistic (3, 39) = 1.181759

SOURCE	SS	DF	MS	NUMBER OF OBS	=	39
				F (2, 36)	=	1.52
MODEL	.218314315	2	.109157158	PROB > F	=	0.2316
RESIDUAL	2.578800032	36	.071633342	R-SQUARED	=	0.0780
				ADJ R-SQUARED	=	0.0268
TOTAL	2.79711464	38	.07360828	ROOT MSE	=	.26764

INTEREST RATE	COEF.	STD. ERR.	T	P>|T|	(95% CONF.	INTERVAL)
DIVIDEND YIELD	.7401372	.4275164	1.73	0.092	-.1269063	1.607181
DIVIDEND PER SHARE	.0835521	.5520821	0.15	0.881	-1.036122	1.203226
_CONS	.0111424	.0433112	0.26	0.798	-.0766969	.0989816

Durbin-Watson d-statistic (3, 39) = 1.181759
Durbin_ Watson statistics in Table 3.12 show autocorrelation test for interest rate, dividend yield and dividend per share. Durbin_ Watson test statistics tests the null hypothesis that residuals from ordinary least squares regression are not auto correlated against the alternative hypothesis that the residuals are AR1 process. The Durbin _Watson statistics ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation; a value towards 0 indicates positive correlation; a value toward 4 indicates negative autocorrelation. Table
3.12 show that d statistics is 1.18 and n =3, k= 39. The d statistics is neither closer to 0 nor closer to 4. It is concluded that the d statistics is closer to 2 hence interest rate, dividend yield and dividend per share show no serial autocorrelation.

TABLE 3.13: SERIAL AUTOCORRELATION TEST FOR INFLATION, DIVIDEND YIELD AND DIVIDEND PER SHARE

SOURCE	SS	DF	MS	NUMBER OF OBS	=	39
				F (2, 36)	=	0.32
MODEL	.055439636	2	.027719818	PROB > F	=	0.7262
RESIDUAL	3.06100346	36	.085861207	R-SQUARED	=	0.0176
				ADJ R-SQUARED	=	-0.0370
TOTAL	3.14644309	38	.082801134	ROOT MSE	=	.29302

INFLATION	COEF.	STD. ERR.	T	P>|T|	(95% CONF.	INTERVAL)
DIVIDEND YIELD	.2391765	.4680516	0.51	0.612	-.7100761	1.188429
DIVIDEND PER SHARE	-.3875241	.6044279	-0.64	0.525	-1.613361	.8383126
_CONS	.0247929	.0474178	0.52	0.604	-.0713749	.1209606

Durbin-Watson d-statistic (3, 39) = 1.046381
Durbin_ Watson statistics in Table 3.13 show autocorrelation test for inflation, dividend yield and dividend per share. Durbin_ Watson test statistics tests the null hypothesis that residuals from ordinary least squares regression are not auto correlated against the alternative hypothesis that the residuals are AR1 process. The Durbin _Watson statistics ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation; a value toward 0 indicates positive correlation; a value toward 4 indicates negative autocorrelation. Table 3.13 show that d statistics is 1.05 and n =3, k= 39. The d statistics is neither closer to 0 nor closer to 4. It is concluded that the d statistics is closer to 2; therefore, interest rate, dividend yield and dividend per share show no serial autocorrelation.

4. Results of the study

The study hypothesized that there is no relationship between dividend policy and macroeconomic factors. To test this hypothesis, macroeconomic factors (inflation, Gross Domestic Product and interest rate) were regressed on the two measures of dividend policy which are dividend per share and dividend yield.

TABLE 4.1: RELATIONSHIP BETWEEN DIVIDEND POLICY AND GROSS DOMESTIC PRODUCT

SOURCE	SS	DF	MS	NUMBER OF OBS = 39		
				F (2, 36) = 0.45		
MODEL	.279333416	2	.139666708	PROB > F = 0.6430		
RESIDUAL	11.2447683	36	.312354674	R-SQUARED = 0.0242		
				ADJ R-SQUARED = -0.0300		
TOTAL	11.5241017	38	.303265834	ROOT MSE = . 55889		
GROSS DOMESTIC PRODUCT	COEF.	STD. ERR.	T	P>|T|	(95% CONF. INTERVAL)	
DIVIDEND YIELD	.8264134	.8927281	0.93	0.361	-.9841231	2.63695
DIVIDEND PER SHARE	.1775133	1.152843	0.15	0.878	-2.16056	2.515587
_CONS	.0107372	.0904413	0.12	0.906	-.1726864	.1941607

Source: NSE and KNBS Quarterly data 2009 - 2018

Table 4.1, reveal that R^2 was 0.0242, F (2, 36) = 34, p= 0.6430. This shows that the probability of variance in the gross domestic product that is explained by dividend policy (dividend yield and dividend per share) is 2.42% however -3% variations in the gross domestic product could be explained by dividend yield and dividend per share. From the results, dividend yield does not influence GDP (β = 0.83, p=0.361) and dividend per share does not influence GPD (β = 0.18, p=0.878). The present study conforms to a study by Ali & Khan (2018) who used macroeconomic variables, payout ratio and textile sector in Pakistan. They concluded that the coefficient of GDP growth rate shown that there is a negative relationship between the variables and it is statistically insignificant. The final equation for the model in Table 4.1 is given by Equation 4.1 (p-values in parentheses):

$$GDP = 0.0107372 + 0.8264134(DY)t + 0.1775133\ (DPS)t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 4.1$$

0.87 0.361

Results in Table 4.1 indicates that 0.8264134 change (positive) in dividend yield at time t will lead to a corresponding change in GPD at time t by one unit and 0.1775133 change (positive) in dividend per share will lead to a corresponding change in GDP at time t by one unit. Regression results reveal that dividend yield does not influence Gross Domestic Product (β = 0.18, p= 0.361), Dividend Per Share Does not influence Gross Domestic Product ((β = 0.83, p= 0.878).

TABLE 4.2: RELATIONSHIP BETWEEN DIVIDEND POLICY AND INTEREST RATE

SOURCE	SS	DF	MS	NUMBER OF OBS = 39		
				F (2, 36) = 1.52		
MODEL	.218314315	2	.109157158	PROB > F = 0.2316		
RESIDUAL	2.57880032	36	.071633342	R-SQUARED = 0.0780		
				ADJ R-SQUARED = 0.0268		
TOTAL	2.79711464	38	.07360828	ROOT MSE = .26764		
INTEREST RATE	COEF.	STD. ERR.	T	P>|T|	(95% CONF. INTERVAL)	
DIVIDEND YIELD	.7401372	.4275164	1.73	0.092	-.1269063	1.607181
DIVIDEND PER SHARE	.0835521	.5520821	0.15	0.881	-1.036122	1.203226
_CONS	.0111424	.0433112	0.26	0.798	-.0766969	0.989816

Source: NSE and CBK Quarterly data 2009 – 2018

From the findings in table 4.2, coefficient of determination R^2 was 0.0780, F (2, 36) = 34, p= 0.2316. This shows that the probability of variance in the Interest rate that is explained by measures of dividend is 7.80% however 2.68% variation in Interest rate could be explained by dividend yield and dividend per share. The study reveals that dividend yield does not influence interest rate (β = 0.74, p=0.092) and dividend per share does not influence interest rate (β =0.08, p=0.881).

The final equation for the model in Table 4.2 is given by Equation 4.2 (p-values in parentheses) $Int = 0.0111424 + 0.7401372\ (DY)t + 0.0835521(DPS)t$ ……. ……4.2

0.881 **0.092**

Results in Table 4.2 indicates that 0.7401372 change (positive) in dividend yield at time t will lead to a corresponding change in the interest rate at time t by one unit, 0.835521 change (positive) in dividend per share will lead to a corresponding change in the interest rate at time t by one unit.

TABLE 4.3: RELATIONSHIP BETWEEN DIVIDEND POLICY AND INFLATION

SOURCE	SS	DF	MS	NUMBER OF OBS = 39		
				F (2, 36) = 0.32		
MODEL	.055439636	2	.027719818	PROB > F = 0.7262		
RESIDUAL	3.09100346	36	.085861207	R-SQUARED = 0.0176		
				ADJ R-SQUARED = - 0.0370		
TOTAL	3.14644309	38	.82801134	ROOT MSE = .29302		
INFLATION	COEF.	STD. ERR.	T	P>|T|	(95% CONF. INTERVAL)	
DIVIDEND YIELD	.2391765	.4680516	0.51	0.612	-.7100761	1.188429
DIVIDEND PER SHARE	-.3875241	.6044279	-0.64	0.525	-1.613361	.8383126
_CONS	.0247929	.0474178	0.52	0.604	-.0713749	.1209606

Source: NSE and KNBS Quarterly data 2009 - 2018

Table 4.3, reveals that R^2 is 0.0176, F (2, 36) = 34, p=0.7262. This shows that the probability of variance in inflation that is explained by measures of dividend policy is 1.76% however -3.70% variations in inflation could be explained by dividend yield and dividend per share. Regression results in Table 4.3 reveal that dividend yield does not influence inflation (β = 0.24, p=0.612) and dividend per share does not influence inflation (β = -0.39, p =0.525). The final equation for the model in Table 4.3 is given by Equation 4.3 (p-values in parentheses):

$$Inflation = 02473929 + 0.2391765(DY)t - 0.3875241(DPS)t$$ …… ……4.3

0.589 **0.594**

Results in table 4.3 indicates that 0.2391765 change (positive) in dividend yield at time t will lead to a corresponding change in inflation at time t by one unit, -0.3875241 change (negative) in dividend per share will lead to a corresponding change in inflation at time t by one unit. From the results presented above, we conclude that dividend policy does not influence macroeconomic factors.

From the theoretical perspective, Fisher (1867-1947) and Friedman (1912-2006) who proposed monetary policy asserted that the most important aspect of economy is monetary policy and not fiscal policy. They observed that for stability of economy, monetary policy is more important than fiscal policy. They link money supply with output and prices in the short run. These economists however didn't link inflation and dividend policy.

Keynes (1936) linked dividend policy and inflation, but, instead, he just mentioned the words investment and taxation. He emphasized that inflation can be caused by aggregate demand which is occasioned by consumption, government expenditure and various investments. The theory holds that demand and supply of various economic activities such as government expenditure and investments affect demand and supply hence inflation gap is also affected. Lack of focus in linking dividend policy and theories of inflation explains an insignificant relationship between dividend policy and inflation in the present study.

The results are supported by empirical studies, for instance, Ali and Khan (2018) who sought to study macroeconomic variables and dividend ratio. Their results revealed that interest rate, inflation rate, and the GDP growth rate have an insignificant inverse association. Ochieng & Kinyua (2013) also asserted that the inflation rate does not affect the dividend payout ratio. Consequently, Khan *et al.* (2013) revealed that dividend yield is not dependent on the inflationary effect. On the contrary, Bosse (2009) observed that inflation and dividend are related, but he was quick to note that inflation may simply increase the nominal value of corporate earnings thereby leading to higher dividend payout.

5. Conclusion

The study concluded that macroeconomic factors (Gross Domestic Product, interest rate and inflation) do not influence dividend policy which is denoted by dividend yield and dividend per share. It is recommended that investors should not mind much about the relationship between dividend policy and macroeconomic factors when making investment decisions.

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