Effect of Working Capital Management on Financial Performance: A Case Study of Listed Manufacturing Firms at Nairobi Securities Exchange, Kenya

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Abstract: **The main purpose of this research project was to examine the effect of working capital management on the financial performance of firms listed at the Nairobi Securities Exchange. The specific objectives of this study was to determine the effects of average collection period and leverage on financial performance of listed manufacturing firms at NSE. Firm performance was measured using Return on Assets (ROA). This study used descriptive research design to describe the effects of working capital management on financial performance of listed manufacturing firms at NSE, Kenya. The target population was all the 9 listed manufacturing Companies which are listed at Nairobi Securities Exchange as at December 2015. A census of the 9 firms listed manufacturing at the Nairobi Securities Exchange from year 2011-2015 was the sample. This research project utilized secondary data, which was collected by use of content analysis obtained from the annual financial statement reports of listed firms for period ranging from 2011 to 2015. The collected data was entered into the Statistical Program for Social Sciences (SPSS version 24.0) and multiple regression analysis method was used to analyze the data. By use of Pearson's correlation, Return on Assets was negative related to Average Collection Period and Leverage. Regression model revealed significant effect and negative relationships among Average Collection Period and leverage.**

Keywords: **Working Capital, Cash Conversion Cycle, Average Collection Period, Leverage.**

1. INTRODUCTION

Many researchers in corporate finance have done a lot of studies concerning the long term decision making about dividend policies and valuation, capital structure, long term asset mix among others (Akoto & Marco, 2013 and Filipa, 2011). Due to dynamism and stiff competition which has been experienced by many companys' researchers has focused on liquidity of companies (Marco., 2013). Because of this shift of focus to liquidity and profitability, it has attracted many researchers to the field of working capital management (WCM). Akoto (2013) noted that working capital management is a very important element of corporate finance because of its direct effects on both the liquidity and profitability of the company. Working capital is composed of two dimensions; the gross working capital which represents firm's investment in current assets and net working capital which refers to the difference between current assets and current liabilities (Pandey, 2011). Marco (2014) notes that a very effective tool for determining the efficiency of working capital management of a manufacturing firm is cash conversion cycle which will determine the liquidity and profitability of the company. The levels of accounts receivable, accounts payables, inventories and short-term debt materially impact the liquidity position of the company which in turn affects financial performance of the company. This will be termed as profitability of the firm and has to be looked upon by working on return on assets (ROA) and Return on Equity (ROE).Recently, current ratio and quick ratios have been recognized as appropriate measures of the liquidity position of a

firm but several authors have criticized their appropriateness on the grounds that both the ratios are static, while other writers have suggested another liquidity measure, the cash conversion cycle. Cash conversion cycle (CCC) has been considered as very important measure of firm's effective working capital management and especially the cash management.

2. STATEMENT OF PROBLEM

Marco (2014) noted that, in determining the efficiency of working capital management of a manufacturing firm, cash conversion cycle cannot fail to be studied. This is because CCC reveals the firms efficiency in converting inventories into sales, collecting receivables from debtors and making payments to the trade creditors. From his study found that the cash conversion cycle does not have statistically significant relationship with profitability. His finding is supported by Senthilmani (2013) who found insignificant effects of (CCC) on profitability. It's from these findings that cash conversion cycle do not to be always short. However, some researchers like Jayarathne (2014), Lazaridis & Tryfonidis (2004) Garcia & Martinez (2004), Julius et al., (2013), Huynh (2010), among others have found a negative association between CCC and the profitability. This finding contradicts that found by Akoto (2013), Gill, Biger & Neil (2010). All these researchers found a positive relationship between cash conversion cycle and profitability.

Hasani (2011) examined the effects of working capital management on the profitability of small and medium companies listed in Tehran Stock Exchange. Nobanee et al., (2011) finds a strong negative link between the CCC and ROA for all industries except for consumer goods and services in Japan. Karaduman et al., (2011) in Turkey finds CCC indisputably influences the performance of the firms measured in terms of ROA, listed in the ISE (Istanbul Stock Exchange). The results indicated that it may be possible to enhance performance by improving efficiency of working capital management (WCM). Hayajneh and Ait Yassine (2011) confirmed the link between the WCM efficiency and performance of Jordanian manufacturing firms and found strong negative correlation between average receivables collection period, average conversion inventory period, average payment period and the performance measures. It is evident from the above studies that the researchers have not found a clear cut direction or the same findings about the relationship between the cash conversion cycle and the firm's profitability. The researchers have found conflicting findings. Replication of findings from related studies undertaken outside this sector was impossible because their findings differ significantly. The researcher therefore undertook this researches to investigate the effects of working capital management on financial performance of listed manufacturing firms at Nairobi Security Exchange, Kenya.

3. OBJECTIVE OF THE STUDY

The general objective this study was to investigate the effect of working capital management on the financial performance of listed manufacturing firms at Nairobi Securities Exchange, Kenya.

4. LITERATURE REVIEW

Lazaridis and Tryfonidis (2006) used a sample of 131 companies listed in the Athens Stock Exchange (ASE) for the period of 2001-2004.They founded a significant negative relationship between cash conversion cycle and gross operating profit. The findings revealed that managers can create profits for their companies by handling correct cash conversion cycle and keeping each component (accounts receivable, accounts payable and inventory) to their optimal level. As regards the effects cash conversion cycle on the company's profitability (Huynh, 2011) finds exactly opposite of the results found by Gill et al., (2010). Huynh (2011) investigated the influence of working capital management on profitability of listed companies in the Netherlands. The study focused on 62 non-financial companies listed on Dutch and applied Pearson correlation analysis to analyze the effect of working capital on company's profitability. The result indicated a negative relationship between cash conversion cycle (CCC) and profitability. This finding is inconsistent with the results provided by other scholars Akoto et al., (2013), who found a positive relationship between working capital management and company's profitability.

4.1. Free Cash Flow Theory:

Jensen (1986) posits that firms generating cash in excess of that required to fund positive Net Present Value (NPV) projects face greater agency problems as the free cash flow exacerbates the conflict of interest between shareholders and managers. One implication from Jensen's free cash flow theory is that firms with high levels of free cash flow are more likely to initiate takeovers that are value-decreasing. Free cash flow is cash flow in excess of that required to fund all of a

firm's projects that have positive net present values when discounted at the relevant cost of capital. Such free cash flow must be paid out to shareholders if the firm is to be efficient and to maximize value for shareholders. Payment of cash to shareholders reduces the resources under managers' control, thereby reducing managers' power and potentially subjecting them to the monitoring by the capital markets that occurs when a firm must obtain new capital. Financing projects internally avoids this monitoring and the possibility that funds will be unavailable or available only at high explicit prices. Managers have incentives to expand their firms beyond the size that maximizes shareholder wealth. Growth increases managers' power by increasing the resources under their control. In addition, changes in management compensation are positively related to growth. The tendency of firms to reward middle managers through promotion rather than year-to-year bonuses also creates an organizational bias toward growth to supply the new positions that such promotion based reward systems require (Baker 1986). The tendency for managers to over invest resources is limited by competition in the product and factor markets that tend to drive prices toward minimum average cost in an activity. Managers must therefore motivate their organizations to be more efficient in order to improve the probability of survival.

4.2. The Operating Cycle Theory:

The operating cycle theory is one of the very important theories in working capital management. Operating cycle is one of the measures of efficiency of working capital management. It takes into cognizance the receivables and inventories related to working capital. The cycle traditionally commences from the receipt of raw materials to the collection of receivables from debtors of the stock sales produced from those raw materials. The traditional approach of relying on current or acid-test ratios as solvency indicators is quite defective compared to the operating cycle approach of relying on current or compared to the operating cycle approach where accounts receivables and inventory turnover measures are incorporated as useful in liquidity management.

This is quite clear because Average Collection Period as a proxy for firms average receivables investment is converted to cash. One critical aspect to note is that changes in collection and credit policy have a direct effect on the balance of accounts receivable outstanding, in relation to annual firm's sales (Richard & Laughlin, 1980). According to operating cycle theory when firms grants more liberal credit terms to its customers there is a higher tendency of having a bigger, but ultimately less liquid investment in cycle (that is, the inventory turnover) shows the number of times with which business firms converts the totality of their raw materials stock, their work-in-progress and ultimately the finished goods into product sales.
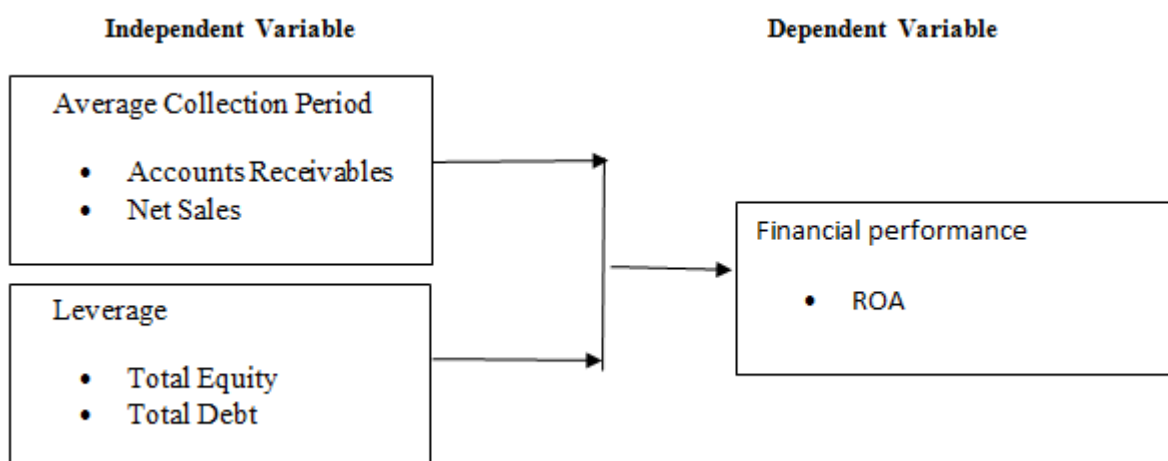
4.3. Conceptual Framework:

Figure 4.3: Conceptual framework.

4.3.1. Average Collection Period:

The average number of day's accounts receivable is used as a measure of accounts receivable policy. It represents the average number of days that the company uses to collect payments from its customer. This metric is received by dividing the sum of the opening and ending balance of account receivables with two and divide this with the net sales and then multiply the outcome with the average number of days in a year. Similar to the inventory, a low number of days is desirable to keep the cash conversion cycle short (Lantz, 2008,).

Average number of days accounts receivable = Accounts Receivable/Net Sales x 365

Deloof (2003) find the significant negative relation between the average number of days accounts receivable and gross operating income as a measure of profitability. Boisjoly (2009) provide the evidence that companies have focused on improving the management of accounts receivable as their accounts receivable turnover increase over the 15 year time period for 1990-2004. Several techniques can be applied such as strengthen their collection procedures, offer cash discount and trade credit, and use receivables factoring (Boisjoly, 2009).

4.3.2. Leverage:

Leverage is another determinant of profitability; it can be measured by using different financial ratios. (Ross et al., 2002) define leverage as either the ratio of total debt to total equity or the ratio of total debt to total assets, which is the variable used in the present study. It is expected that leverage affects profitability negatively since higher debt values require more resources by the firm in order to repay the debt, reducing the funds available for investment. Too much debt can be dangerous for a company and its investors (Tobias, 2010). Uncontrolled debt levels can lead to credit downgrades or worse. On the other hand, too few debts can also raise questions. If a company's operations can generate a higher rate of return than the interest rate on its loans, then the debt is helping to fuel growth in profits. A reluctance or inability to borrow may be a sign that operating margins are simply too tight. Financial leverage ratio is the debt-to-equity ratio.

Total debt / Total Equity:

The debt to equity ratio shows the percentage of company financing that comes from creditors and investors. A higher debt to equity ratio indicates that more creditor financing (bank loans) is used than investor financing (shareholders). Companies rely on a mixture of owners' equity and debt to finance their operations. A leverage ratio is any one of several financial measurements that look at how much capital comes in the form of debt (loans), or assesses the ability of a company to meet financial obligations (Boisjoly, 2009).

4.3.3. Measurement of Financial Performance:

Profitability is the ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It measures management efficiency in the use of organizational resources in adding value to the business. Profitability may be regarded as a relative term measurable in terms of profit and its relation with other elements that can directly influence the profit. Profit is the difference between revenues and expenses over a period of time (usually one year). Profit is the ultimate 'output' of a company, and it will have no future if it fails to make sufficient profits. The profitability ratios are calculated to measure the operating efficiency of the company. These profitability ratios include: Return on Assets (ROA) Return on Assets expresses the net income earned by a company as a percentage of the total assets available for use by that company. ROA suggests that companies with higher amounts of assets should be able to earn higher levels of income. ROA measures management's ability to earn a return on the firm's resources (assets). The income amount used in this computation is income before the deduction of interest expense, since interest is the return to creditors for the resources that they provide t the firm. The resulting adjusted income amount is thereby the income before any distribution to those who provided funds to the company. ROA is computed by dividing net income plus interest expense by the company's average investment in asset during the year.

ROA = (Net income after tax + interest expenses) / Average total assets during the year

5. RESEARCH METHODOLOGY

This study used descriptive research design to describe the effects of working capital management of financial performance on listed manufacturing firms on NSE. The population was made up of all 9 listed manufacturing and allied companies in the NSE as at 31st December 2015. Secondary data was collected from published annual reports and websites of the selected. Companies. The secondary data provides a reliable source of the information needed by researcher to investigate the phenomenon and seek efficient ways for problem solving situations (Uma, 2003). The study utilized time series data. The data for all the variables in the study was extracted from published annual reports and financial statements of the listed manufacturing companies in the NSE covering the years 2011to December 2015. In this study the following is the regression equation that was used to test the significance of the study variables.

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$

Y = is the value of the dependent variable, Performance of listed manufacturing firms. Return on assets (ROA), β_0 = is the slope of the regression line, β_1… β_2 = the slope which represents the degree with which firm performance changes as the independent variable changes by one unit variable, X_1 = Average Collection Period, X_2= Leverage, ε = (Extraneous) Error term explaining the variability of growth as a result of other factors not accounted for.

6. ANALYSIS

6.1. Descriptive Statistics:

Descriptive statistics provides the means and standard deviations of the scores relating to each of the variables used. Means and standard deviations for all the variables were also calculated in order to get an idea about the direction of all the variables. It also presents the minimum and maximum values of the variables which help in getting a picture about the maximum and minimum values a variable can achieve.

Tables 6.1 Descriptive Statistics of variables for manufacturing firms

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	45	.043609442	.932616026	.28687131798	.216483373754
ACP	45	10.440507420	53.054621310	28.30203643933	11.268201194515
LEVERAGE	45	.387965437	1.057508693	.73623013796	.111578738265
Valid N	45				

As it is displayed in table 6.1., the mean value of firms return on asset is 28.69 percent of total assets, and it deviates 21.65 percent. It means that value of profitability can deviate from mean to both sides by 28.69 percent. Its minimum value is 4.36 percent while the maximum is 93.26 percent. Likewise, the descriptive statistics for the two measures of efficiency of working capital management, namely, average collection period, and leverage are also presented in the same table. Accounts receivable period, a measurement for collection policy, is averaged to 28.30 days for the sampled firms. The interpretation for the average of the account receivable period is that, firms in the sample wait 28.30 days on average to collect cash from credit sales. The Account receivable period can vary by 11.27 days to both sides of the mean value. The minimum and the maximum account receivable period for the sampled firms are 10.44 and 53.05 days respectively.

To check the debt financing and its relationship with the financial performance, the debt to equity ratio was used. The results of descriptive statistics show that the average debt ratio for the manufacturing companies is 73.62 % with a standard deviation of 11.16 %. The maximum debt financing used by a company is 105.75 % which is unusual but may be possible if the equity of the company is in negative. The minimum level of the debt ratio is 38.80%.

6.2. Pearson's Correlation Coefficient:

Prior to regression result, it is important to check the correlation between different variables on which the analysis is built. Pearson's Correlation coefficient was used for data to see the relationship between variables such as those between working capital management and firm financial performance.

Table 6.2 correlation coefficient

		ROA	ACP	LEVERAGE
ROA	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	45		
ACP	Pearson Correlation	-.263	1	
	Sig. (2-tailed)	.081		
	N	45	45	
LEVERAGE	Pearson Correlation	-.099	.061	1
	Sig. (2-tailed)	.519	.689	
	N	45	45	45

Table 6.2 shows that the ROA is negatively related to ACP and leverage at 1% and 5 %. The negative relation between ROA and ACP is consistent with the view that the less the time taken by customers to pay their bills, the more cash is

available to replenish the inventory hence leading to more sales which result to an increase in profitability. Table: 6.2., indicates that the account receivable period negatively correlated with return on assets. This relationship is proofed from the correlation coefficients of - 0.263 with return on asset, and the *p* value is 0.081significant at 5 %.

He used correlation and regression analysis and found a significant negative relationship between the collection periods of accounts receivable, accounts payable and ROA of Belgian firms. Also Alipour (2011) researched about working capital management and corporate profitability while taking sample of 1063 companies from Tehran stock exchange. Results showed there was a negative relationship between cash conversion cycle, average collection period and profitability of a firm

6.3. Regression Analysis:

Table 6.3 Regression Analysis.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.288[a]	.083	-.009	.217410930791	.083	.906	2	40

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the above table 6.3, the value of adjusted R squared was -0.009, an indication that there was variation of 0.9% on the financial performance (ROA) of companies due to changes in Average Collection Period and Leverage at 95% confidence interval. This shows that 0.9% changes in financial performance of companies could be accounted for by Average Collection Period and Leverage.

R is the correlation coefficient which shows the relationship between the study variables. The findings show that there was a strong negative relationship between the study variables as shown by 0.288.

6.4. Anova Interpretations:

Table 6.4 Anova interpretation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.171	2	.043	.906	.469[b]
	Residual	1.891	40	.047		
	Total	2.062	42			

a. Dependent Variable: ROA

b. Predictors: (Constant), LEVERAGE, ACP

From the Anova table above (Table 6.4.), we obtain the information we need from the predictors variable Average Collection Period, and leverage to predict the outcome of the firms' financial performance. Significance test confirms that the predictors significantly ($P= 0.469<0.05$) contributes to the financial performance.

6.5. Regression Model Analysis:

In order to test the hypotheses, regression model analysis has been conducted to determine whether there is significant relationship between working capital management and financial performance.

Table 6.5. Regression Model Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.482	.332		1.452	.154		
	ACP	-.004	.004	-.206	-1.128	.266	.687	1.455
	LEVERAGE	-.167	.306	-.086	-.547	.387	.921	1.086

a. Dependent Variable: ROA

From the standardized data in the above table the established regression equation was

$Y = 0.482 - 0.206 X_1 - 0.086 X_4$

Whereby;

Y = is the value of the dependent variable, Performance of listed manufacturing firms. Return on assets (ROA)

X_1 = Average Collection Period

X_2= Leverage

The results showed that the standardized coefficient beta and p value of Average Collection Period were negative and significant effect on financial performance with β_1 value of -0.206, (p value = 0.464 which is less than 0.05). Therefore, Average Collection Period has a negative and significant effect on financial performance. Also, for each unit increase in Average Collection Period, there is 0.206 unit decrease in financial performance.

Finally results indicated that the standardized coefficient beta and p value of leverage were negative and significant effect on financial performance with β_1 value of - 0.086, (p value = 0.385 which is less than 0.05). Leverage has a positive and significant effect on financial performance; whereby, for each unit increase in leverage, there is 0.086 unit decline in financial performance.

7. CONCLUSION

Most of the Kenyan listed manufacturing firms have large amounts of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have significant impact on financial performance of those firms as found in the study findings. The study found out existence of negative correlation between Return on Assets and the Average Collection Period and Leverage.

8. RECOMMENDATION

A study should be undertaken to compare the working capital management policies of non-financial companies listed on the NSE and those not listed and the effects of these policies on performance. In addition, future studies could be extended to analyze working capital management practices and their effect on performance across the countries especially those in the East African Community.

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