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**THE IMPACT OF WORKING CAPITAL MANAGEMENT ON CORPORATE PERFORMANCE: EVIDENCE FROM LISTED NON-FINANCIAL FIRMS IN GHANA**

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**ABSTRACT:** *Working Capital Management (WCM) plays a significant role in the successful operation of businesses due to its significant effect on corporate profitability and liquidity. This study empirically examines the impact of working capital management on the performance of non-financial firms in Ghana. Using secondary data of five listed non-financial firms for the period 2010-2015, the Random effect model was employed to establish the relationship that exists between the various components of working capital management and firm performance and whether these WCM components impact significantly on firm performance. The results show that average payment period and current ratio have a positive relationship with firm performance. Average collection period, inventory turnover, cash conversion cycle, and firm size on the other hand have a negative relationship with firm performance. However, only average collection period, average payment period, cash conversion cycle, and current ratio are found to have a significant impact on firm performance. The study recommends that managers of non-financial firms in Ghana should formulate sound working capital management policies that will enable firms to deal with liquidity challenges and enhance their performance.*

**KEYWORDS:** Working Capital Management, Performance, Non-financial firms

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## INTRODUCTION

Working Capital Management (WCM) is one of the crucial components of financial management which impacts directly on corporate performance (Pouragha and Emamgholipourarchi, 2012). Working capital management involves the ability of a company to manage its current assets and current liabilities in a more efficient manner that provides maximum return on assets (Jagongo and Makori, 2013). Sound working capital management policies improve firms' profitability and market value, and the negligence of working capital management may lead to operational challenges (Christopher and Kamalavalli, 2009). The goal of working capital management is to ensure that firms are able to manage their operational expenses and also meet their short term debt obligations by maintaining adequate cash flows. Therefore it is crucial for finance managers to adopt suitable approaches to working capital

management in order to increase firms' profitability and also create value for their investors. Though profitability is a major goal of firms, insolvency problems may occur when firms concentrate too much on profitability at the expense of liquidity. Working capital management therefore seeks to maintain a balance between each of the components of working capital (Gitmen, 2009). The lack of understanding about the impact of working capital on profitability and the inability of management to plan and control its components may lead to insolvency and bankruptcy (Gill, 2011).

Considering the large amount of current assets and current liabilities among firms, the issue of working capital management is crucial which has received much attention in the financial management literature. Several studies (for example; Akoto, Awunyo-Vitor and Angmor, 2013; Sharma and Kumar, 2011; Oladipupo and Okafor, 2013; Gill, Biger and Mathur, 2010) have been conducted on working capital management especially its relationship with firms' profitability. However, only few studies exist in Ghana on the impact of working capital management on firms performance, with most of the studies been focused on financial services. This study adds to the limited literature on working capital management in Ghana by assessing the relationship between working capital management and the performance of non-financial companies listed on the Ghana Stock Exchange.

## LITERATURE REVIEW

Several studies have been carried out in different countries and industries on the impact of working capital management on corporate profitability. The results from these studies have been quite different.

For instance, Tauringana and Afrifa (2013) examined the significance of working capital management on firm profitability in the UK using 133 SMEs for the period 2005-2009. Applying a panel data regression analysis, their findings showed that SMEs profitability was significantly influenced by average days receivable (ADR) and average days payable (ADP). However, there was insignificant relationship between cash conversion cycle (CCC) and profitability. Similarly, Stephen and Elvis (2011) studied the relationship between working capital and profitability of 232 SMEs in Kenya. Using a panel data, the results established that CCC, ADR, and ADI significantly determine the profitability of SMEs in Kenya.

Almazari (2013) investigated the impact of working capital management on profitability of cement manufacturing firms listed in the Saudi Stock Exchange. Using the Pearson Bivariate correlation and regression analysis, the study reported current ratio (CR) as the significant factor influencing the profitability of cement manufacturing firms in Saudi.

Gakure, Cheluget, Onyango, and Keraro (2012) conducted a study on working capital management and profitability of manufacturing firms listed at the Nairobi stock exchange. The study found the existence of negative correlation between net operating profit and the firm's average collection period, inventory holding period, accounts payment period and the cash conversion cycle.

Akoto, Awunyo-Vitor and Angmor (2013) in examining the relationship between working capital management and profitability of manufacturing companies in Ghana for the period 2005-2009, used the OLS econometric model on a panel data. The findings presented Account

Receivable Day (ARD), Cash Conversion Cycle (CCC), Current Asset Ratio (CAR), and Current Assets Turnover (CAT) as the working capital management components impacting significantly on profitability of manufacturing companies in Ghana. Napomech (2012) using a regression analysis based on a panel sample of 255 companies listed on the Stock Exchange of Thailand from 2007 through 2009 revealed a negative relationship between the gross operating profits and inventory conversion period and the receivables collection period. The study suggested that managers can increase the profitability of their firms by shortening the cash conversion cycle, inventory conversion period, and receivables collection period. However, they cannot increase profitability by lengthening the payables deferral period.

Showing how working capital management affects profitability, liquidity and firm value, Usama (2012) examined the effect of different variables of working capital management on the Karachi Stock Exchange using average collection period, average payment period, inventory turnover in days, cash conversion cycle, debt ratio, financial asset to total asset ratio, current ratio and net operating profitability. The study used pooled least square regression and common effect model and found that there is significant positive effect of working capital management on profitability and liquidity of the firms.

Ahmed (2012) investigated the impact of working capital management on the performance of firms using a sample of 253 non-financial listed companies of the Karachi Stock Exchange (KSE), Pakistan. The study used secondary data taken from Balance Sheet Analysis of Stock Listed Companies on KSE published by State Bank of Pakistan. Results were analysed by using the Logistic Regression, OLS Regression and Pearson Correlation techniques. The result suggests that out of the five selected components of working capital management only current asset over total sales showed significant negative relationship with both the proxies of performance i.e. return on equity and return on assets. While current asset over total asset (CATA), inventory turnover, debtor's turnover and current ratio showed significant positive relationship with performance. The logistic regression results suggested that probability of firm being in profit is highly determined by CATA, CATS and CR.

Nazir and Afza (2009) investigated the relationship between the aggressive/conservative working capital asset management and financing policies and its impact on profitability of 204 Pakistani firms divided into 16 industrial groups by KSE for the period 1998-2005. Using panel data regression models between working capital policies and profitability, the study found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies.

## **METHODOLOGY**

### **Sample Size and Data**

Five non-financial firms were selected for this study. The selected firms were Fan Milk, Unilever Ghana, Aluworks, Benso Oil Palm Plantation, and Ghana Oil Company. These firms were selected based on data availability. The study primarily used secondary data obtained from the Ghana Stock Exchange (GSE) annual financial statements of the selected firms from 2010-2015.

## Description of Variables

### Dependent Variable

The empirical literature on working capital management (for example; Azam and Haider (2011); Nazir and Afza (2009)) used Return on Assets (ROA) and Return on Equity (ROE) as the most common measures of firm performance. In this study, firm performance is measured by ROA which is computed as the ratio of Net Income to Total Asset.

### Independent Variables

**Average Collection Period (ACP):** ACP explains how long it takes a firm to retrieve or collect cash from its customers. It is computed as account receivable divided by net sales multiplied by 365 days.

**Average Payment Period (APP):** APP refers to how long it takes a firm to settle its suppliers or creditors. It is calculated as accounts payable divided by purchases multiplied by 365 days.

**Inventory Turnover (IN):** This refers to how fast a firm is able to convert its inventory held into sales. It is computed as inventory divided by cost of goods sold multiplied by 365 days.

**Cash Conversion Cycle (CCC):** This expresses the length of time a firm takes to convert its resources into cash flows. CCC is calculated by summing accounts receivable days and inventory days less accounts payable days.

**Current Ratio (CR):** CR measures the liquidity level of a firm which is calculated as the ratio of current assets to current liabilities.

In addition to the selected independent variables, the study introduced firm size (measured by log of sales) as a control variable.

### Model Specification and Analytical Approach

The econometric model employed in this study is a linear model which is specified as follows:

$$ROA_{it} = a_0 + \beta_1 ACP_{it} + \beta_2 APP_{it} + \beta_3 INT_{it} + \beta_4 CCC_{it} + \beta_5 CR_{it} + \beta_6 Fsize_{it} + \varepsilon$$

From the model, the subscript  $i$  represents individual firms,  $t$  denotes the sample period from 2010-2015, and the symbol  $a$  refers to the intercept.  $ROA$  is the dependent variable which represents firm performance. Average collection period, average payment period, inventory turnover, cash conversion cycle, current ratio, and firm size are represented by  $ACP$ ,  $APP$ ,  $INT$ ,  $CCC$ ,  $CR$ , and  $Fsize$  respectively.  $\varepsilon$  refers to the error term, and  $\beta_1$  to  $\beta_6$  represent the model coefficients.

The study employed the Pooled Ordinary Least Square (OLS), Random effect, and Fixed effect estimation techniques in the data analysis.

## ANALYSIS AND RESULTS

### Descriptive Statistics

**Table 1** presents a summary of the descriptive statistics which shows the total observation, mean, standard deviation, maximum, and minimum values of each variable used in this study.

The results show that return on assets (ROA) has an average of 15.46% with a standard deviation of 11.18%. The mean value for average collection period (ACP) is 29.6 days meaning that listed non-financial firms in Ghana do not advance credit beyond 29.6 days to their customers. Also, the firms take an average of 47.5 days, maximum of 150.2 days and minimum of 52.7 days to settle their customers. In addition, on average, it takes 110 days for the firms to convert their held inventory into sales. Furthermore, the selected firms use an average of 68.9 days to convert their resources into cash, with some of the firms taking a maximum of 198.8 days and a minimum of 15.7 days. The mean value of current ratio (CR) of the firms considered is 2.26 with a maximum of 7.68 and minimum of 0.008. The mean value indicates that on average, listed non-financial firms in Ghana maintain adequate current assets in meeting their current liabilities.

**Table 1: Descriptive Statistics**

Variables	Observations	Mean	Stand Dev.	Minimum	Maximum
ROA	25	15.462	11.181	2.52	45.52
ACP	25	29.602	17.080	7.4	71.61
APP	25	47.517	71.962	52.72	150.23
INT	25	110.276	200.972	3.71	975.69
CCC	25	68.897	94.004	15.72	198.82
CR	25	2.260	2.288	0.008	7.68
Fsize	25	5.133	0.587	3.56	6.19

### Correlation Analysis

**Table 2** indicates the correlation between the explanatory variables used in this study. Aside the correlation between APP and CCC, all the other variables are weakly correlated. Kennedy (2003) posited that there is high correlation when the coefficient between the variables is greater than 0.80. In this study, the low correlation coefficients among the explanatory variables indicate the absence multi-collinearity.

**Table 2: Correlation of Variables**

	ACP	APP	INT	CCC	CR	Fsize
ACP	1					
APP	0.1628	1				
INT	0.5438	0.1270	1			
CCC	0.0990	0.9942	0.0203	1		
CR	-0.5322	-0.4067	-0.1682	-0.3872	1	
Fsize	0.2841	0.1380	0.1373	0.1220	-0.4246	1

### Empirical Results on the relationship between Working Capital Management and Firms' Performance

**Table 3** shows the empirical findings on the relationship between firms' performance and the various components of working capital management from the Pooled OLS, Fixed Effect and Random Effect econometric models. Pooled OLS is considered as a restricted model which assumes that firms are homogenous. The Fixed effect and the Random effect however acknowledge the heterogeneity among firms. It is clear from the table that, the results of the Pooled OLS and Random effect are quite similar, and therefore the Random effect is selected to check the robustness with the fixed effect model. The study further rejected the fixed effect

model based on the value (0.3813) of the Hausman test which is greater than 0.05, depicting that the Random effect model is better than the fixed effect model in the estimations. Therefore, the analysis of the results will be based on the Random effect model.

With reference to the Random effect estimation, the results show that average collection period (ACP) has a negative but significant relationship with firm performance. This means that listed non-financial firms in Ghana will perform well if they use short period to retrieve payments due from their customers. This result is in line with the findings of Dong and Su (2010) who establish that firms increase in profits when they are able to reduce their average collection period.

Average payment period (APP) portrays a positive and statistically significant relationship with firm performance. Notwithstanding the significance of APP, the positive sign indicates that the longer it takes non-financial firms to settle their debts, the more capital they maintain for their activities, thereby making profits. This finding is consistent with the results of Falop and Ajilore (2009). From the results, a negative but statistically significant relationship exist between cash conversion cycle (CCC) and firm performance. This means that non-financial firms in Ghana will increase their performance if they are able convert their resource input into cash within a short period of time. This result agrees with the findings of Eljelly (2004).

Average inventory turnover (INT) shows a negative and statistically insignificant relationship with firm performance. The negative relationship means that the longer firms tide in their inventory, the less working capital they will have to finance their activities, hence affecting firms' performance. Furthermore, the analyses show that the coefficient of current ratio (CR) is positive and statistically significant. This means that for non-financial firms to perform well, they need to hold more current assets to settle their current liabilities. Finally, the findings reveal that firm size and firm performance are negatively related and statistically insignificant.

**Table 3: Results of the Regression Analysis**

	Pooled OLS	Fixed Effect	Random Effect
<b>(Constant)</b>			
	(1.02) 0.322	(0.90) 0.385	(1.02) 0.309
<b>ACP</b>			
	(-2.32) 0.032 *	(-1.10) 0.290	(-2.32) 0.020*
<b>APP</b>			
	(1.97) 0.064	(1.86) 0.085	(1.97) 0.049*
<b>INT</b>			
	(-1.95) 0.067	(-1.88) 0.081	(-1.95) 0.051
<b>CCC</b>			
	(-1.97) 0.064	(-1.86) 0.085	(-1.97) 0.049*
<b>CR</b>			
	(2.37) 0.029 *	(-0.51) 0.620	(2.37) 0.018*
<b>Fsize</b>			
	(-0.26) 0.795	(-0.16) 0.878	(-0.26) 0.792
R <sup>2</sup>	0.513	0.120	0.512
Hausman test		6.39 (0.3813)	
Observations	25	25	25

*Notes: Figures in parenthesis represent t- value \* denotes statistically significant at 5% level*

## CONCLUSION AND IMPLICATIONS

The role of working capital management cannot be overemphasised in a firm's operations and must be efficiently managed. Maintaining sufficient and appropriate level of working capital is necessary in dealing with liquidity challenges in a firm. However, firms may lose investment opportunities when they hold excess balance of working capital. This study assessed the impact of working capital management on the performance of non-financial companies in Ghana. The results established that average collection period has a negative significant impact on firms performance. This implies that for non-financial firms to enhance their performance there is the need to minimise the number of days use in retrieving debts from their customers. The positive and significant relationship between average payment period and firms performance indicates that non-financial companies will perform better by using longer periods to meet their debt obligations. The study also established a negative and significant impact of cash conversion cycle on firms' performance. This implies that non-financial firms can enhance their performance if they are able to convert their resources to cash within the shortest possible time. Furthermore, the positive and significant relationship between current ratio and firm performance suggests that maintaining sufficient current assets will aid firms to meet their debt obligations. In a nutshell, managers of non-financial firms in Ghana should formulate sound working capital management policies that will enable firms to deal with liquidity challenges and enhance their performance.

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