

Effects of Working Capital Management on Financial Performance of Energy and Petroleum Companies Listed at Nairobi Securities Exchange

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Abstract

Purpose – This paper sought to establish the effect of Working Capital Management on the financial performance of Energy and Petroleum Companies listed at the Nairobi Securities Exchange.

Methodology – The study was modelled as correlation survey. A data collection sheet was used to collect secondary data from the published financial statements of all Energy and Petroleum companies listed at Nairobi Securities Exchange for a period of eight years between 2007 and 2014. Both descriptive and quantitative analyses were adopted. Pearson correlation, regression and ANOVA analysis were also conducted.

Findings - The study suggests that Working Capital Management influence the Return on Assets significantly. 17.8% of the variations in profitability were influenced by variations in the Working Capital Management. The study establishes that the influence of Working Capital Management on profitability is statistically significant. The study finds weak negative associations between profitability and inventory conversion period, accounts collection period, accounts payable period and cash conversion cycles. The study establishes that the negative relationships between accounts payable period, cash conversion cycle and profitability are statistically significant. The relationships between accounts collection period, inventory conversion period and performance are not statistically significant.

Implications - It is incumbent upon the Finance Managers of Energy and Petroleum companies listed at Nairobi Securities Exchange to understand the Energy and Petroleum business operations, and put in place robust Working Capital Management framework because of significant and positive impact on the financial performance of these companies.

Value - A vibrant and profitable Energy and Petroleum sector has been identified as a key pillar to the achievement of Kenya's Vision 2030. It is critical therefore, to re-evaluate existing Working Capital Management framework of these companies for robustness in order to realize the Vision 2030.

Key Words: *Working Capital Management, Financial Performance, Nairobi Securities Exchange*

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Introduction

Working Capital Management occupies the major portion of a finance Manager's time and attention (Richard & Laughlin, 1980). This is because of its implication on both liquidity and performance of a firm. Managers are coming to realization that incorrect evaluation of the liquidity implications of the firm's working capital needs may, in turn subject creditors and investors to an unanticipated risk of default (Richard & Laughlin, 1980). Working capital management remains one of the most important issues in the organization where many financial executives are struggling to identify the basic working capital drivers and the appropriate level of working capital (Lamberson, 1995). The main objectives of working capital management are therefore to minimize these risks by ensuring seamless business operations and at the same time, ensuring the business is in a better position to meet its short-term obligations.

Keynesians Theory, Operating Cycle Theory and Cash Conversion Cycle Theory are some of the theories that provide guidance on effective working capital management. These theories emphasize the need to establish an optimal level of working capital. This need was arrived after realization that working capital elements including cash, inventories, accounts receivables, accounts payables are key to the smooth operation of the business but on the other hand bear a cost to the business. Baumal (1952) and Tobin (1956) noted that optimal cash balances, just like inventory models have cost associated with sourcing, maintenance, beside the benefits that firms derive from optimal cash levels.

Baumal (1952) developed the Economic Order Quantity of inventory management. The model strives to balance marginal cost associated with ordering and holding the inventory to minimum. Brigham & Ehrhardt (2012) held similar views where they observed that the twin goals of inventory management are to ensure sustainable operations as well as hold cost of ordering and carrying inventories to the lowest possible level. Pandey (1995) explain that Working Capital Management is a tradeoff between risk and profitability of

the firm. It is therefore incumbent upon Finance Managers to critically review working capital components to establish optimal levels.

Brigham and Ehrhardt (2012) noted that working capital refers to the current assets used in the operations of a firm. The net operating working capital is the current assets minus the current liabilities. A firm can operate either a relaxed or restricted working capital management Policy. In a relaxed working capital management policy, a firm would hold relatively large amounts of each type of current asset while in a restricted Working Capital Management policy; a firm would hold minimum amounts of each type of the current assets. Raheman and Nasr (1998) noted that working capital management is the management of current assets to meet short term obligations of the company. Kallberg and Parkinson (1993) observed that in short-term financial management, a great deal of emphasis is placed on the levels and changes in current assets and liabilities.

Horngren, Datar and Foster (2013) described inventory managements as the planning, coordinating and controlling activities related to the flow of inventory through and out of an organization. Brigham and Houston (2002) observed that inventory may be classified as Supplies, Raw materials, Work in progress and finished goods. Brigham and Ehrhardt (2012) noted that the twin goals of inventory management as: first, to ensure the inventories needed to sustain the operations are available and secondly, that the firm should hold the cost of ordering and carrying inventories are held at the lowest levels possible. Pandey (1995) observed three motives why firms hold inventories: transactional, precautionary and speculative motives. A firm can measure inventory management by analysis of the Inventory Conversion Period.

Firms generally sell on cash basis. However, competitive pressure forces firms to offer credit. Brigham and Ehrhardt (2012) noted that carrying receivables has both direct and indirect cost, but also has an important benefit of increased sales. Martin, Petty, Keown and Scott (1991) observed that Accounts Receivables makes up a very large portion of the firm's assets; they actually composed of 25.97 % of the typical firm assets. Brigham and Ehrhardt (2012) added that receivables management begins with credit policy which

summarizes credit period, discounts, and credit standards and collections terms. Kallberg and Parkinson (1993) noted that monitoring on both the aggregate and the individual level is commonly based on ageing schedule and on measuring Accounts Collection Period. Brigham and Ehrhardt (2012) observed that Average Collection Period is the average length of time required by a firm to convert the firm's receivables into cash.

Brigham and Ehrhardt (2012) explained that firms hold cash for transaction purposes, precautionary purposes and compensation to the banks for providing loan and services. The Cash conversion cycles focuses on the length of time between when the company makes payments and when it receives cash inflows. Berk and Demerzo (2011) observed that an important consideration for all firms is the ability to finance the transition from cash to inventories to receivables and back to cash. Pandey (1995) further noted that a firm should develop strategies regarding cash management which involves cash planning, managing the cash flow, optimal cash levels and investing surplus cash. Pandey (1995) noted that the cost of excess cash and the dangers of cash deficiency should be matched to determine the optimal level of cash balances.

Firms generally make purchases from other firms on credit, recording debts as an account payable. Brigham and Ehrhardt (2012) noted that trade credit (Accounts payables) is the largest single category of operating current liability representing about 40% of the current liabilities of the average nonfinancial firm. Further, Accounts Payable Period is the average length of time between the purchase of materials and labor and the payment of cash for them.

Research Objective

The study sought to establish the effect of working capital management on the financial performance of Energy and Petroleum firms listed on the Nairobi Securities Exchange

Methodology

This census study adopted a quantitative approach which involved collection and analysis of numerical data. The study was modeled on a correlation design. Grimm and Yarnold

(2000) explain that correlation design investigates a range of factors including the nature of relationships between two or more variables and the theoretical model that might be developed and tested to explain these resultant correlations. The study population included all the five Energy and Petroleum companies listed on Nairobi Securities Exchange namely; Kenol Kobil ltd, Total Kenya Ltd, KenGen Ltd, Umeme Ltd and the Kenya Power & Lighting Company. The companies listed at the Nairobi Securities Exchange were preferred in this study because of data availability as well as reliability of the data since they are subject to statutory audits. Secondary sources of data specifically published Financial Statements for eight years between 2007 and 2014 were used. It is from these financial statements that study variables namely; Return on Capital Employed, Account Collection Period, Average Payable Period, Inventory Conversion Period and Cash Conversion Cycle, were generated.

Analytical Model

The effect of working capital management on the firm's performance was modeled using the following equation to obtain the estimates:

$$ROA_t = \beta_1 (ACP_t) + \beta_2 (ICP_t) + \beta_3 (APP_t) + \beta_4 (CCC_t) + \varepsilon$$

Where:

- ROA_t = Return on Assets of the firm o at time t : =1, 2, 3...,n
- $\beta_1 \dots \beta_4$ = coefficient of the variables
- t = time years 1, 2, 3...,n
- ACP = Accounts Collection Period
- ICP = Inventory Conversion Period
- APP = Average Payable Period
- CCC = Cash Conversion Cycle
- ε = Error Term

Results and Discussions

Table 1 below presents the descriptive statistics for all the variables. It shows the

numbers of observation for all the variables, their average values and their standard deviation. It also shows the minimum and maximum values.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Lnroa	38	.00	3.02	1.8285	.65006	-.574
Lnicp	38	1.70	5.07	3.5696	.74061	-.523
Lnacp	38	1.49	5.29	3.9641	.86595	-.773
Lnapp	38	.00	6.04	4.0051	1.43874	-1.123
Lnccc	38	-.51	4.94	2.3502	1.91357	-.376
Valid N (listwise)	38					

The descriptive statistics shows that there were 38 observations for all variables. The skewness measured the degree and direction of a symmetry. A distribution that is skewed to the left, for example when the mean is less than the median, has a negative skewness. The dependent variable (return on assets) had an average value of 1.829 with a minimum value of 0.00 and a maximum value of 3.020. The standard deviation of return on assets was 0.650. The independent variable, Inventory Conversion Period had an average value of 3.570, a minimum value of 1.7 and a maximum value of 5.07 with a standard deviation of 0.741. Accounts Collection Period had an average value of 3.964, minimum value of 1.49, and maximum value of 5.29 with a standard deviation of 0.866. The Accounts Payable Period had a mean value of 4.005, a minimum value of 0.00, and maximum value of 6.04 with a standard deviation of 1.439. The Cash Conversion Cycle had a mean value of 2.350, a minimum value of -0.51, and a maximum value of 4.94 with a standard deviation of 1.914.

Diagnostic Tests

The statistical methods applied assumed that variables were normally distributed. Multivariate statistics were adopted with the assumption that the combination of variables follows a multivariate normal distribution. Since there was direct test for multivariate normality, the study tested each variable individually and assumed that they are multivariate normal if they are individually normal. Normality test were undertaken and

the results were as shown in the table 2 below.

Table 2: Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Inroad	.094	38	.200*	.973	38	.479
Lnicip	.089	38	.200*	.963	38	.241
Lnacp	.102	38	.200*	.949	38	.082
Lnapp	.235	38	.000	.874	38	.001
Lnccc	.259	38	.000	.794	38	.000

This is a lower bound of the true significance.*
Lilliefors Significance Correction^a

From table 2 above, return on assets was normally distributed. The p value of the Shapiro-Wilk Test was 0.479 which is greater than 0.05. From the normal Q-Q Plot of return on assets it was noted that return on assets was normally distributed and close to the expected values. The study also noted that Inventory Conversion Period was normally distributed. The p value of the Shapiro-Wilk Test was 0.241 which is greater than 0.05. From the normal Q-Q Plot of Inventory Conversion Period, it was noted that Inventory Conversion Period was normally distributed and close to the expected values. Accounts Collection Period was normally distributed. The p value of the Shapiro-Wilk Test was .082 which is greater than 0.05. From the normal Q-Q Plot of Accounts Collection Period it was noted that the Accounts Collection Period was normally distributed and close to the expected values.

The Accounts Payable Period was not normally distributed. The p value of the Shapiro-Wilk test was 0.001 which is less than 0.05. From the normal Q-Q Plot of Accounts Payable Period, it was noted that the Accounts Payable Period were not normally distributed and were not close to the expected values. The Cash Conversion Cycle was equally not normally distributed. The p value of the Shapiro-Wilk test was 0.000 which is less than 0.05. From the normal Q-Q Plot of Cash Conversion Cycle, it was noted that the Cash Conversion Cycle were not normally distributed and not close to the expected values.

The assumption of the regression model adopted was that the error term was independent and normally distributed, with a mean zero and a constant variance. To test for the independence of the variables, Durbin-Watson statistical analysis was undertaken. This analysis was used to test for the presence of auto correlation among the residuals. Residual was the difference between the observed value and the predicted value of the variables. Table 3 below shows the results of Durbin-Watson analysis.

Table: 3 Durbin-Watson test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.517 ^a	.267	.178	.58920	1.528
a. Predictors: (Constant), Lnccc, Lnacp, Lnicip, Lnapp					
b. Dependent Variable: inroad					

From table 3 above, the Durbin-Watson value was 1.528 meaning the residuals' values were uncorrelated since it falls within the acceptable range of 1.50 and 2.50. This means the size of the residual for one variable has no impact on the size of the residual for the next variable.

Correlation Analysis

The Correlation Analysis indicated the relationship between the variables in the model. The correlation showed the direction of the relationship between the working capital management as the independent variables and the return on assets as the dependent variable. The correlation further indicated the strength of the linear relationship between the variables as shown in the table 4 below.

Table 4: Correlations

	Lnroa	Lnicip	Lnacp	Lnapp	Lnccc
Lnroa	1				
Lnicip	-.269	1			
Lnacp	-.350*	.539**	1		
Lnapp	-.301	.470**	.617**	1	

Lnccc	-.227	.212	.052	-.455**	1
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*Correlation is significant at the 0.05 level (2-tailed),

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

From the correlation matrix in table 4 above, the Pearson correlation between return on assets and Inventory Conversion Period was analyzed and the results indicated a negative correlation of -.269. However, there was a weak liner relationship between these two variables. This means that if there is an increase in Inventory Conversion Period then it will be associated with a reduction in the Return on Assets and vice versa. Gul, Khan, Rehman, Khan, Khan and Khan (2013), established similar findings with negative correlation between return on assets and Inventory Conversion Period. This negative relationship was also established by Sharma and Kumar (2011) who also noted that Inventory Conversion Period negatively correlated with a firm's profitability. The inventory conversion period is the number of days it takes to convert the inventories into sales. This means that in the Energy and Petroleum sector, the longer it takes for a company to convert the inventories into sales, the less is the firm's Return on Assets. On the other hand, lesser Inventory Conversion Period was associated with higher return on assets. Since the aim of the company is to increase the return on assets, then it means such a company will target a reduction in the Inventory Conversion Period.

To reduce the Inventory Conversion Period, a firm has to increase its sales. This is because the cost of sales is a factor in the calculation of Inventory Conversion Period. A firm can use different strategies to increase sales. One of the strategies is market development. This is a strategy where the company expands its operations into new markets which could be new geographical areas. Umeme ltd for instance, is an Energy and Petroleum Company incorporated in the Republic of Uganda but registered on the Nairobi Securities Exchange. Such company can increase its sales by extending its Energy and Petroleum operations beyond the borders of Uganda to cover Kenya, Tanzania and other countries as well. Market development will require changes to marketing strategy that is the new distribution channels, different pricing policy, and a new promotion strategy, to attract different types of customers in the new market. By

developing and implementing a robust marketing plan such companies can increase sales thereby reducing on the Inventory Conversion Period. The Kenyan market is semi-regulated with the pump or retail prices set by the Energy Regulatory Commission whereas other lines of business such as Liquefied Petroleum Gas and wholesale business are not regulated. To avoid such price controls that can limit growth in sales, such companies can diversify their operations to other deregulated markets where they can make enormous growth. In conclusion since the firm's target is to increase the return on assets, it means the business strategies should aim at reducing the Inventory Conversion Period through increasing sales.

The return on assets and Accounts Collection Period had a negative correlation value of -.350 which is a weak correlation. This means that if there is an increase in Accounts Collection Period, then such a scenario will be associated with a reduction in the return on assets and vice versa. Gakure, Cheluget, Onyango and Keraro (2012) established similar findings where they found that there is a negative coefficient relationship between Accounts Collection Period, Accounts Payable Period, Inventory Conversion Period and profitability for 15 manufacturing companies listed at Nairobi Securities Exchange for the period between 2006 and 2010. Nyambwaga et al. (2012) researching on the effects of working capital management on SME's in Kisii District came to a different conclusion that performance of the SME'S was positively related Cash Conversion Cycle, Accounts Collection Period, Inventory Conversion Period at 0.01 significance level. The different conclusions could be attributed to the nature of the industry. The Accounts Collection Period is the average length of time required by the firm to convert its receivables into cash. This means the longer it takes to convert receivables into cash, then the lesser such a company will achieve return on assets. Since the bottom line is to increase the return on assets, it means that the firm will target a reduction in the Accounts Collection Period.

In a strictly controlled organization, the accounts receivable should be managed through a Credit Policy framework. Such a framework will stipulate the conditions under which a firm will grant a credit sale, the discounts as well as the credit period. Since the target is to reduce the amount of credit sales, then the credit policy should be strict on the

qualification for credit sales. The longer the credit period, the higher is the amount of receivables that will be held at the end of the period. The credit policy should have a shorter credit period, meaning the customers will be required to settle their accounts in a shorter period. Debt recovery strategies can enable a firm to minimize the amount of accounts receivables held at the end of the period. Energy and Petroleum Companies will then be required to establish credit control departments tasked with debt recovery responsibilities. Such departments should be adequately manned and resourced to ensure debts are collected on time. Putting in place a guarantee or a security to mitigate the credit default risk as another strategy to minimize the amount receivables held at the end of the period. This is because in the event of customer's default to settle the debt, the firm will have a fallback position to recover the debt by liquidating the security. At the end, accounts receivables will be minimized, Accounts Collection Period reduced and the return on assets increased.

The Return on Assets and Accounts Payable Period had a negative correlation of value of -0.301 , meaning that if there is an increase in Accounts Payable Period, then there will be a reduction in the return on assets and vice versa. However, this was a weak correlation. Falope and Ajilore (2009) established similar findings where they established a negative relationship between net operating profitability and the Accounts Collection Period, Inventory Conversion Period, Accounts Payable Period and Cash Conversion Cycle for a sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005. DeLoof (2003) also came to the same conclusion where he found a negative relationship between gross operating income and the Accounts Collection Period, Inventory Conversion Period, and Accounts Payable Period of Belgian firms. The Accounts Payable Period is the average length of time it takes a firm to pay its suppliers. The negative coefficient means the longer it takes to pay the supplier the lesser is the return on assets. On the other hand a shorter Accounts Payable Period is associated with higher return on assets. Since a firm in the Energy and Petroleum sector would target to increase the Return on Assets, it then implies that measures have to be put in place to pay the suppliers in the shortest time possible. There are several measures that a firm can put in place to reduce the Accounts Payable Period. A cash flow planning is one such a tool that a firm can use to project its

cash inflows and cash outflows to ensure cash is available as and when suppliers need to be paid. This minimizes delay in supplier payments occasioned by unavailability of funds. Liquidity is therefore critical to ensure faster settlement of suppliers. Automation of the Procure-To-Pay process is another strategy a firm can use to shorten the supplier payment period. Automation minimizes payment errors, ensure accurate and complete recording of supplier invoices in the payment process. Electronic payment systems are faster and less error prone than manual payments systems. To achieve a shorter Accounts Payable Period and a higher return on assets will therefore mean that the Energy and Petroleum companies will have to invest in automation of the payment process.

Return on assets and Cash Conversion Cycle had a negative correlation value of $-.227$. This is a weak correlation. Shin and Soenen (1998) reached at similar conclusion where they noted a negative relationship between the length of the firm's net-trade cycle and its profitability for a sample of 58,985 firms covering the period 1975-1994. Gul, Khan, Rehman, Khan, Khan and Khan (2013), also established similar findings of negative correlation between return on assets and Cash Conversion Cycle. Negative correlation means that if there is an increase in Cash Conversion Cycle, then there will be reduction in the return on assets and vice versa. Garcia and Martinez (2007) also reached at the same conclusion that shortening the cash conversion cycle, it improved the firm's profitability for a panel of 8,872 small to medium-sized enterprises from Spain covering the period 1996 to 2002. The Cash Conversion Cycle is the length of time between when the company makes payments of stock purchases to the period cash is received from the sales made. It is therefore a summation of Inventory Conversion Period plus Accounts Collection Period less Accounts Payable Period. The firms target is to reduce the Cash Conversion Cycle in order to increase the return on assets. This means the components of Cash Conversion Cycle which are mainly the Inventory Conversion Period, Accounts Collection Period and Accounts Payable Period should be dealt with as discussed above, with an objective of shortening Cash Conversion Cycle in order to increase return on assets.

From the Table 5 below, using the Adjusted R Square, it can be noted that 17.8% of the

variability in the Return on Assets can be explained by variability in the Inventory Conversion Period, Cash Conversion Cycle, Accounts Collection Period and Accounts Payable Period. It also follows that 82.2% of the changes in Return on Assets cannot be explained by the changes in the model variables hence the error term.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.517 ^a	.267	.178	.58920

Table 6 below, indicates a good result for a multiple linear relationship between the working capital management variables and the return on assets. It was noted that working capital management influence the ROI significantly. The analysis indicated an F statistics of 3.010 with a P value is 0.032 which is less than 0.05. This confirmed that the model's goodness is fit to explain the variations as well as validate the independent variables effect on the dependent variable. It can be concluded that all variables Inventory Conversion Period, Accounts Collection Period, Accounts Payable Period and Cash Conversion Cycle have a significant combined effect on return on assets and therefore these independent variables can be used to predict return on assets.

Table 6: ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	4.179	4	1.045	3.010	.032 ^b
	Residual	11.456	33	.347		
	Total	15.635	37			

The coefficients explained the relationships between variables as shown in the Table 7 below. The coefficients looked at the change in the dependent (return on assets) variable, when independent variables (working capital management metrics) increase by one.

Table 7: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.985	.532		5.614	.000
	Lnicp	.114	.178	.130	.639	.527

Lnacp	-.031	.163	-.042	-.192	.849
Lnapp	-.257	.122	-.569	-2.109	.043
Lnccc	-.174	.072	-.512	-2.399	.022

Dependent Variable: Inroa

The relationship between the dependent and independent variables was therefore summarized with a linear equation as follows:

$$ROA_t = 2.985 + 0.114 (ICP_t) - 0.031 (ACP_t) - 0.257 (APP_t) - 0.174(CCC_t) + \varepsilon$$

The constant in the model was 2.985. This means that if there was no change in the independent variables (working capital management), then the dependent variable (return on assets) will have a value of 2.985. The Inventory Conversion Period (Inventory Conversion Period) had a positive coefficient of 0.114. This means that for every one unit change in Inventory Conversion Period, then return on assets will increase by 0.114. This also means that that the more optimal level of Inventory Conversion Period, the higher is the level of return on assets although the relationship is not statistically significant since $p=0.527$. Mathura (2009) held similar findings of a positive relationship between Inventory Conversion Period and profitability. The focus of the Energy and Petroleum companies will therefore be to increase Inventory Conversion Period.

The regression coefficient on Accounts Collection period was negative (-0.031). This means that one unit change in Accounts Collection Period will lead to a 0.031 reduction in the return on assets. Peel and Wilson (1996) observed that efficient working capital management and more recently good credit management practice are pivotal to the health and performance of the small firm sector. Akoto, Awunyo and Angmor (2013) suggested that managers can create value for their shareholders by creating incentives to reduce their Accounts Collection Period to 30 days. The implication of these findings is that Finance Managers of Energy and Petroleum companies listed at the Nairobi Securities Exchange will be required to put in place a robust Credit Policy which focuses on minimizing accounts collection period, reduction in accounts receivable investment in order to improve the financial performance of the companies. The relationship is statistically not significant since the $P=0.849$. This means that Accounts Collection

Period on its own does not have a major impact on the return on assets. The results also indicated that Accounts Payable Period coefficient was negative (-0.257). This means that one unit change in the Accounts Payable Period will lead to a 0.257 reduction in the return on assets. The relationship is statistically significant since the $P=0.043$ which is less than 0.05 significant level. Falope and Ajilore (2009) established similar findings where they established a negative relationship between net operating profitability and the Accounts Payable Period. The Finance Managers of Energy and Petroleum companies should therefore put in place measures to reduce Accounts Payable Period in order to increase return on assets. Automation of procure to pay process, cash flow planning, negotiations of better trading terms from suppliers are some of the measures such companies can adopt to reduce Accounts Payable Period in order to increase return on assets.

The Cash Conversion Cycle coefficient was negative (-0.174) meaning that for one unit increase in the Cash Conversion Cycle, will lead to a 0.174 reduction in the return on assets. Berk and Demerzo (2011) observed that an important consideration for all firms is the ability to finance the transition from cash to inventories to receivables and back to cash. Shin and Soenen (1998) arrived at similar conclusion where they observed that one possible way to create shareholder value is to reduce firm's Cash Conversion Cycle. The relationship is statistically significant since the $P=0.022$ which is less than 0.05 significant level. Finance Managers of Energy and Petroleum companies should therefore put in place measures to reduce Cash Conversion Cycle in order to increase return on assets. Since Cash Conversion Cycle is a product of Inventory Conversion Period, Accounts Collection Period and Accounts Payable Period then it follows that reduction in the Cash Conversion Cycle can be achieved by effective management of individual components as described above. From the Coefficients Table 7 above, the t-values indicates that Inventory Conversion Period is the most useful predictor ROI ($t=0.639$) followed by Accounts Collection Period ($t=-0.192$), Accounts Collection Period ($t=-2.109$) and last Cash Conversion Cycle ($t=-2.399$).

Conclusions

The study established that working capital management influenced the return on assets significantly for the Energy and Petroleum companies listed at Nairobi Securities Exchange. It can be concluded that all variables Inventory Conversion Period, Accounts Collection Period, Accounts Payable Period and Cash Conversion Cycle have a combined significant impact on return on assets and therefore these independent variables can be used to predict return on assets. It was concluded that return on assets and Inventory Conversion Period have a negative correlation even though the correlation was weak. This means that if there is an increase in Inventory Conversion Period, then it will be associated with a reduction in the return on assets and vice versa. Since the objective of the Energy and Petroleum Companies is to increase the financial performance (Return on Assets), it can therefore be concluded that Finance Managers of such companies will strive to minimize the Inventory Conversion Period in order to enhance the return on assets.

It was concluded that return on assets and Accounts Collection Period have a negative correlation. This means that if there is an increase in Accounts Collection Period, then such a scenario will be associated with a reduction in the return on assets and vice versa. Similarly it can be concluded that Finance Managers of such companies will strive to minimize the Accounts Collection Period in order to enhance the return on assets. It was also concluded that return on assets and Accounts Payable Period also have a negative correlation even though the linear relationship was weak. An increase in Accounts Payable Period will be reduction in the return on assets and vice versa. It is therefore incumbent upon the Finance Managers of Energy and Petroleum companies listed at Nairobi Securities Exchange to minimize the Accounts Payable Period in order to enhance the return on assets. It was also concluded that return on assets and Cash Conversion Cycle have a negative correlation even though the linear relationship is weak. If there is an increase in Cash Conversion Cycle, then there will be reduction in the return on assets and vice versa. Finance Managers of these Energy and Petroleum companies listed at Nairobi Securities Exchange will have to focus on minimizing the Cash Conversion Cycle in order to enhance the return on assets.

In relation to previous studies, it was concluded that the results of this study are similar to earlier international studies particularly Deloof (2003), Falope and Ajilore (2009), Sharma and Kumar (2011), Garcia and Martinez (2007), Gill, Biger and Mathur (2010), Gul, Khan, Rehman, Khan, Khan and Khan (2013), Shin and Soenen (1998) who have all researched on working capital management and its impact on performance of companies. Locally, the study findings are similar to the conclusions arrived at by Gakure, Cheluget, Onyango and Keraro (2012), Mathura (2009), Akoto, Awunyo and Angmor (2013) who have also established that working capital management impacts on the profitability of a firm.

Recommendations

Financial Managers should review specific policies regarding each component of working capital management since they have a combined significant impact on financial profitability of Energy and Petroleum companies. On credit policy, Finance Managers should encourage credit sales to boost profitability but at the same time minimize the risk of bad debts. Credit terms should be clearly spelled out in a credit Policy. Customers should be vetted for credit qualification before extending credit facilities to the customer. Credit control department should be established, adequately manned and provided with budgetary resources to ensure timely collection of receivables from customers. Optimal Accounts Collection Period should be set as a performance target for the Financial Managers. The Finance Managers should have a documented Inventory Management Policy which guides effective inventory management practices. Inventory Management techniques such as Economic Order Quantities should be deployed to ensure optimal level of inventory. Financial Managers should also adopt technology for effective inventory management practices. Vetting and prequalification of inventory suppliers will ensure product quality, timely delivery of inventory to meet sales orders. The Finance Managers should ensure an Accounts Payable Policy is in place which stipulates the target Accounts payable Period which should be embedded in the performance targets for the Finance Managers. Strained relationship with suppliers due to late or non-payment of suppliers may negatively affect the ability of the companies to maintain optimal inventories. Weekly and or monthly cash flow projections practices should be encouraged

to ensure suppliers are paid on time. Monthly ageing of payable reports should be reviewed by Finance Managers to ensure Accounts Payable Policies are being complied with.

The Professional competence for the Finance Managers should also be monitored regularly. The Institute of Certified Public Accountant of Kenya should ensure Financial Managers meet Continuous Professional Education requirements as a means to ensure professional financial management practices are embedded in the management of the companies. Kenya Government regulates the price of petroleum products through Energy Regulatory Commission. Such price regulations will certainly impact on the valuation of inventories since price is a factor in valuation of inventory. The energy regulatory commission should regularly review their pricing mechanisms not to negatively affect the performance of the Energy and Petroleum companies. The organization of the Petroleum Exporting Companies should also continuously monitor the production and export of petroleum products based on demand and supply. This is because inadequate production of petroleum products may have a direct impact on inventory availability for the petroleum trading companies.

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