

Liquidity and Financial Performance in Agricultural Firms listed in the Nairobi Securities Exchange in Kenya

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Abstract

Liquidity of the firm is a key determinant of the firm's financial performance. This study sought to establish the effect of liquidity on the financial performance of listed agricultural companies in Nairobi Security Exchange in Kenya. Secondary data was extracted from the audited financial statements for the period 2003 to 2013 and analyzed using a pooled OLS model. Liquidity was measured using liquidity ratios while financial performance was measured by return on assets (ROA), return on equity (ROE) and earnings per share (EPS). The results indicated that relationship between liquidity and ROA is positive and significant ($b_1=0.014$, p value, 0.001) and positive and significant with ROE ($b_1=0.017$, p value, 0.002) but positive and insignificant with EPS ($b_1=0.019$, p value, 0.974). The study confirms that liquidity as measured using liquidity ratio affects the financial performance of agricultural companies listed in NSE positively and significantly in relation to ROA and ROE..

Keywords: Liquidity, financial performance, Agricultural firms, Nairobi Securities Exchange, return on assets, return on equity, earnings per share

1. Introduction

Agriculture development is the most critical sector for most Sub-Sahara African countries owing to its significance in food security and employment creation. Agricultural performance however has since the 1990s erratically fluctuated widely, culminating in a declining trend over the period. This close relationship between the performance of agriculture and that of the economy implies that agriculture must grow at a high rate for it to spur economic growth (Nyoro, Wanjala & Awour, 2012). Agricultural companies thus have the potential of enhancing economic growth by providing raw materials and market for good quality produce in large quantities and being catalysts for increased production of farm produce. Therefore, the financial performance of a firm usually reflects its development condition (Wang, 2008). One of the concerns of the managers of business is to grow and enhance the shareholder's wealth and profitability. This can be achieved by formulating strategies to enable the company meet their obligations as they fall due and achieve their business goals. Liquidity therefore plays an imperative role in the smooth running of business when preferred liquidity is attained (Eljelly, 2004; Bhunia, 2010; Safdar, Awan, Ahmed, Qureshi & Hasnain, 2016).

Agriculture's importance is not only manifested in the African economies but also in many economies all over the world (Wang 2008). Wang explains that the Chinese focus is to increase the farmers' income by supporting the agricultural activities in the rural areas. This is corroborated by Cao & Birchenall (2013), who explains the kind of circumstances under which agriculture plays a fundamental role in economic development of China. He states that Agricultural productivity was the main factor in the reallocation of output and employment toward the non-agricultural sector and that China has a considerable fraction of its labour in agriculture.

In Africa, Uganda, in its strategy for 2014/15 includes the prosperity for all policy with a goal of improving the lives of her people through prioritizing agriculture among the key productive sectors driving growth in the economy (Republic of Uganda, 2010). According to the government of Kenya (2011), the agricultural sector is the backbone of Kenya's economy and the agricultural companies contribute immensely to the economy of Kenya through food productions and creation of employment.

Studies have been conducted both internationally and locally to examine the factors affecting the performance of firms listed in the stock exchange. The existence of a trade-off between liquidity and profitability has been addressed intensively given its significance to companies. According to Myer (2005), excess liquidity is an expense for the company. This he clarified by explaining that money can be placed in fixed deposits with banks and earn interest income and that the price of working capital is the interest rate. On the other hand, liquidity deficit can be offset by short term loans or by selling liquid assets which is an expense to the firm. There is therefore an optimal level of liquidity that would benefit a company in a profitable way. Studies by Ankintoye (2000) on profit determinants revealed that liquidity of Ukrainian firms, measured by current ratio, has a significant positive influence on profitability. Accordingly, one can name the size of the company, intangible assets, and liquidity among other important determinants of profitability for companies operating in the emerging markets. Consequently, liquidity has a considerable effect on firm's profitability hence the need for its proper management.

The analysis of liquidity management for Belgian firms (Amadi & Akani, 2005) shows that liquidity requirements are relatively the same across all companies within the industry. However, the liquidity measurements are not stable as they are influenced by macroeconomic factors especially changes in interest rates, competition, and technological developments among others. Similar results were found by Weinraub & Visscher (1998) in their study of the issue of aggressive (low level of liquidity) and conservative (medium level of liquidity) working capital management policies in US firms. Their study on 10 industries groups looked into the differences between the influences of two policies onto profitability and concluded that there is high and significant negative correlation between industry assets and liability policies.

Companies have different needs of liquidity that depends on various circumstances. According to Pandey (2005), the main factors that influence liquidity requirements are the nature and the size of business (trading and financial firms require large investments in working capital, construction firms also have to invest substantially in working capital); manufacturing cycle; business fluctuations; credit policies of the firm; growth and expansion activities (growing industries require more working capital than those that are static), operating efficiency (optimum utilization of resources), production policy and price level changes. Eljelly (2004) studied the relation between profitability and liquidity in joint stock companies in Saudi Arabia. Using correlation and regression analysis the study found significant negative relation between the firm's profitability and its liquidity level, as measured by current ratio. He concluded that this relationship is more vivid in firms with high current ratios and longer cash conversion cycles and that the cash conversion cycle was a better measure of liquidity than current ratio.

Safdar, et al. (2016) investigated the liquidity-profitability trade off in Sugar Industry in Pakistan. A sample of 36 sugar mills was selected. Secondary data was used for the 5 years, starting from 2007 and ending on 2011. Results of the study articulated that liquidity of sampled sugar mills is positively linked to their profitability. Konadu (2009) in a study in Ghana found no positive relationship between liquidity trend and profitability and concluded that there is a negative relationship between liquidity and profitability in the Ghana banking sector.

In Kenya, some studies have been conducted with mixed results on the relationship between liquidity and financial performance. However, only a few studies have focused on the agricultural companies despite its importance. Omondi and Muturi, (2013) conducted a study on the factors Affecting the Financial Performance of Listed Companies at the Nairobi Securities Exchange in Kenya. The study adopted an explanatory research design and 29 listed firms (excluding listed banks and insurance companies) which have consistently been operating at the Nairobi securities exchange during the period 2006-2012 were sampled. Findings showed that liquidity had a significant positive effect on financial performance ($\beta_2 = 0.296$, $\rho < 0.05$) indicating that liquidity plays an important role in improving company's financial performance. The study used a single measure of financial performance (ROA).

Owele and Makokeyo (2015) examined the relationship between working capital management approaches and financial performance of agricultural firms listed in the Kenya's Nairobi Securities Exchange (NSE) using a diagnostic research design. The results showed that each company employed a significantly different working capital management approach ($P = 0.002$, $F = 54.55$, $df = 6$). However, a significant effect of the working capital management approach on the company's financial performance was only evident in one of the companies and the financial performance estimates between the companies also differed significantly.

Nyamweno and Olweny (2014) sought to determine the effect of working capital management on performance of firms listed at the Nairobi Securities Exchange in Kenya. A sample of 27 listed firms was used for the period 2003 to 2012. The study employed a Robust GMM applied to Arellano-Bover/Blundell-Bond linear dynamic panel-data estimation analysis. The results revealed that days of accounts receivables and cash conversion cycle have an indirect effect on performance measured by gross operating profit. Days of accounts, payables and days in inventory have a significant and direct effect on performance. These studies generalized the results in listed companies while this study focused on the effect of liquidity on the financial performance of listed agricultural companies in Nairobi Security Exchange in Kenya.

2.0. Theoretical Review

A theory is necessary in guiding research in the identification of the variables to measure and the statistical relationships to look for in the context of the study (Trochim, 2006). Therefore, this study was informed by the liquidity preference theory. According to Jhingan (2004), this theory was developed after the great depression in the 1930's by Keynes. Keynes outlined three motives for holding money as: (i) transaction motive- for bridging the receipt and expenditure gap; (ii) the precautionary motive-to provide a reservoir of purchasing power that can be used to finance unanticipated expenditures, and (iii) the speculative motive-to satisfy the desire to hold wealth in the most liquid form if one expects interest rates on alternative assets to rise, thereby causing capital losses. The liquidity preference theory is relevant to this study since it explains the link between liquidity and financial performance. Agricultural firms listed in NSE may sometimes prefer to hold cash, which entails less risk. The more liquid an investment, the easier it is to dispose for its full value. Liquidity preference theory will determine the amount of capital that is available for investment and spending and thereby affecting financial performance of the firms.

3.0. Methodology

The research design was descriptive and explanatory to bring out the correlation of variables consistent with Saunders, Lewis & Thornhill (2012). Secondary data was extracted from the audited financial statements of the 7 listed agricultural companies for the period 2003 to 2013. Liquidity ratios and financial performance measures (ROA, ROE, and EPS) were calculated. Diagnostic tests were conducted to confirm the assumptions of the OLS. A pooled OLS regression model was used to estimate the relationship between liquidity and financial performance using the following model in STATA 11.0 software;

$$Y = \beta_0 + \beta_1 X + \mu$$

Where;

Y = Financial performance as proxied by return on assets (ROA), return on assets (ROE) and earnings per share (EPS).

X= Liquidity (Liquidity ratios)

The specific models are as follows;

$$ROA = \beta_0 + \beta_1 \text{Liquidity} + \mu$$

$$ROE = \beta_0 + \beta_1 \text{Liquidity} + \mu$$

$$EPS = \beta_0 + \beta_1 \text{Liquidity} + \mu$$

In the model, β_0 = the constant term. While the coefficient β_1 measures sensitivity of Financial performance to unit change in liquidity to; μ = error term the model significance test using ANOVA and coefficient of determination was calculated. Other tests including pre-estimation and post estimation tests were conducted to confirm the conformity with the OLS assumptions. Significance was determined using a critical p value of 0.05.

4.0. Findings

4.1. Descriptive Statistics and trend analysis

4.1.1 Liquidity

As indicated in the table 1 and figure 1, the total mean of liquidity for the period 2003 to 2013 was 4.087 with a standard deviation of 3.98 indicating small variability in liquidity over time. The minimum and maximum values of liquidity over the same period of time were 52% and 18.76% respectively

Table 1: Descriptive Statistics

	N	Mean	Std. Deviation	Std. Error	95per cent Confidence Interval for Mean		Minimum	Maximum	
					Lower Bound	Upper Bound			
Liquidity	2003	7	3.9195	4.15244	1.56947	.0791	7.7598	.53	12.36
	2004	7	4.2804	4.13809	1.56405	.4533	8.1075	.64	12.75
	2005	7	3.9250	3.78096	1.42907	.4282	7.4218	.52	11.44
	2006	7	3.7103	4.20667	1.58997	-.1803	7.6008	.66	12.53
	2007	6	2.1546	1.04861	.42809	1.0541	3.2550	.78	3.95
	2008	7	2.3288	.91145	.34449	1.4859	3.1718	1.07	3.84
	2009	7	3.6775	2.55672	.96635	1.3129	6.0420	1.50	7.97
	2010	6	4.9146	6.58458	2.68814	-1.9955	11.8247	1.34	18.29
	2011	7	4.5319	3.71853	1.40547	1.0928	7.9709	2.10	12.41
	2012	6	7.8926	6.70876	2.73884	.8522	14.9330	1.90	18.76
	2013	6	3.9895	2.45936	1.00403	1.4086	6.5705	1.33	7.95
	Total	73	4.0866	3.98292	.46617	3.1573	5.0159	.52	18.76

Figure 1 shows the liquidity trend for the 7 companies from the year 2003 to 2013. The trend line indicates that liquidity trend has been on the rise. Trend lines show that there is a low goodness of fit (R squared) for liquidity. The R squared implies that liquidity is inconsistent indicating unsustainability.

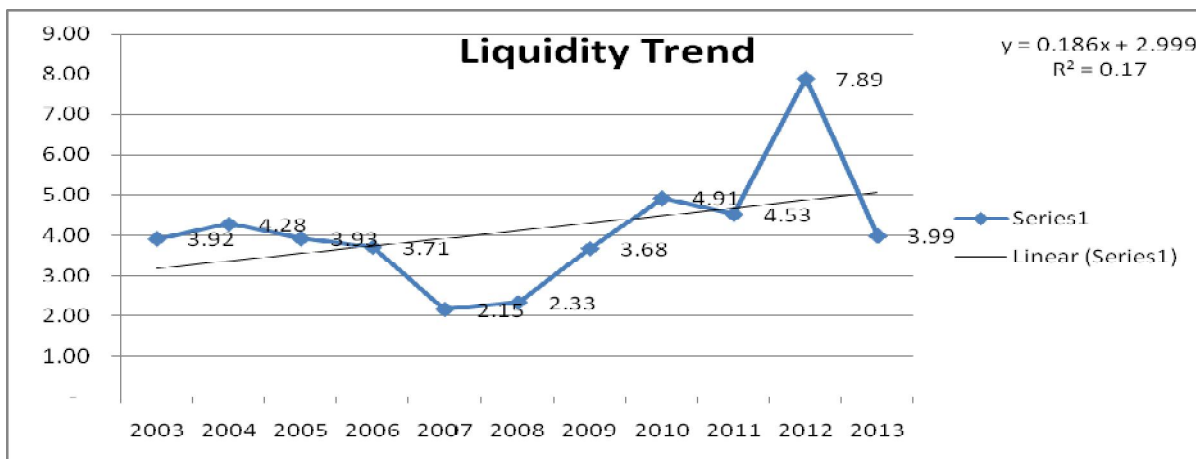


Figure 1: Liquidity Trend

4.1.2 Return on Assets (ROA)

Figure 2 and table 2 shows the ROA trend for the 7 companies from the year 2003 to 2013. The trend indicates that ROA has been rising even though there was a great drop in the year 2005 and 2013.

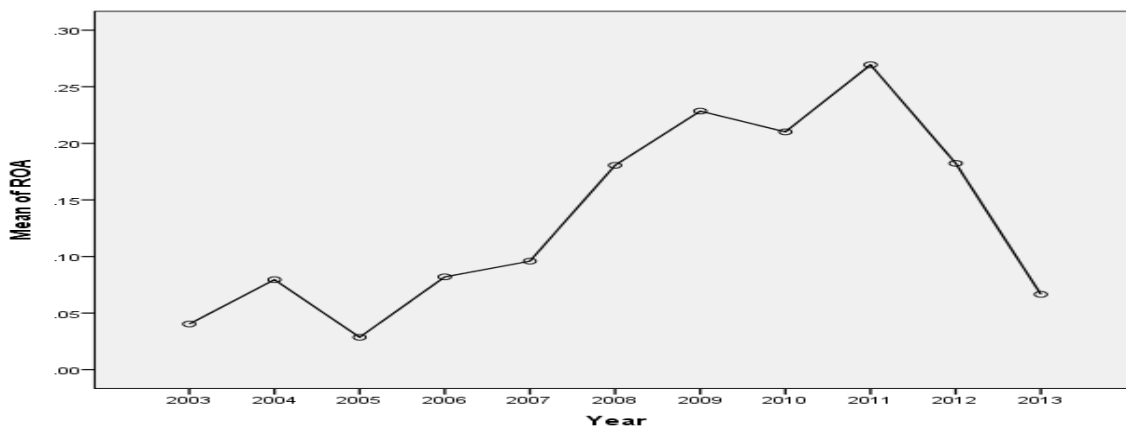


Figure 2 ROA Trend

Table 2: Trend Analysis for ROA

	N	Mean	Std. Deviation	Std. Error	95per cent Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
2003	7	.0404	.08955	.03385	-.0425	.1232	-.05	.22
2004	7	.0796	.13324	.05036	-.0437	.2028	-.09	.29
2005	7	.0286	.13134	.04964	-.0929	.1501	-.16	.23
2006	7	.0820	.07015	.02651	.0171	.1469	-.03	.19
2007	6	.0959	.14609	.05964	-.0574	.2492	-.04	.32
2008	7	.1806	.19752	.07465	-.0021	.3633	-.07	.57
2009	7	.2285	.22538	.08518	.0201	.4370	.07	.71
2010	6	.2101	.08774	.03582	.1180	.3022	.08	.32
2011	7	.2694	.12148	.04592	.1570	.3817	.11	.47
2012	6	.1823	.16394	.06693	.0103	.3544	-.01	.46
2013	6	.0665	.14234	.05811	-.0828	.2159	-.17	.24
Total	73	.1328	.15659	.01833	.0962	.1693	-.17	.71

4.1.3 Return on Equity (ROE)

Figure 3 and table 3 shows the ROE trend for the 7 companies from the year 2003 to 2013. The trend indicates that ROE has been rising though there was a great drop in the year 2005.

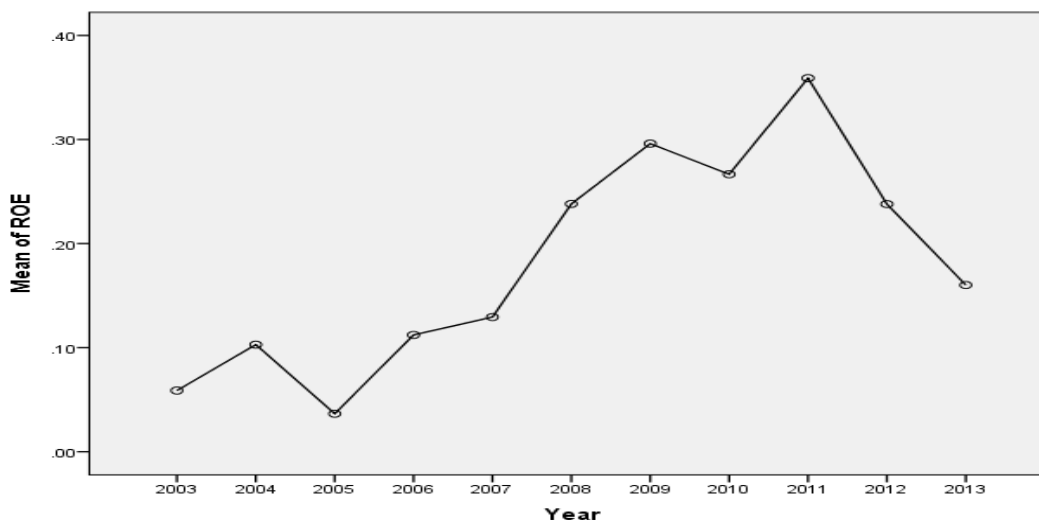


Figure 3 ROE Trend

Table 3 Trend Analysis for ROE Trend

	N	Mean	Std. Deviation	Std. Error	95per cent Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
2003	7	.0588	.11864	.04484	-.0509	.1685	-.05	.30
2004	7	.1029	.17039	.06440	-.0547	.2605	-.12	.35
2005	7	.0365	.16990	.06422	-.1206	.1936	-.19	.30
2006	7	.1122	.09400	.03553	.0253	.1991	-.04	.24
2007	6	.1294	.19282	.07872	-.0730	.3317	-.06	.42
2008	7	.2381	.23096	.08729	.0245	.4517	-.06	.69
2009	7	.2961	.27507	.10396	.0417	.5504	.09	.87
2010	6	.2666	.10579	.04319	.1555	.3776	.11	.40
2011	7	.3590	.14486	.05475	.2250	.4929	.15	.61
2012	6	.2379	.21584	.08812	.0114	.4644	-.01	.61
2013	6	.1602	.22734	.09281	-.0784	.3987	-.21	.44
Total	73	.1807	.19943	.02334	.1341	.2272	-.21	.87

4.1.4 Earnings per Share (EPS)

Figure 4 and table 4 shows the EPS trend for the 7 companies from the year 2003 to 2013. The trend indicates that EPS has been on the rise with the year 2010 registering the highest mean.

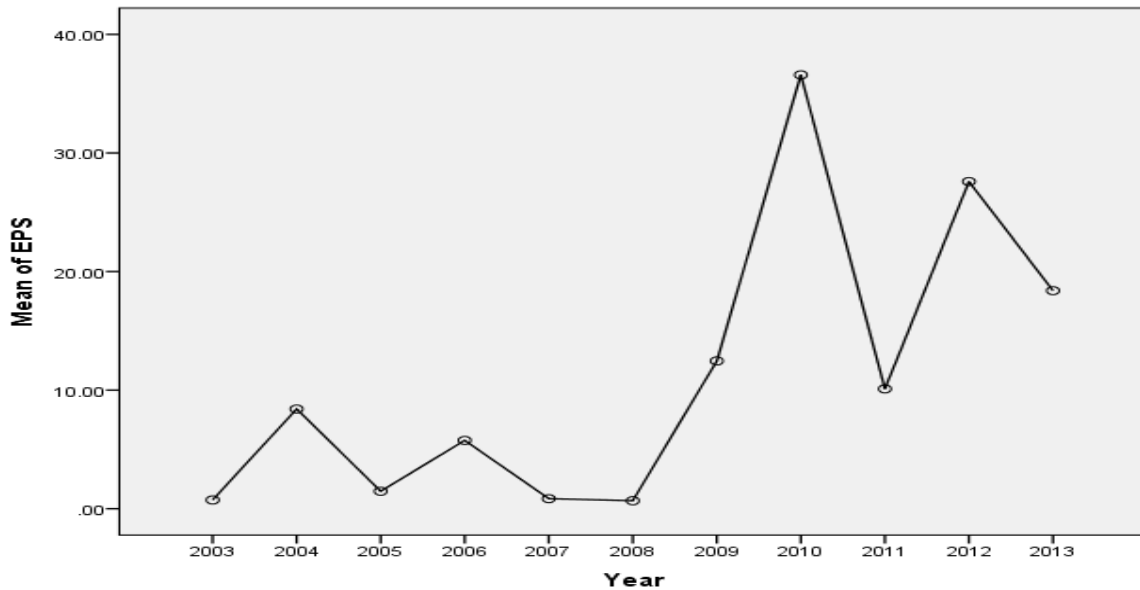


Figure 4 EPS Trend

Table 4 Trend Analysis for EPS

	N	Mean	Std. Deviation	Std. Error	95per cent Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
2003	7	.7357	5.79902	2.19182	-4.6275	6.0989	-3.54	13.41
2004	7	8.4100	7.43724	2.81101	1.5317	15.2883	-.18	20.29
2005	7	1.4714	7.26955	2.74763	-5.2518	8.1946	-10.17	9.88
2006	7	5.7614	3.35131	1.26668	2.6620	8.8609	.63	10.08
2007	7	.8486	5.02886	1.90073	-3.8024	5.4995	-6.29	9.78
2008	7	.6743	11.25238	4.25300	-9.7324	11.0810	-17.84	14.10
2009	7	12.4629	10.76748	4.06972	2.5046	22.4211	1.47	28.06
2010	6	36.5817	38.50718	15.72049	-3.8291	76.9925	1.12	100.05
2011	7	10.1071	29.81888	11.27048	-17.4707	37.6850	-46.74	47.80
2012	7	27.5929	35.11698	13.27297	-4.8849	60.0706	-.30	97.61
2013	6	18.3883	37.43289	15.28191	-20.8951	57.6717	-1.84	94.36
Total	75	10.7503	22.94426	2.64938	5.4713	16.0293	-46.74	100.05

4.2. Correlation Analysis

Table 5 presents the results of the correlation analysis between liquidity and ROA, ROE and EPS. The results shows that liquidity and ROA is positively and significantly related ($r=0.389$, $p=0.001$), positively and significantly related with ROE ($r=0.353$, $p=0.002$) and positively and insignificantly related to EPS ($r=0.004$, $p=0.974$).

Table 5: Correlation Analysis Results

		ROA	ROE	EPS	Liquidity
ROA	Pearson Correlation	1.000			
	Sig. (2-tailed)				
ROE	Pearson Correlation	.992**	1.000		
	Sig. (2-tailed)	0.000			
EPS	Pearson Correlation	.253*	.263*	1.000	
	Sig. (2-tailed)	0.027	0.022		
Liquidity	Pearson Correlation	.389**	.353**	0.004	1.000
	Sig. (2-tailed)	0.001	0.002	0.974	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

4.4. Regression analysis

Regression analysis was conducted to empirically determine whether liquidity were a significant determinant of performance which is measured in ROA, ROE and EPS. Regression results presented in table 6 below indicate the goodness of fit for the regression between liquidity and ROA is 0.151. An R squared of 0.151 indicates that 15.1per cent of the variations in ROA are explained by liquidity. While 12.4 per cent of ROE is explained by liquidity and 0.000 per cent of EPS is explained by liquidity. The overall model significance is also presented in table 6. The overall model of ROA was significant with an F statistic of 13.157. The overall model of ROE was significant with an F statistic of 10.506 while for EPS was insignificant with F statistic of 0.001. The relationship between liquidity and ROA is positive and significant ($b_1=0.014$, p value, 0.001). Liquidity and ROE is positive and significant ($b_1=0.017$, p value, 0.002). Liquidity and EPS is positive and insignificant ($b_1=0.019$, p value, 0.974).

Table 6: Regression Analysis for Liquidity and Financial Performance (ROA, ROE, and EPS)

	ROA	ROE	EPS
Parameter estimate	Coefficient(P value)	Coefficient(P value)	Coefficient(P value)
Constant	0.053(0.011)	0.090 (0.002)	9.481(0.003)
Liquidity	0.014(0.001)	0.017(0.002)	0.019(0.974)
R Squared	0.151	0.124	0.000
F statistic (ANOVA)	13.157(0.001)	10.506(0.002)	0.001(0.974)

The regression equation is as follows;

$$ROA = 0.053 + 0.014Liquidity$$

$$ROE = 0.090 + 0.017 Liquidity$$

$$EPS = 9.481 + 0.019 Liquidity$$

The null hypothesis was that liquidity had no significant relationship with financial performance. The alternative hypothesis was that liquidity had a significant relationship with financial performance. Since two attributes had a p value of less than 0.05 (ROA had a p value of 0.001 and ROE had a p value of 0.002), the overall hypothesis was rejected and the alternative hypothesis adopted. In conclusion, liquidity had a significant and positive relationship with financial performance.

5.0. Discussion of the results

The objective of the study was to establish the effect of liquidity on the financial performance. The trend line indicates that liquidity trend has been on the rise. The findings have revealed that liquidity has a positive influence on return on assets (ROA). This finding is supported by the coefficient of determination which shows that the variations in ROA are explained by liquidity. The influence of liquidity on ROA is also statistically significant and hence the alternate hypothesis has been accepted. In addition, the findings revealed that liquidity had a positive influence on return on equity (ROE). This finding is supported by the coefficient of determination which shows that the variations in ROE are explained by liquidity. The influence of liquidity on ROE is also statistically significant and hence the alternate hypothesis has been accepted. Further, the results indicated that liquidity had a positive influence on earnings per share (EPS). The influence of liquidity on EPS is not statistically significant.

The correlation results show that liquidity and ROA is positively and significantly related, positively and significantly related with ROE and positively, and insignificantly related to EPS. These findings agree with those of Omondi and Muturi, (2013), whose findings revealed that liquidity had a significant positive relationship with financial performance. The study also provides evidence to infer that liquidity plays an important role in improving the firm's financial performance. Thus, firms with optimum levels of liquidity report better financial performance as a result of the risk-return tradeoff. This is consistent with Nyabwanga, Ojera, Otieno & Nyakundi (2013); Myer, (2005) who stated that there is a trade-off between liquidity and profitability; gaining more of one ordinarily means giving up some of the other.

On the other hand, Shleifer and Vishny (1994) did a study on liquidity of firms in Korea. According to the results obtained from the hypotheses, generally, modern liquidity criteria provide more accurate and more significant influence on performance appraisal of profitable companies in comparison to modern liquidity criteria of performance appraisal in unprofitable companies for financial information users to make optimally decisions. Further, Abeysekera and Guthrie (2005) in a study entitled "working capital management, operating cash flow and company performance" studied the relationship between working capital management, company performance and cash activation among 5802 companies from 1990 to 2004. The results indicated that managers could increase profitability and cash flow through shortening cash conversion cycle and collection period of receivable accounts and they could decrease profitability and cash flow via prolonging due date of payable accounts. The findings are also consistent with Liargovas & Skandalis, (2008); Lamberg, & Vålming, (2009); Chandran, (2008), who concluded that liquidity had a positive relationship with financial performance.

Although there are different approaches to evaluation of liquidity profitability trade-off, most authors use panel data regressions with profitability measure as a dependent variable and liquidity indicators as explanatory variables. Commonly used liquidity ratios are the current ratio and the quick (or acid test) ratio (Vishnani & Bhupesh, 2007; Bhunia & Khan, 2011). This is consistent with this study.

6.0. Conclusion

From the study, it can be concluded that liquidity has a positive and statistical significant effect on financial performance of agricultural companies listed in NSE. The liquidity of the company has a positive impact on the profitability of the company, return on assets (ROA) of the company, return on equity (ROE) of the company and earnings per share (EPS) of the company. Therefore, liquidity and profitability of listed agricultural companies in Kenya should be given key attention in view of their connection with the company's shareholders wealth maximization necessary for the long time survival and sustainability.

7.0. Recommendation and Areas for further research

Conflicts arise always between liquidity of a firm and its profitability. The conflict arises because the maximization of firm's returns could seriously threaten the liquidity and on the other hand, the pursuit of liquidity has a tendency to dilute returns. The crucial part in managing a company's liquidity day-to-day operations is to ensure its smooth running and that it meets its obligations. The study therefore recommends that financial managers should ensure that there is no mismatch between the current assets and current liability. If this happens, the mismatch will affect the firm's profitability. However, the study was limited to one variable (liquidity) that affects the financial performance of the listed companies in the securities market. Thus, more research should be carried out to determine how other measures/variables affect financial performance. Measures such as other component of working capital that affects a firm's future liquidity are therefore recommended for future studies. These would enable the researchers and concerned investors to mitigate effects of such factors and hence enhance financial performance. Non-listed agricultural firms should also be considered for studies.

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