

# The Impact of Cash Management on Profitability of the Nigerian Oil and Gas Industry (Downstream)

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**Abstract-** The study aims to assess the impact of Cash Management on Profitability of the Nigerian Oil and Gas Industry (Downstream). The population of the study comprised of the Twelve (12) listed Oil industry on the Nigerian stock exchange as at 31 December 2017, out of which a total of Seven (7) oil industries were sampled for the study. The data generated from the annual reports and accounts of the sampled oil industry were analyzed using SPSS version 25. The results of the analysis were tested at 0.5% level of significance. The findings of the study show that no relationship between cash management (CCC, DCP, CPP and LR) and profitability (ROA and ROE) of oil marketing industries in Nigeria, and also the study found, a positive significant relationship exists between cash management (CCC, DCP, CPP and LR) and ROCE of oil industries in Nigeria. The study recommends the oil companies in Nigeria should find other ways of improving performance (ROA) other than cash management (CCC, DCP, CPP and LR) as revealed by the study. In order to increase performance (ROA) the management of oil companies should reduce cost of their assets and improve their revenues; it also recommends that the management should find other ways of improving performance (ROE) other than cash management (CCC, DCP, CCP and LR) as revealed by the study. In order to improve performance (ROE), the management should increase revenues and reduce their equity and the study recommends that the management of oil companies in Nigeria should put all necessary efforts to increase the efficiency of their cash management (CCC, DCP, CPP and LR) because it has impact on (ROCE).

**Keywords:** Profitability, Cash management, Return on Asset, Cash Conversion Cycle

## I. INTRODUCTION

Cash management is crucial to every business that desires to meet up with its short-term financial obligations. [1] Asserts that the success of any business venture is predicated on how the management has planned and controlled its cash flows. According to [2], cash management is concerned with the efficient management of cash so as to achieve an optimum level of cash in the firm's working capital. Cash represents the basic input necessary to start and keep a business running. A company needs to maintain sufficient cash to keep its business running smoothly. Cash shortage will disrupts the firm's operation and can even lead to insolvency.

In addition, good, effective and proper cash management increase the flexibility and competitive advantage of a business in dealing with emergency situations or taking advantage of opportunities as they arise, at a short notice [3]. Furthermore, it enables a business to take advantage of cash

discounts and avoid costly sources of finance when raising funds [4].

The nature, size and complexity of the operations in oil industry as well as its strategic position in the Nigerian economic growth and development distinguish the industry's cash management and approaches or strategies used in managing the various components of that cash. However, very little is known on empirical evidence about the relationship between cash management and profitability with reference to Nigerian oil industry, hence the need for the present study.

Cash management is a concept that is receiving serious and more attention all over the world especially with the current financial situations and the state of the world economy.

Profitability on the other hand refers to the positive gain from an investment or business operation after subtracting for all expenses opposite of loss [5]. Profitability on a company is the different between the income of the business

and all its costs/expenses. He also notes that it is normally measured over a period of time. Profits are important source of investments funds [6]. Profitability is also the ability of a firm to earn returns on investment, profit can be used to buy more stock, improve technology or expand the premises. A business that does not make a profit will fail, potentially affecting employees, suppliers and the local community because their overall operations depend on profits and its assets that have a positive net present value [7].

The major reason for low profits is wrong cash management policies or strategies. Performance of any organization or business is assessed by the way they succeed or fail in the way they intend to achieve their objectives. Cash management offers huge cash opportunities that could be released with sustainability within a relative short period of time but organizations or companies which fail in their cash management policies face a challenge of reduction in their profitability levels [8].

### Statement of the Research Problem

Many firms in Nigeria embraced strict collections policies and limit sales credits to their customers to maximize and increase cash inflow. But this strict collection policies and restriction on sales credits has led to lost sales which ultimately reduce profits As a result of the trade-off between liquidity and profitability of firms, many of the Nigerian firms that focus on effective cash management to achieve the objective of liquidity have lose hold of the profitability goal. The challenge therefore lies on how to achieve profitability goal without losing grip of the liquidity objective since inadequate cash may lead to lost sales and thus may affect the profitability.

Although various studies were conducted on cash management generally, only few have empirically examined the relationship between cash management and firm's profitability either at global or domestic level. [9] Attributed the crisis to the previous bad cash management of most organizations. The principle of finance, rather, they use imprecise rule of thumb or poorly constructed models, this affects the manager's ability to effectively manage the cash available to them, and as such, the organizations may either be overcapitalized or undercapitalized or worst still liquidate.

This study uses the petroleum sector to find the impact of cash management on profitability since the petroleum industry is one of the high knowledge-intensive sector and, therefore it provides a rich environment for the research and the availability of the reliable data from the audited annual reports of petroleum industries and hence for justification of the study.

### 1.3 Objectives of the Study

The specific objectives of the study are:

- i. To evaluate the nature of influence of cash conversion cycle on profitability (ROA) of the Nigerian downstream oil and gas industry.
- ii. To determine the relationship between debtors conversion period and profitability (ROE) of the Nigerian downstream oil and gas industry.
- iii. To ascertain the nature of the relationship between creditors payment period and profitability (ROCE) of the Nigerian downstream oil and gas industry.

### Research Hypothesis

Based on the objectives set above, this study will be guided by the following testable hypothesis stated in null form:

- i. There is no relationship between cash conversion cycle and Return on assets of the Nigerian downstream oil and gas industry.
- ii. There is no relationship between debtors conversion period and Return on equity of the Nigerian downstream oil and gas industry.
- iii. There is no relationship between creditors payment period and Return on capital employed of the Nigerian downstream oil and gas industry.

## II. REVIEW OF EMPIRICAL LITERATURE

Many researches were conducted in the area of cash management and firm's profitability, the result of which shows divergent conclusions. The empirical work in this area is highlighted as follows;

[10] Carried out an empirical investigation on the relationship between profitability and liquidity on a sample of joint stock companies in Saudi Arabia. Liquidity was measured by current ratio and cash gap (cash conversion cycle). Secondary data were obtained from the annual accounts of the selected companies. Using correlation and regression analysis the study found significant negative relation between the firm's profitability and its liquidity level, as measured by current ratio. This relationship was more evident in firms with high current ratios and longer cash conversion cycles. At the industry level, however, the study found that the cash conversion cycle or the cash gap was of more importance as a measure of liquidity than current ratio that affects profitability. The size variable was also found to have significant effect on profitability at the industry level.

[11] Carried out a study on the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability of Pakistani firms. Sample firms included ninety-four Pakistani firms listed on Karachi Stock Exchange for a period of 6 years from 1999-2004. From result of the regression analysis carried out, they reported that there was a negative relationship between variables of working capital management including the average collection period, inventory turnover in days, average

collection period, cash conversion cycle and profitability. Besides, they also indicated that size of the firm, measured by natural logarithm of sales, and profitability had a positive relationship.

[12] Carried out an investigation on working capital management and profitability in the textile industry of Pakistan. The population of the study was the textile industry of Pakistan. The study was based on secondary data collected from listed firms in Karachi stock exchange for the period of 2001-2006. The effect of working capital management on profitability was tested using panel data methodology. Data analysis was conducted using correlation and regression analysis. The results of the study revealed that there a strong positive relationship existed between profitability and cash, accounts receivable and, inventory while there a negative relationship was reported between profitability and accounts payable. In other words, increase in cash, inventory and credit sales will lead to increase profitability of firm.

[13] Investigated the effect of the cash conversion cycle components on the operational gross profit to assets ratio in Tehran. Data for the study were obtained from one hundred and twelve annual reports of firms listed in the Tehran stock exchange for the period of 1998 to 2008. The relationship between cash conversion cycle components and 12 control variables tested using regression model. The result of first model tested demonstrated that when all of the cash conversion cycle components entered to the model, the net cash conversion cycle and the number of days inventory holding did not have significant effect but number of day's receivable accounts and number of days 3payable accounts had significant negative effect on operational gross profit to assets ratio.

[14] Analyzed the relationship between cash management and financial performance of some selected firms in the manufacturing sector in Nigeria. The research examined the relationship between Cash conversion cycle, cash conversion efficiency of manufacturing firms' profit margin and return on investment.. Four hypotheses were formulated; correlation and linear regression were conducted in testing the hypotheses. The ex-post facto and analytical research designs were employed in the study. The time series data covering a period of eleven (11) years (2000-2010) and cross sectional data of seventeen (17) firms were utilized to carry out analyses to validate the result obtained. The result confirms the theoretical negative relationship between cash conversion cycle and cash conversion efficiency of manufacturing firms. This implies that the profitability of manufacturing firms increases with shorter cash conversion cycle. A probable explanation to this finding is that when the cash conversion cycle is relatively shorter, the firm may not need external financing, which results in incurring less borrowing cost. Hence, profitability increases.

[15] Explored on cash management practices and its effect on the financial performance of SMEs in the Northern Region of Ghana. The study adopted a descriptive cross-sectional survey research design which allowed the collection of primary quantitative data through structured questionnaires. The target population was 1000 owner/managers of SMEs. Stratified random sampling technique was used to obtain a sample of 300 SMEs comprising 164 trading 26 manufacturing, 10 hairstyling, 62 dressmaking, and 38 carpentry enterprises. The data was analyzed using both descriptive and inferential statistics. The study revealed that SME financial performance was positively related to efficiency of cash management (ECM) at 1 per cent significance level. The study concluded that cash management practices have influence on the financial performance of SMEs, hence there was need for SME managers to embrace efficient cash management practices as a strategy to improve their financial performance and survive in the uncertain business environment.

[16] Examines the impact of capital structure on profitability of core business operations of commercial banks in Ethiopia. In order to meet the objectives of this study a quantitative panel data methodology was employed. The panel data were obtained from the audited financial statements of eight commercial banks and National Bank of Ethiopia for the period of twelve years (2001/02 – 2012/13). The panel data fixed effect estimation model was applied for the data analysis through E-Views 8.1 statistical package. It was observed that 89% of the total capital of commercial banks in Ethiopia in the period under study was made up of debt. Of this, 75% constitute deposit and the remaining was non-deposit liabilities. This has reaffirmed the fact that banks are highly levered institutions. The findings revealed that capital structure as measured by total debt to asset had statistically significant negative impact, whereas deposit to asset had statistically significant positive impact on profitability of core business operations of commercial banks. Moreover, loan to deposit, spread and asset size also had statistically significant and positive relationship with profitability. However, growth found to have statistically insignificant impact on profitability. Therefore, banks should give due consideration to manage their debts properly, mobilize deposit sufficiently, increase loan advances, spread, and size in their financing decisions.

[17] Using the sample of fifteen selected manufacturing companies in the Nigerian stock exchange for 2008-2012 periods; examines the relationship between cash management and profitability in the Nigerian manufacturing firms. Correlation and regression analysis were carried out. The results reveal a positive and significant relationship between CCC and ROE on one hand and a non significant negative relationship between CCC and ROA.

### III. METHODOLOGY

For the purpose of this research work, ex-post-facto Research Design was employed because the variables of the study were not controlled because the phenomenon of the study has already occurred. However, the population of this study consists of 12 oil companies which were listed in the Nigerian Stock Exchange as at 31<sup>st</sup> December 2017. The sample size for the study consists of seven (7) companies selected from the listed oil companies on the Nigerian Stock Exchange with a view of using the information obtained from them to generalize on the entire population. The data used in this study are quantitative secondary data collected from annual report and account of the sampled size of the study from 2013-2017. Regression analysis technique was used to measure the relationship between a dependent variable and independent variables.

#### Model of the Study

The Statistical package for social sciences (SPSS) software version 20.0 will be used in the analysis of the variables. For the purpose of this study, the following model is proposed:

$$ROA = \alpha + \beta_1 CCC + \beta_2 DCP + \beta_3 CCP + \beta_4 LR + \epsilon \dots \dots$$

(1)

$$ROE = \alpha + \beta_1 CCC + \beta_2 DCP + \beta_3 CCP + \beta_4 LR + \epsilon \dots \dots$$

(2)

$$ROCE = \alpha + \beta_1 CCC + \beta_2 DCP + \beta_3 CCP + \beta_4 LR + \epsilon \dots \dots$$

(3)

Where:

$\alpha$  = constant;

ROA= Return on Asset;

ROE= Return on Equity;

ROCE = Return on capital employed;

CCC = Cash Conversion Cycle;

DPP = Debtors Payment Period;

CCP = Creditors Collection Period;

LR= Leverage

$\beta_1 \dots \beta_3$  = Coefficients to be Estimated; and

e = Error Terms.

### IV. RESULT AND DISCUSSION

#### Regression Result

Table 1 Regression of Cash Conversion Cycle and ROA

##### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.455 <sup>a</sup>	.207	.101	.09118

a. Predictors: (Constant), LR, CCC, CPP, DCP

*Source: Generated by the researcher from annual report and account 2013-2017 using SPSS version 20*

From Table 1 shows that there is insignificance positive relationship between Cash Conversion Cycle, Debtors Collection Period, Creditors Payment Period, Leverage and profitability (ROA), of Oil Companies in Nigeria because the R and R-square are less than 50% level of significance as shown in the above analysis which is 46%(0.455) and 21%(0.207), that is to say the variables selected influence the ROA by 46% and 21%, left are for other variables not captured in the model.

Table 2

#### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.067	.031		2.194	.036
	CCC	.000	.001	-.058	-.338	.738
	DCP	.000	.000	.267	1.471	.152
	CPP	.000	.000	-.439	-2.560	.016
	LR	.008	.009	.149	.913	.369

a. Dependent Variable: ROE

*Source: Generated by the researcher from annual report and account 2013-2017 using SPSS version 20.*

The above table shows the regression result of cash management variables (CCC, DCP, CPP and LR) all have positive impact on the profitability of the sampled companies in other words, an increase in the cash management variables (CCC, DCP, CPP and LR ) will lead

to an increase in the profitability (ROA) by .000, .000, .000 and .008 respectively

#### Hypothesis I

**H<sub>01</sub>:** There is no relationship between cash conversion cycle and Return on Assets of Nigerian downstream oil and gas Industry.

The F test result is 1.958, with a significance of 0.127 This means that the probability of these results occurring by chance is insignificance at 5% level of significance. Therefore the null hypothesis which says there is no

Table 3 Regression of Debtors Collection Period and ROE  
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.671 <sup>a</sup>	.450	.377	.70631

a. Predictors: (Constant), LR, CCC, CPP, DCP

Source: Generated by the researcher from annual report and account 2013-2017 using SPSS version 20.

relationship between Cash conversion cycle and Return on Assets of Nigerian downstream oil and gas industry is therefore accepted.

From Table 3 shows that there is significant and insignificance positive relationship between Cash Conversion Cycle, Debtors Collection Period, Creditors Payment Period, Leverage and profitability (ROE), of Oil Companies in Nigeria because the R is greater than and R-square is less than 50% level of significance respectively as shown in the above analysis which is 67%(0.671) and 45%(0.450), that is to say the variables selected influence the ROA by 67% and 45%, left are for other variables not captured in the model.

Table 4

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.389	.236		1.646	.110
	CCC	-.002	.004	-.084	-.588	.561
	DCP	.003	.001	.300	1.992	.056
	CPP	-.004	.002	-.287	-2.009	.054
	LR	-.303	.071	-.574	-4.233	.000

b. Dependent Variable: ROE

Source: Generated by the researcher from annual report and account 2013-2017 using SPSS version 20.

The above table shows the regression result of cash management variables (CCC, DCP, CPP and LR) have negative, positive and the remaining two negative impact on the profitability of the sampled companies in other words, an increase in the cash management variable (DCP) will lead to an increase in the profitability (ROE) by .003, and increase in Cash Management Variables (CCC, CPP and LR) will lead to decrease in profitability (ROE) by -.002, -.004 and -.303 respectively.

Hypothesis 2

H<sub>02</sub>: There is no relationship between Debtors Collection Period and Return on Equity of Nigerian downstream Oil and Gas Industry.

The F test result is 6.144, with a significance of 0.110 this means that the probability of these results occurring by chance is insignificance at 5% level of significance. Therefore the null hypothesis which says there is no relationship between Debtors Collection Period and Return on Equity of Nigerian downstream Oil and Gas industry is therefore accepted.

Table 5 Regression of Creditors Payment Period on ROCE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.555 <sup>a</sup>	.308	.215	.23549

a. Predictors: (Constant), LR, CCC, CPP, DCP

Source: Generated by the researcher from annual report and account 2013-2017 using SPSS version 20.

From Table 5 shows that there is significant and insignificance positive relationship between Cash Conversion Cycle, Debtors Collection Period, Creditors Payment Period, Leverage and Financial Performance (ROCE), of Oil Companies in Nigeria because the R is greater than and R-square is less than 50% level of significance respectively as shown in the above analysis which is 56%(0.555) and 31%(0.308), that is to say the variables selected influence the ROCE by 56% and 31%, left are for other variables not captured in the model.

Table 6

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.203	.079		2.581	.015
	CCC	-.004	.001	-.505	-3.133	.004
	DCP	.000	.000	.123	.724	.475
	CPP	.000	.001	.061	.378	.708
	LR	-.039	.024	-.250	-1.643	.111

a. Dependent Variable: ROCE

Source: Generated by the researcher from annual report and account 2013-2017 using SPSS version 20.

The above table shows the regression result of cash management variables (CCC, DCP, CPP and LR) have negative, two positive and the negative impact on the profitability of the sampled companies in other words, an increase in the cash management variable (DCP and CPP) will lead to an increase in the profitability (ROCE) by .000 and respectively, and increase in Cash Management Variables (CCC and LR) will lead to decrease in profitability (ROCE) by -.004, and -.039 respectively

### Hypothesis 3

**H<sub>03</sub>:** There is no relationship between Cash Management and Return on Capital Employed of Nigeria Oil Marketing Industry

The F test result is 3.331, with a significance of 0.023 This means that the probability of these results occurring by chance is significance at 5% level of significance. Therefore the null hypothesis which says there is no relationship between Cash Management and Return on Equity of Nigeria Oil Marketing Industry is therefore rejected and concluded that there is relationship between Cash Management and Return on Equity of Nigeria Oil Marketing Industry.

### V. CONCLUSION

The following are the summary of the major findings of the study.

- There is no relationship between cash management (CCC) and profitability (ROA) of companies in the downstream oil industry.
- There is no relationship between cash management (DCP) and profitability (ROE) of companies in the downstream oil industry.
- There is strong relationship between Cash Management (CPP) and profitability (ROCE) of companies in the downstream oil industry.

Based on the above findings the following conclusions were drawn:

- There is no relationship between cash management (CCC) and profitability (ROA) of companies in the downstream oil industry. This implies that, there efficiency in cash management has no any impact on their profitability (ROA). This findings show that change in Cash Management (CCC) does not affects the profitability (ROA) of selected companies.
- There is no relationship between cash management (DCP) and profitability (ROE) of companies in the downstream oil industry. This implies that, there efficiency in cash management will not lead to increase in their performance (ROE). This findings show that change in Cash Management (DCP) does not affects the profitability (ROE) of selected companies.
- There is strong relationship between Cash Management (CPP) and profitability (ROCE) of companies in the downstream oil industry. This result proves that good and efficient cash management (CPP) will change the level of profitability (ROCE) of sampled petroleum companies. With regard to ROCE and CPP any change in any of them will affect them since it shows there is a significant positive relationship between the variables.

### IV. RECOMMENDATION

Based on the above findings and Conclusions, the following recommendations are made:

- The study recommends that the oil companies in Nigeria should find other ways of improving profitability (ROA) other than cash management (CCC) as revealed by the study. In order to increase profitability (ROA) the management of oil companies should reduce cost of their assets and improve their revenues; they can reduce the cost of assets by reducing cost of inventory that does not contribute to increase in their revenues; also reduce cost of assets by leasing equipment instead of acquiring them. On the other way, the company should increase revenue by increasing sales and reducing expenses; the company can increase sales by improving customer services, exploring new market and reviewing of price policies.

- II. It also recommends that the management should find other ways of improving profitability (ROE), other than cash management (DCP) as revealed by the study. In order to improve profitability (ROE), the management should increase revenues and reduce their equity; the company can reduce equity by redeeming some of its shares and issue debenture with the same amount to maintain the total capital structure. Similarly, the company can distribute more dividend, because retain earnings increase equity. On the other hand, the management should find ways of increasing revenues by reducing expenses, tax, and increasing the price of the products.
- III. Finally, the study recommends that the management of oil companies in Nigeria should put all necessary efforts to increase the efficiency of their cash management (CPP) because it has impact on their profitability (ROCE).

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