

## Effect of Inventory and Cash Conversion Cycles on Financial Performance of Listed Commercial and Service Firms in Nairobi Securities Exchange Kenya

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**Abstract:** The main aim of the study was to analyze effect of inventory and cash conversion cycles on financial performance in Kenya; A Case Study of Listed Firms in the Commercial and Services Segment of Nairobi Securities Exchange. The study adopted the following theories; Operating Cycle Theory and Cash Conversion Cycle Theory. The study adopted descriptive research design which tested variables the way they occur in natural environment without interfering with them. The target population of the study was the 12 firms in the Commercial and Services Segment of Nairobi Securities Exchange. The study collected secondary data from audited accounts reports covering 2007 to 2017. The study purposively took census of all the firms in the commercial and service segment of which did not require sampling procedure. The researcher had a challenge in the companies which did not disclose some components of working capital on their financial statements but had to visit their company's premises to access the data. Data was analyzed using panel data regression models and correlation analysis with the help of Stata Statistical Software to establish the combined influence of the four components of working capital management on financial performance. The study found out that that Inventory Conversion Period had no correlation with financial performance,  $r=.509$ ,  $p=.050$  indicating that Inventory Conversion Period affected financial performance of firms' in the commercial segment of the NSE, Cash Conversion Cycle had no significant relationship with financial performance,  $r=.001$ ,  $p=.073 > .05$  indicating that Cash Conversion Cycle (CCC) did not affect financial performance of firms' in the commercial segment of the NSE. The study recommends that firms' in commercial and service segment in the NSE should enhance credit management to avoid over investment in accounts receivables. Collection policies should be reviewed in order to make the cash conversion cycle shorter for efficient working capital while keeping in view the intensity of competition. The study also recommends proper inventory management to avoid overstocking which could negatively affect financial performance. While coming up with inventory related policies. The study recommends that the firms should come up or enhance computerizing inventory management systems to track all inventory for actions that are less costly as far as holding inventory is concern.

**Keywords:** Accounts Receivable, Accounts Payable, Inventory Conversion Cycle, Cash Conversion Cycle, Financial Performance and Return on Asset.

## INTRODUCTION

Working capital management involves managing the firm's inventory, receivables and payables in order to achieve a balance between risk and returns and thereby contribute positively to the creation of a firm value. Excessive investment in inventory and receivables reduces the profit, whereas too little investment increases the risk of not being able to meet commitments as and when they become due. The working capital includes all the items shown on a company's balance sheet as short term or current assets, while net working capital excludes current liabilities.

The cash conversion cycle is a popular measure of working capital management used in many studies [1]. It is the time between purchase of raw materials and getting finished goods paid. Longer cash cycle means more investment on working capital. Afza and Nazir [2] stress on the importance of efficient working capital management by examined the efficiency of the working capital management for the cement sector in Pakistan for the year 1988 to 2008. In order to

examine the efficiency of the firms, he following the Bhattacharya [3] indicator of efficiency, which is consist of three part; performance index of working capital management, utilization index of working capital management and efficiency index of working capital management. The study found that the industry under this study did very well on performance of efficiency during the period. Shehzad [4], study on efficiency of the textile sector of the Pakistan companies on their working capital management for the year 2004 to 2009. The study done by Press, Valipour and Jamshidi [5] found that there are positive relationship between performance index, efficient index, and utilization index with the efficiency of the asset. However, the results show that cash conversion cycle inversely significant relationship on efficiency of the assets. He concluded that index developed by Bhattacharya is more promising as proper indexes and more significant in determining the working capital management compared to the conventional one.

Key components of working capital management is efficient management of accounts receivable that ensures that invoices due because of sales are paid in good time. On the other hand, firms should make sure that they pay for their obligations when they are due and also converting inventory into the required values and lastly managing financial conversion cycle. Over years, commercial and services segments have been privatized and ultimately listed in Nairobi Securities Exchange where their operations are governed by Capital Market Authority of Kenya regulations. The symptom of the problem was that in spite of regulations by Capital Market Authority ,Uchumi Super Market Ltd continuously incurred losses over years , Kenya Airways Ltd also was faced with challenges of managing its capital leading to losses, Nation media group profit dropped since 2013,Standard group had a mixed fortune posting a loss of 282 million in 2017,TPS Serena made a loss in 2015,Express ltd posted a loss in 2014-2016,Atlas development and support services posted a loss in the year 2013-2014,Deacons posted a loss in 2015-2016 ,Sameer Africa posted a loss in 2016. Other firms in commercial services segment are Scan Group Ltd, Longhorn Publishers Ltd and Nairobi Business Venture Ltd. Many researchers have conducted research on effects of working capital management on financial performance. Kariuki & Muturi [6] on Non-Financial listed firms and Runyora [7] on Oil and petroleum companies. This misfortune of financial performance of commercial and services segments necessitated the current study that analyzed effect of inventory and cash conversion cycle on financial performance of commercial and services firms listed in Nairobi Securities Exchange.

## **OBJECTIVES AND HYPOTHESES OF THE STUDY**

### **The set objectives of the study were**

To ascertain the effect of inventory conversion on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya and to ascertain the effect of cash conversation cycle on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya. The hypotheses of the study were **HO<sub>3</sub>**: Inventory conversion does not have significant effect on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya and **HO<sub>4</sub>**: Cash conversation cycle does not have significant effect on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya.

## **LITERATURE**

Mathuva [8] found contradicting evidence with the management of inventories in Kenya. He argued that companies increase their inventory levels to reduce the cost of possible production stoppages and the possibility of no access to raw materials and other products. He further stated that higher inventory levels reduces the cost of supplying products and also protects against price fluctuations caused by changing macroeconomic factors. Waweru [9] also conducted a study on the relationship between working capital management and the value of the companies listed at the NSE. The study concluded that there is a statistical relationship between efficient working capital management and the value of firms quoted at the NSE.

Mutungu [10] carried out a study on the relationship between working capital management and financial performance of oil marketing companies in Kenya. The study was inspired by the fact that working capital in any firm is extremely critical and requires conscious balance between the components on the working capital namely cash, receivables, payables and inventory. The objectives of the study was to establish the working capital management policies among oil marketing firms in Kenya and to examine the relationship between working capital management and profitability in oil marketing firms in Kenya. From the correlation analysis, the study concluded an existence of aggressive working capital policy in the oil sector.

Waweru [9] carried out a study on the relationship between working capital management and the value of companies quoted at the NSE. The study used secondary data obtained from annual reports and audited financial statements of companies listed on the NSE. A sample of 22 companies listed on the NSE for a period of seven years from 2003 to 2009 was studied. The average stock price was used to measure the value of the firm. The regression models indicated that there was some relationship between working capital management and the firm's value while the result of

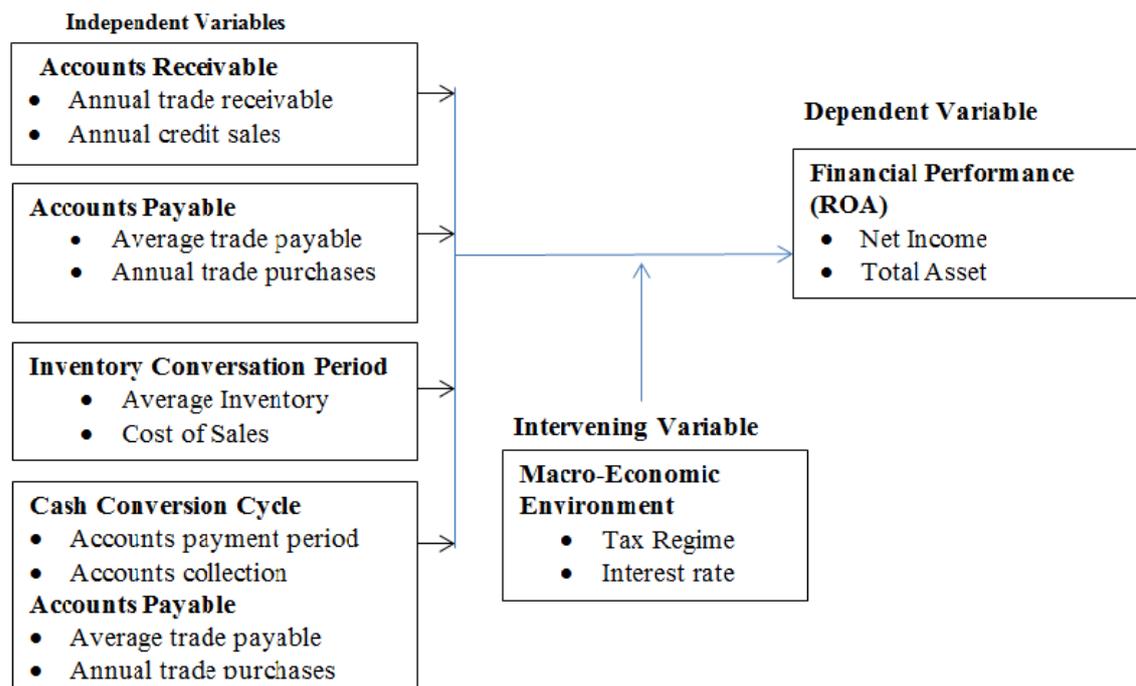
the Pearson correlation indicated a negative relationship between average cash collection period, inventory turnover in days, cash conversion cycle and the value of the firm.

Dong and Su [11] based their study on secondary data collected from listed firms in Vietnam stock market for the period of 2006-2008. They investigated the relationship existing between profitability, the cash conversion cycle and its components for listed firms in Vietnam stock market. Their finding shows that there is a strong negative relationship between profitability, measured through gross operating profit, and the cash conversion cycle. This means that as the cash conversion cycle increases, it will lead to declining of profitability of firm. As such the managers could create a positive value for the shareholders by handling the adequate cash conversion cycle and keeping each different component to an optimum level.

Kiprono [12] studied the relationship between cash flows and earnings performance measures for companies listed in the Nairobi Stock Exchange (NSE). His objective was to determine the relationship between return on assets (ROA), return on equity (ROE), and return on net assets (RONA) against the cash flows of firms. To achieve this, regression analysis was employed on thirty companies listed at the NSE. The companies were picked randomly and were analyzed for the five-year period between 1998 and 2003. He concluded that there is a positive or direct association between cash flows from operating activities and all the return performance indicators. The results also showed that there is a negative or indirect association between cash flow from financing and investing activities and returns performance indicators. On overall, there is a weak relationship between cash flows and performance indicators. However, he noted that it is important to determine the impact of firm size in cash flow and earnings performance indicators

**Conceptual Framework**

This is a hypothesized model identifying the concepts or variables under the study and their relationships. It is a scheme of concepts (variables), which the researcher operationalized in order to achieve the set objectives. The purpose of the conceptual model was to help the researcher to relate the proposed relationships.



**Fig-1: Effect of Working Capital Management on Financial Performance**

Source: (Own Conceptualization, 2018)

The independent variables are; Accounts Receivable (average trade receivable and annual credit sales), Accounts Payable (Average trade payable and credit purchases), Inventory Conversion (Average Inventory and cost of sales) and Cash Conversion Cycle (Accounts payment period and collection period). The dependent variable is financial performance measured in terms of Return on Asset. The intervening variable is macroeconomic environment including tax regimes and interest rate. When the listed commercial and service segments manage their working capital effectively under controlled macroeconomic environment in terms of the country’s existing tax regimes and exchange rate then their financial performance (Return on Asset) improves and vice visa.

**Research Design**

The study adopted a descriptive research design taking the listed in commercial and service segment of Nairobi Securities. The population comprised the 12 firms under commercial and service segment of NSE. The study purposively took the 12 firms under commercial and service segment as the sample size. The study being financial based used secondary data from audited financial statement of the 12 firms covering 11 years. The data was analyzed using panel data models. Both random and fixed effects regression models was applied. To discriminate between random effects and fixed effects models, the study applied the Hausman test and based on the p value obtained, the researcher was in a position to reject or accept the null hypothesis.

To test the hypotheses of the study, the following model was used to analyze the relationship between the variables and test hypothesis direction by the regression model coefficient at 95% confidence level.

$$Y_{it} = \alpha + \beta_1 ACP_{it} + \beta_2 APP_{it} + \beta_3 ICP_{it} + \beta_4 CCCP_{it} + \varepsilon$$

Where;

$Y_{it}$  = Return on Asset,  $\alpha$  = constant,  $\beta_1 \dots \dots \beta_{4d}$  = parameter estimates

ACP = Average Collection Period.

APP = Average Payment Period.

ICP= Inventory Conversion Period.

CCCP= Cash Conversion Cycle Period.

$\varepsilon$  is the error of prediction (with a Zero variance).

Testing the moderating effect of working capital management on financial performance of Listed Commercial and Service Firms in Nairobi Stock Exchange

$$Y_{it} = \alpha + \beta_1 ACP_{it} + \beta_2 APP_{it} + \beta_3 ICP_{it} + \beta_4 CCCP_{it} + \beta_5 (MEE) + \varepsilon$$

$\beta_5$  =Parameter of estimate on for Micro Economic Environment

MEE = Micro Economic Environment

**FINDINGS AND DISCUSSIONS**

**Random Effect Regression Results**

Based on results from Hausman test, the study adopted random effect regression model of the panel data.

**Table-1: Random Effects regression model**

Random-effects GLS regression		Number of obs =		132		
Group variable: var2		Number of groups =		12		
R-sq: within = 0.1672		Obs per group: min =		11		
between = 0.1639		avg =		11.0		
overall = 0.1513		max =		11		
corr(u_i, X) = 0 (assumed)		Wald chi2(4) =		24.40		
		Prob > chi2 =		0.0001		
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ROA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
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INCP	-6.3809	1.58e-09	-4.04	0.000	-9.47e-09	-3.29e-09
CCC	.0000322	.0000314	1.03	0.305	-.0000294	.0000937
Int. rate	.0014701	.0014251	2.05	0.418	.0001457	.0014361
_cons	.6098188	.0522285	11.68	0.000	.5074529	.7121848
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sigma_u	.16729943					
sigma_e	.1592031					
rho	.52478191 (fraction of variance due to u_i)					

Source: Published Audited Financial Statements (2007-2017)

The random effects model above shows that the combined effect of working capital management on return on assets is statistically insignificant within the listed commercial and service firms in Nairobi Securities Exchange. The

model's chi square value of 24.4 is much greater than 0.05, the value of R squared 0.1672 implies that independent variables have a combined effect on return on assets by 16.7 % while the other 73.3% was affected by other factors other than working capital management. It can therefore be concluded that the independent variables can be used to predict the outcome of return on assets within the listed commercial and service firms in Nairobi Securities Exchange. Inventory conversion cycle period had inverse significant relationship with return on asset. An increase on inventory conversion cycle period will result in an increase in return on assets by -6.3809 units keeping other variables constant. This relationship is statistically with the  $p=0.000<0.05$ .

Further analysis indicated that cash conversion cycle period had a positive relationship with return on asset. From the model, an increase in cash conversion cycle by a day will result in an increase in return on assets by .0000322 units keeping other variables constant. The relationship though is not statistically significant and it cannot be used to predict the outcome of return on assets since is  $p=.305>.05$ . Overall, inventory conversion period was the best predictor of return on asset with any increase on inventory conversion cycle period will result in an increase in return on assets by -6.3809 units keeping other variables constant where  $p=.000<.05$ .

The intervening effect of interest rate did not have significant effect in the relationship between working capital management and financial performance with  $r=0.0014701$ ,  $p=0.418>0.05$  indicating that an increase in 1 unit of interest rate will result into increase of ROA by 0.0014701 which was quite insignificant. The study therefore concluded that interest did not intervene the relationship between working capital management and financial performance of listed firms in NSE.

### **Hypotheses Test**

The hypothesis **HO<sub>1</sub>** that Inventory Conversion Period does not have significant effect on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya was rejected. Inventory Conversion Period had no correlation with financial performance,  $r=.509$ ,  $p=.050$  indicating that Inventory Conversion Period affected financial performance of firms' in the commercial segment of the NSE. This finding differed with Mathuva [8] found that companies increase their inventory levels to reduce the cost of possible production stoppages and the possibility of no access to raw materials and other products. He further stated that higher inventory levels reduces the cost of supplying products and also protects against price fluctuations caused by changing macroeconomic factors. To be competitive, companies have to decrease their costs and this can be accomplished by keeping the costs of stocking inventory to a reasonable minimum. Lieberman and Helper [13] found that both technological and managerial factors have a significant influence on the determining of the levels of inventories. Technological factors, like longer setup and processing times increases the level of inventories. While the average price per piece of inventory decreases the inventory levels. They also found that managerial factors, like more employee training and problem solving training have a reducing effect on the inventory levels.

The hypothesis **HO<sub>2</sub>** that Cash Conversion Cycle does not have significant effect on financial performance of listed commercial and service firms in Nairobi Securities Exchange Kenya was **accepted**. The study established that Cash Conversion Cycle had no significant relationship with financial performance,  $r=.001$ ,  $p=.073>.05$  indicating that Cash Conversion Cycle (CCC) did not affect financial performance of firms' in the commercial segment of the NSE. This finding is supported by Silva [14] and Gomes [15] found the existence of a non-monotonic (concave) relationship between working capital level and firm profitability, which indicates that firms have an optimal working capital level that maximizes their profitability. Further study by Dong and Su [11] found a strong negative relationship between profitability, measured through gross operating profit, and the cash conversion cycle. This means that as the cash conversion cycle increases, it will lead to declining of profitability of firm. As such the managers could create a positive value for the shareholders by handling the adequate cash conversion cycle and keeping each different component to an optimum level. Besides, Sharma and Kumar [14] found out that although the relationship between CCC and ROA was not statistically significant. The study also found that accounts receivables are also positively related to ROA and that accounts payables are negatively related to ROA. The results also imply that Indian firms can increase profitability by increasing Cash Conversion Cycle.

The study therefore established that apart from Cash Conversion Cycle, the other elements of Working Capital Management (Accounts Receivable, Accounts Payable and Inventory Conversion Period) affected financial performance measured in terms of Return of Asset (ROA) of firms' in commercial segment in the NSE. Part of this finding is supported by Kiprono [12] who established a positive or direct association between cash flows from operating activities and all the return on asset performance indicators. The results also showed that there is a negative or indirect association between cash flow from financing and investing activities and returns performance indicators. On overall, there was a weak relationship between cash flows and performance indicators. However, he noted that it is important to determine the impact of firm size in cash flow and earnings performance indicators.

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