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Research Paper

Effect of Profitability and Sales Growth on WCM of Listed Downstream Oil and Gas Companies in Nigeria

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ABSTRACT: *This paper examines the effect of profitability and sales growth on working capital management of listed downstream oil and gas companies in Nigeria for the periods of 12 years (2005–2016), using secondary data sourced from annual reports and accounts of the companies under study. Multiple regression analytical tools were used to test the hypotheses using STATA 14. The results show that firm performance characteristics (return on assets and sales growth) had negative insignificant effect on the working capital management proxied by cash conversion cycle of listed downstream oil and gas companies in Nigeria. The paper, therefore, recommends that managers of the companies should not ignore these variables; but should pursue them in earnest in order to achieve other organizational objectives besides the benefits of effective working capital management.*

KEYWORDS: *WCM, Profitability, sales growth, downstream oil and gas companies*

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I. INTRODUCTION

More often than not, the significance of working capital management in any organization is one of the vital decisions in shaping the organization. Working capital refers to a systematic way of managing the loophole between current assets and current liabilities; it will be good for the downstream oil and gas companies to plan for adequate funds in running day-to-day expenses involved for the business growth. In a nut share, working capital management is involved in determining company's policy that will safeguard its running routine operations.

Among the resources that are owned by an organization, working capital has a very vital role to play in achieving the organization's overall goals. Profitability and sales growth are those factors that can affect the management of working capital as organization concern. Inadequate management of firm's profitability and sales growth can influence the management of working capital and cause problem which may lead to insufficient fund in financing company's routine operation.

II. OBJECTIVES OF THE STUDY

The general objective of the study is to text the effect of profitability and sales growth on working capital management of listed downstream oil and gas companies in Nigeria. The specific objectives are as follows:
i. To ascertain the effect of profitability on working capital management; and
ii. To examine the influence of sale growth on the working capital management of listed downstream oil and gas companies in Nigeria.

III. REVIEW OF RELATED LITERATURE

Several studies have been documented worldwide to evaluate the factors that affect efficient working capital management. Manoori and Muhammad (2012) are of opinion that working capital and profitability have double-edge relationships, more profitability makes organization stronger to negotiate with both suppliers and customers, and organization can use these competitive advantages to improve their liquidity. On the other hand,

working capital has important effects on profitability. Return on asset is one of indicators of profitability which measured as profit before interest and tax divided by total assets of the company (Manoori & Muhammad, 2012).

Lotfinia, Mousavi and Jari (2012) examined the impact of company characteristics on working capital management. The sample consists of 83 firms listed in Tehran Stock Exchange for the period of 2001 to 2010. The study was based on a correlation approach and multiple regressions and Pearson's correlation were employed in testing the hypothesis. The result showed that profitability is negatively related to cash conversion cycle while Nilsson (2010) documented a positive relationship between profitability and cash conversion cycle.

Chiou and Cheng (2006) and Gill (2011) assessing the determinants of working capital requirement of the listed Taiwanese and Canadian companies respectively, the result showed profitability has a positive influence on working capital requirement. Vijayalakshmi and Bansal (2016) and Azeem and Marsap (2015) showed that profitability is negatively and insignificantly related to working capital requirement while Mohamad and Saad (2010) found significant negative relationship between firm's profitability and working capital management.

Nazir and Afza (2009) in their study the factors that determine the working capital management of listed manufacturing firm listed on Karachi stock exchange in Pakistian. The findings from the study indicate that profitability (ROA) has a positive and significant effect on working capital management. Rimo and Panbunyuen (2010) also documented the same result.

Firm performance characteristics (sales growth) represent the extent to which a company increases its sales for a certain period. It is measured as current year's sales less previous year's sales divided by previous year's sales (Naser, Nuseibah & Al-Hadeya, 2013). Valipour, Moradi and Farsi (2012) suggested that firm with high growth rate tends to pay more attention to their working capital by engaging in lengthening their payment terms and speeding up their collection period from customers which ultimately translate into efficient working capital.

Valipour, Moradi and Farsi (2012) examine the effect of company characteristics on working capital management of listed firms in Tehran. The result shows that sales growth has negative significant effect on working capital management which was reported in the study conducted by Zaryawati, et al., (2010).

Akinlo (2012) investigates the determinants of working capital requirements of 66 firms in Nigeria using panel data for the period 1997-2007 and the GMM. The results suggested that sales growth is a variable that positively drive working capital management. The findings suggest that some of the insights from modern finance theory are potable to Nigeria.

Mousavi, et al., (2006) and Kasozi (2017) concluded that sale growth has a positive impact on working capital management. Nilsson (2010) and Qurashi and Zahoor (2017) suggested that sales growth has a negative impact on cash conversion cycle.

In general, previous studies on the subject matter have provided mixed results in the cost of their study. Different in result may be as a result of location, sample size, methodological adopted among others in carry out their studies. The inconclusiveness of these studies calls for further research. The following hypotheses were formulated in null form to test the effect of firm profitability and sales growth on cash conversion cycle of listed downstream oil and gas companies in Nigeria:

i. Profitability has no significant effect on cash conversion cycle of listed downstream oil and gas companies in Nigeria.

ii. Sales growth has no significant effect on cash conversion cycle of listed downstream oil and gas companies in Nigeria.

IV. RESEARCH METHODOLOGY

This study focuses on the empirical analysis effect of profitability and sales growth on cash conversion cycle of listed downstream oil and gas companies in Nigeria. The ex-post factor research design was used because it involves events that have already taken place in the past. The records observed were from 2006-2017, a period of twelve years. The variables of the study were profitability, sales growth, leverage, firm age and cash conversion cycle.

Population and Sample Size

The population of this study comprise of listed downstream oil and gas companies in Nigeria. The sample size consists of only eighty downstream oil and gas companies in Nigeria and it is dependent on data availability. The choice for these companies is because downstream oil and gas companies' products are important to the growth and development of the Nigerian economy and generates over 90% of the country's foreign exchange earnings, and provides employment in various forms to Nigerian (Central Banks of Nigeria, 2010 and Samaila & Bello, 2017).

Nature and Source of Data

The study used secondary data that were extracted from eight downstream oil and gas companies in Nigeria. Data from annual reports are proven to be more reliable because companies are required to keep accounts and to produce accounts that give true and fair view of their company according to companies and allied matters decree 1990. The data for the study are profit before tax, total assets, sales, inventory, account receivables and payables.

Variables and their Measurement

The researchers made their choice primary guided by precious empirical studies along this line; variables are consistent with Zaryawati, et al., (2010), Akinlo (2012), Lotfinia, Mousavi & Jari (2012), Manoori & Muhammad (2012), Naser, Nuseibah & Al-Hadeya (2013), Vijayalakshmi & Bansal (2016) and Azeem & Marsap (2015). Dependent variable is working capital management proxy by cash conversion cycle (CCC) measured as (inventory turnover period plus average collection period minus average payment period). Profitability (ROA) defined as profit before taxes by total assets and sales growth (SG) measured as current year's sale minus previous year's sales divided by current year's sales, represent independent variables of the study. To control the result, financial leverage and firm age were included in the model. Financial leverage were measured as total debts to total assets while firm age represents the year of company incorporated.

Model Specification

$CCC = f(ROA, GRW, LEV \& AGE)$ ..... (i)

$CCC_{it} = \alpha_0 + \beta_1(ROA)_{it} + \beta_2(GRW)_{it} + \beta_3(LEV)_{it} + \beta_4(AGE)_{it} + \varepsilon_{it}$ ..... (ii)

V. RESULTS AND DISCUSSION

The statistical software of STATA 14 version was used to analyze the relationship of between the independent and dependent variables of the study. Descriptive statistic provides the summary statistics of the collected such as mean, minimum and maximum of all the variables. Thus, Table 4.1 presents the descriptive statistics.

Table 4.1 Descriptive Statistic of the Variables

Variable	Obs	Mean	Std. Dev.	Min.	Max.
CCC	96	43.89218	69.15342	1.330342	362.9319
ROA	96	0.0513776	0.145587	-0.6406367	0.3883896
GRW	96	1.39482	11.6098	-0.95271	0.9547358
LEV	96	0.7321542	0.2592372	0.0058414	2.028811
AGE	96	1.580649	0.1977103	1.041393	1.812913

Source: Computed by the researchers from the Annual Report and Account of Sampled Firms (2005-2016), using STATA 14.

Table 4.1, above reveals the number of observations for each variable is 96. This is in line with the number of the sampled companies which is 8, and the study period of 12 years. The cash conversion cycle has a mean of 43.89218 days. This explains that it takes in average 44 days for the capital that is tied up in working capital to convert into cash. The minimum number of days it takes for the capital in cash conversion cycle to convert into cash is 1.330342 days and the maximum number of days is 362.9319. The return on asset has a mean value of 0.0513776, indicates that on the average sampled downstream oil and gas companies earns N0.05 as return per naira value of its assets with a minimum loss of -₦0.6406367 and maximum profit of ₦0.3883896.

Sales growth has a mean value of 1.39482, implying that the average growth in sales by sampled firms is 1.3948 with a minimum decrease of -0.95271 and maximum increase of 0.9547358. Leverage has a mean value of 0.7321542, indicating that on the average, sampled downstream oil and gas companies has ₦0.73 debt per every naira of its assets for the period of the study with minimum and maximum values of 0.0058414 and 2.028811 respectively. Age of the firm was measured as the natural logarithm of the year of incorporation has a mean value of 1.580649 with a minimum of 1.041393 and maximum value of 1.812913.

In an effort to establish the nature of the correlation between the variables, and also to ascertain whether or not multi-collinearity exists as a result of the correlation between variables, table 4.2 is incorporated for the purpose of analysis. The correlation matrix in table 4.2 provides an insights into which of the explanatory variables (ROA, GRW, LEV and AGE) are related to the dependent variable (CCC).

Table 4 Correlation Matrix of Dependent and Explanatory Variables

VARIABLES	CCC	ROA	GRW	LEV	AGE
CCC	1.0000				
ROA	-0.1009	1.0000			
GRW	-0.2647	0.0055	1.0000		
LEV	-0.2433	-0.1354	0.2793	1.0000	
AGE	-0.3311	0.2456	0.2109	0.3385	1.0000

Source: Computed by the researchers from the Annual Report and Account of Sampled Firms (2005-2016), using STATA 14.

Table 4.2 shows the correlation coefficients on the relationship between the dependent variable and explanatory variables. It can be seen that CCC has a negative relationship with the explanatory variables, this indicate that there is an inverse relationship between the ROA, GRW, LEV and AGE and the cash conversion cycle. Furthermore, the correlation table indicates that correlation between explanatory variables is generally low, the highest being 0.3385 which is correlation between leverage and firm age thus suggest absence of multi-collinearity. The following table represents the results of Variance Inflation Factor (VIF) tolerance for the explanatory variables.

Table 4.3 Multi-collinearity Text

VARIABLE	VIF	1/VIF
AGE	1.27	0.787245
LEV	1.26	0.793816
ROA	1.13	0.885715
GRW	1.10	0.906665
Mean VIF	1.19	

Source: Computed by the researchers from the Annual Report and Account of Sampled Firms (2005-2016), using STATA 14.

The table above presents the results of the VIF conducted which indicate absence of multi-collinearity as the VIF values range from 1.10 to 1.27 which is below 10. The next sub-heading presents the regression model that was developed to test the impact of explanatory variables on dependent variables. The table below presents the OLS regression

Table 4.4 Regression Model

OLS REGRESSION				
VARIABLES	**Coefficient**	**Std. Error**	**t**	**P>|t|**
ROA	27.38658	48.44117	0.57	0.573
GRW	-.1044423	.0582766	-1.79	0.076
LEV	-32.01093	28.73605	-1.11	0.268
AGE	-83.33408	37.83556	-2.20	0.030
_CONS	199.1636	56.06489	3.55	0.001
R-Squared	0.1617			
Adj R-Squared	0.1249			
Prob > F	0.0027			
Hausman Test (Prob>Chi2)	0.4273			

Source: Computed by the researchers from the Annual Report and Account of Sampled Firms (2005-2016), using STATA 14.

$CCC = 199.1636 - 27.38658\beta_1 - 0.1044423\beta_2 - 32.01093\beta_3 - 83.33408\beta_4 + \varepsilon$

As table 4.4 reports that the value of R-Squared is 0.1249 indicating that the explanatory variables in the model explained 12.49% variation in the dependent variable that is CCC, while the remaining 87.51 of the variation in working capital management is attributed to other variables not addresses by the model. The value for F-value is 0.0027 which significantly at 5%. Therefore, it is statistically concluded that the model used in the study is fits in modeling effect of firm performance characteristics on cash conversion cycle of listed downstream oil and gas companies in Nigeria.

The result from the table 4.4 shows that return on assets has insignificant positive impact on working capital management, indicates that companies with higher profits are not really showing concerns in efficient of working capital management. The negative association between sales growth and cash conversion cycle imply that growing companies are really focused in managing their working capital effectively. This result is in line with the studies of Palombini and Nakaruma (2012); Mohamad and Elias (2013); Iftikhar (2013) and Olanisebe (2018). On the contrary; this finding is contradict with the prior findings of Jeng-Ren, et al., (2006) and Manoori and Muhammsd (2012).

Leverage was negatively correlated with the working capital management proxies by CCC but insignificant. This indicates that the higher level of firms' debt requires the higher level of companies' working capital management. The result is consistent with the findings of Taleb, Zoued and Shubiri, (2010); Onaolapo and Kajola (2015) and Olanisebe (2018). In other hand, contradicts the findings of Gill (2011) and Bansal (2013). Finally, firm age was negatively correlated with the cash conversion cycle at a 5% significant level. This means that age of the firm improve the efficiency of working capital management. This result is consistent with the result of Iyoha (2012); Ifikhar (2013); Konak and Guner (2016); Zariyawati, Annuar and Pui-san (2016) and Olanisebe (2018) but contracted the found of Marobhe (2015) who reported insignificant positive association.

VI. CONCLUSION AND RECOMMENDATIONS

The study examines the effect of profitability and sales on working capital management of listed downstream oil and gas companies in Nigeria. Data were sourced from the annual reports of the sampled size; multiple regression analytical tools were used to test the hypotheses. Despite this, the study does not yield sufficient evidence to prove that firm profitability and sales growth affect working capital management proxied by cash conversion cycle of listed downstream oil and gas companies in Nigeria. Finally, the study could safely recommend that managers of these firms should not ignore these variables; but should pursue them in earnest in order to achieve other organizational objectives besides the benefits of effective working capital management.

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