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IMPACT OF CASH CONVERSION CYCLE AND PROFITABILITY OF SELECTED CHEMICAL AND PAINT FIRM IN NIGERIA

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Abstract: *This study investigated the impact of cash conversion cycle on profitability of selected chemical and paint firms in Nigerian for the period, 2000-2013. Adopting the (CCC)cash conversion cycle (accounts collection period plus inventory conversion period minus accounts payable period) as independent variable and gross operating profit as dependent variable and controlling for liquidity, financial assets to total assets (FATA), SIZE and leverage (DR), the study revealed that cash conversion cycle of selected chemical and paint firms in Nigerian has a positive though non-significant impact on profitability and thus implies that, either longer or shorter, it take the companies to sell their inventories, has no influence on profitability. In order words, the period between the expenditure for the purchases of raw materials and the collection of sales from finished goods has no impact on the profitability of sampled chemical and paint firms in Nigeria. This suggests that, though longer CCC is good for explaining the financial success of selected chemical and paint firms in Nigeria, it is not a critical factor to consider when taking decision to improve profitability. The result also revealed that financial asset to total assets as a control variable has a significant positive impact on value and profitability of the sampled firms. This means, that increasing in the level of financial assets to total assets will lead to increase in the profitability and value of the sampled firms, since the financial assets are brought in for profitability purpose.*

Keywords: Cash Conversion Cycle, Working Capital Management, Nigeria chemical and Paint Firm

1.0 INTRODUCTION

Some of the major reasons that cause liquidation are insolvent and inability to make adequate profit. These are among the basic ingredient of measuring the "going concern" of an establishment, for these reasons, companies are developing various strategies to improve their liquidity position and strategy which can be adapted within the firm to improve liquidity and profitability include the management of working capital. The term "working capital" is that portion of total funding needed for day to day operation of an entity and thus, working capital management is the management of investment/divestments in current assets and increases/decrease in current liabilities (Nwude, 2004). One of the most widely used criteria for evaluating working capital management is cash conversion cycle (account collection period plus inventory conversion period less account payment period) and is defined as the time lag between the purchase of raw materials and collection of cash from the goods sold. If the time lag is longer it means greater investment in working capital components and this causes greater financial needs. But

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if the time lag shortens, it means lower investment to working capital components as well and this will result to a lower financing need.

Moreover, when an organization has insufficient working capital, it will be difficult for them to survive in a competitive environment because they cannot be able to meet the needs of their customers and their short-term creditors. While excessive working capital results in idle funds being unnecessarily tied down resulting in a loss of profitability for the organization since idle funds can be invested elsewhere to earn returns for the organization. Therefore, there is need for effective working capital management which aims at an optimum working capital level.

Generally cash management is based on cash conversion cycle and is considered as important factor enhancing the performance of firms, since it shows how efficient firm is in its payment of bill, collection of payments and selling of inventory Raheem & Ali (2013).

Chemical and Paint firms of Nigeria plays a vital role in socio-economic development and should be considered as extremely important segment because of its involvement in not only tertiary product (paint) but likewise secondary product (chemical) which is to be used as raw material in other important manufacturing firms. Also, since every corporate organization is extremely concerned about how to sustain and improve profitability, hence they have to be more concern on the factor affecting the profitability and liquidity. And thus, cash conversion cycle being indicator of liquidity management needs to be explored as to how it may affect the profitability of the corporate units Raheem & Ali (2013).

1.1 RESEARCH OBJECTIVE AND HYPOTHESIS

The broad objective of this paper was to determine the impact of Cash Conversion Cycle on profitability of the selected Chemical and Paint firms in Nigeria. The study had the specific objective and hypothesis as;

Specific Objective

To determine if Cash Conversion Cycle (CCC) has a positive significant impact on Profitability of selected firms in the chemical and paints sector in Nigeria.

Hypothesis

H_O: Cash Conversion Cycle (CCC) has no positive significant impact on Profitability of selected firms in the chemical and paints sector in Nigeria.

H_I: Cash Conversion Cycle (CCC) has positive significant impact on Profitability of selected firms in the chemical and paints sector in Nigeria.

2.0 REVIEW OF RELATED LITERATURE

Yasir, Majid, & Yausaf (2014) examined the relationship between cash conversion cycle (CCC) and performance of cement industry of Pakistan. The study used the sample of 16 firms selected from cement industry of Pakistan for the period of six years from 2007 to 2012. The correlation and regression analysis are used to examine the relationship between cash conversion cycle (CCC) and firm's performance i.e. return on assets (ROA). The findings of the study revealed negative relationship between firm's cash conversion cycle and profitability.

Muscettola (2014) verified the impact and all the influences of the cash conversion cycle on the Profitability of firms. Using data from an extensive sample of Italian manufacturing firms (4,226 Italian SMEs), the present study is concerned about evaluating how cash conversion cycle affects the profitability. The study takes Ebitda on net sales as measures of profitability to represent dependent variables. The ordinal regression results shows that the cash conversion cycle is significantly and positively related to Ebitda which reverses the common rule of lesser the cash

conversion cycle greater would be the profitability of firms.

Ani, Okwo & Ugwunta (2013) studied working capital management as measured by the cash conversion cycle (CCC) and how the individual components of the CCC influence the profitability of the world leading Beer Brewery Firms for twelve years period (2000-2011). Multiple regression equation were applied to a cross sectional time series data of 5 firms after ensuring that the data are stationary and co- integrated. The outcome clearly pointed that working capital management represented by the cash conversion cycle (positive), sales growth and lesser debtors collection period impacts on beer brewery firm's profitability.

Nasir, & Ali (2013) assessed the Relationship between Cash Conversion Cycle and Profitability: Moderator Role of firm size. The study presents an in-depth analysis of how cash management, inventory management and trade credit management practices effects the WCM in Pakistani textile sector and the way they impact the firm's profitability. The study is based on secondary data collected from 20 listed firms in Karachi stock exchange for the period of 2001-2011 with an attempt to investigate relationship between profitability, and working capital management. The data was analyzed using the techniques of correlation coefficient and regression analysis is applied for testing the model reliability and significant relationship between variables. Result revealed significant positive relationship between net operating profitability and cash conversion cycle and average collection period.

Ganesamoorthy & Rajavathana (2013) examined the effects of Working Capital Management on Profitability of Select Automobile Companies in India. The study is analytical in nature and it primarily depended on secondary data. For this purpose annual reports of the selected companies were collected and calculations were made from it. The period of the study was nine years from 2003-2004 to 2011-2012 and the study selected two automobile companies such as Tata Motors limited (TATA) and Mahindra and Mahindra limited (M&M). Correlation analysis to know the relationship between working capital management and profitability of the select companies, the ratio of Return on Assets (ROA) was taken as proxy for profitability. Current Ratio (CR), Average Collection Period (ACP), Average Payment Period (APP), Inventory Conversion Period (ICP) and Cash Conversion Cycle (CCC) were considered as proxy for working capital management of the select companies. Working capital management of both the companies had insignificant relationship with profitability. Current ratio of TATA had positive relationship with profitability, whereas it had negative relationship in case of M&M. Average Collection Period and Average Payment Period had negative relationship with profitability of both the companies. But the quantum of relationship was high in case of M&M. Inventory Conversion Period of TATA had positive relationship with profitability, but in case of M&M it was negative. Cash Conversion Cycle of both the companies had positive relationship with profitability, but the quantum of TATA was higher than M&M. It was summarized that working capital management had insignificant relationship with profitability of Tata Motors Ltd. and Mahindra and Mahindra Ltd.

Majeed, et al. (2013) the study examined empirically the impact of Cash conversion cycle on the performance of Pakistani manufacturing firms. The study used the sample of 32 companies selected randomly from three manufacturing sectors i.e. chemical, automobiles and construction & material for the period of five years ranging from 2006 to 2010. The correlation and regression analyses were used to examine the relationship of CCC with performance of the firms: Return on Assets (ROA), Return on Equity (ROE) and Operating Profit (EBIT).the result indicates that Cash

conversion cycle (CCC) have negative relationship with firm's performance.

Ebenezer & Asiedu (2013) examined the effect of working capital management on the profitability of companies listed on the Ghana stock exchange for the period five years (2007-2011). Using panel data regression analysis of cross sectional and time series data. The result showed that, the major component of working capital management such as inventory days, accounts payable and cash conversion cycle had influence (positive) on the profitability of manufacturing companies. He argued that, manufacturing companies should adopt efficient and effective ways of efficient managing these components of working capital management.

Ani, Okwo & Ugwunta (2013) studied working capital management as measured by the cash conversion cycle (CCC) and how the individual components of the CCC influence the profitability of the world leading Beer Brewery Firms for twelve years period (2000-2011). Multiple regression equation were applied to a cross sectional time series data of 5 firms after ensuring that the data are stationary and co- integrated. The outcome clearly pointed that working capital management represented by the cash conversion cycle (positive), sales growth and lesser debtors collection period impacts on beer brewery firm's profitability.

Nasif & Mohammad (2013) this study aimed to investigate the relationship between cash conversion cycle and financial characteristics. A sample of Jordanian different industrial sector of 11 was selected covering the period 2005-2011 listed on the Amman Stock Exchange (ASE). Cash conversion cycle is an important measure for companies in measuring the operating cycle where the work cycle of raw materials for the purposes of manufacturing and production that ends the existence of a good or service offers customers ready. Using correlation analysis, the result indicates that cash conversion cycle has a non significant positive relationship with the profitability measure.

Raheed, & Ali (2013) the present study was concerned about evaluating how cash conversion cycle affects the profitability of manufacturing sector organizations listed at Karachi stock exchange of Pakistan. The specific research objective of the study is to investigate the existing literature on the role of cash conversion cycle in enhancing return on assets and equity of the companies and to measure the impact of cash conversion cycle on profitability of the manufacturing companies. The study takes return on equity and return on assets as measures of profitability to represent dependent variables. Firm size and debt ratio are taken as control variables. Cash conversion cycle is considered as independent or explanatory variable. Study takes into consideration 5 years financial statements data starting from 2007 to 2011. Using regression analysis, the result shows that cash conversion cycle is having significantly inverse association with both return on assets and equity indicating that lesser the cash conversion cycle greater would be the profitability measured through return on assets and equity.

Arvanitis, Stamatopoulos, & Alexakis (2012) studied the effect of the Cash Conversion Cycle and its components on the Gross Operating Profitability (GOP), using the FGLS methodology through panel data. "Our purpose was not only to establish a relationship that is statistically significant for the whole period," but also to investigate the effects of the financial crisis on the relationship of working capital management and profitability through a dummy variable. Using FGLS models, the results of this research showed a significant strong negative relation between gross operating income and the cash conversion cycle.

Ali (2011) studied the association between working capital management and the profitability of textile firms in Pakistan. The efficiency of working capital

management is reflected by three variables: cash conversion efficiency, days operating cycle, and days of working capital. They used return on assets, economic value added, return on equity, and profit margin on sales as proxies for profitability. A balanced panel dataset covering 160 textile firms for the period 2000–05 was analyzed and estimated with an ordinary least squares model and a fixed effect model. Return on assets is found to be significantly and negatively related to average days receivable, positively related to average days in inventory, and significantly and negatively related to average days payable. Also, return on assets has a significant positive correlation with the cash conversion cycle, which would suggest that a longer cash conversion cycle is more profitable in the textiles business. The findings of the regression analysis show that average days in inventory, average days receivable, and average days payable have a significant economic impact on return on assets. The findings of the fixed effect model reveal that average days in inventory and average days receivable both have a significant impact on return on assets

Muhammad, Jan & Ullah (2012) examined working capital management and profitability. A sample of 25 textile industries in Pakistan listed in Karachi Stock Exchange for the period of 2001- 2006. Using correlation and regression analysis, result showed that there was a strong positive relationship between profitability and cash conversion cycle, accounts receivable and inventory while there is a negative relationship between profitability and accounts payable. Fast collection of accounts receivable is correlated with high profitability.

3.0 RESEARCH METHODOLOGY

Historic accounting data collected from the financial statements and accounts of 70 quoted firms listed on the Nigerian Stock Exchange (NSE) from 2000-2013 were used for this study. *Ex-post facto* research design was adopted in the study. Data generated was being employed to run both cross-sectional and time-series regression. The multiple regression technique (Fixed Effect) was used in analyzing the models stated. The study selected five Chemical and Paint firms covering 71% of the total firms in Chemical and Paint sector listed on Nigeria Stock Exchange (NSE) such as African Paint Plc, Berger Paints Plc, CAP Plc, DN Meyer Plc, and premier Paint plc. However, strong negative correlation was observed between SIZE and FATA, to prevent the collinearity between FATA and SIZE, SIZE was dropped. So to test our hypothesis in this study; Cash Conversion Cycle has no positive significant impact on profitability of the selected listed chemical and paint firms in Nigeria, the study adapted the model used by Raheed, & Ali (2013). Generally, this model was specified as:

$$\mathbf{GOP = a + b_1CCC + b_2CR + b_3\,DR + b_4\,FATA + e}$$

Where:

GOP	=	**Gross Operating Profit**
ACP	=	**Average Collection Period**
CR	=	**Current Ratio**
DR	=	**Debt Ratio**
FATA	=	**Financial Assets to Total Assets**

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EXPLAINATION OF THE VARIABLES

Dependent Variable

Gross Operating Profit (GOP)

GOP is gross operating profit and is the dependent variable in the study. This ratio has been used by several authors in the financial literature including (Deloof, 2003; Amarjit, Nahum and Neil, 2010; Mamoun, 2011; Vural, Sokmen and Cetenak, 2012). To obtain dependent variable (gross operating profit), we subtract cost of goods sold from total sales and divide the results with total assets minus financial assets. The reason for using this variable instead of earnings before interest tax depreciation amortization (EBITDA) or profit before or after tax is that we want to associate operating "success" or "failure" with an operating ratio and relate this variable with other operating variables (e.g., cash conversion cycle). Furthermore, we want to exclude the participation of any financial activity from operating activity that might affect overall profitability. Therefore, we subtracted financial assets from total assets (Amarjit, Nahum and Neil, 2010).

$$\textbf{GOP} = \frac{\text{sale} - \text{cost of goods sold}}{\text{Total asset} - \text{financial asset}}$$

Independent Variables;

Cash Conversion Cycle (CCC): is the time lag between purchase of raw materials or render of services and the collection of cash from the sale of goods or services rendered (Vural, Sokmen & Cetenak, 2012). Cash conversion cycle is calculated in this way:

$$\textbf{DR} = \frac{\text{Total debts}}{\text{Total assets}}$$

CCC = (Inventory Conversion Payment Period + Average Collection Period - Average Payment Period)

Control Variables;

Liquidity (CR): The companies with more liquidity have more profitability, so liquidity variable will be use as control variable in order to make its effect on profitability neuter. Current ratio has been used as Liquidity criterion (Nzioki, et al, 2013).

$$\textbf{CR} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

Financial Assets (FATA): some amount out of the total assets in chemical and paint firms are financial assets and since they are brought for profitability purposes, so these assets affect profitability. Therefore this variable will be use as control variable in order to make its effect neutral on the company profitability. Long and short term investment in stock and bills of exchange of the other companies or investment in its subsidiary and also cash, bank deposit, certificates and bonds are considered as financial assets (Nzioki, et al, 2013).

$$\textbf{FATA} = \frac{\text{Financial assets}}{\text{Total assets}}$$

The Company Size (lnS): The companies which have more sales naturally have more profitability too. So the company size variable will be use to control the effect of this issue (Nzioki, et al, 2013).

Company size is natural logarithm (sale).

Debt Ratio (DR): will be used as proxy for leverage and is calculated by dividing Total Debt by Total Assets (Nzioki, et al, 2013).

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COMPUTED MODEL PROXIES

Table 3.1 Value of model proxies for cross section firm 1 (CAP PLC)

YEAR	GOP	ACP	ICP	APP	CCC	CR	FATA	COYSIZE	DR
2000	0.63	54.60	170.7	46.10	179.2	1.09	0.013	13.67	0.9
2001	0.95	26.55	129.6	28.64	127.51	2.12	0.49	13.86	0.48
2002	0.86	13.2	127.1	14.58	126.14	2.12	0.51	13.9	0.48
2003	1.038	22.33	126.7	28.40	120.63	2	0.62	14	0.51
2004	1.158	27.91	108	24.81	111.1	1.83	0.62	14.2	0.52
2005	0.75	36.43	124.7	17.35	143.78	2.35	0.4	14.24	0.42
2006	1.26	28.27	82.8	15.65	95.42	2.22	0.6	14.5	0.45
2007	1.54	21.07	45.5	11.37	92.5	2.07	0.69	14.8	0.5
2008	1.65	13.22	38.2	13.49	37.93	1.42	0.67	14.8	0.46
2009	1.48	13.48	56.2	24.68	45	1.51	0.59	14.92	0.65
2010	1.84	12.88	61	23.10	50.78	1.09	0.6	15.12	0.57
2011	1.91	8.15	64.7	19.72	53.13	2.05	0.62	15.28	0.5
2012	0.12	5.08	99.3	18	86.38	1.71	0.39	15.47	0.61
2013	1.58	3.89	93.2	18.29	78.8	1.52	0.43	15.64	0.58

Source: Calculation Based on Annual Reports of the CAP PLC from 2000-2013

Table 3.2 Value of model proxies for cross section firm 2 (BEGER PLC)

YEAR	GOP	ACP	ICP	APP	CCC	CR	FATA	COYSIZE	DR
2000	0.49	47.80	210.9	58.05	200.65	1.47	0.06	13.93	0.57
2001	0.66	37.23	175.9	52.92	160.21	1.44	0,1	14.21	0.59
2002	0.59	40.42	222.9	67.76	195.56	1.35	0.07	14.16	0.65
2003	0.4	35.14	159.7	48.30	146.53	1.25	0.04	14.42	0.75
2004	0.053	39.15	155.1	63.94	164.11	1.3	0.06	14.36	0.66
2005	0.37	30.20	139	59.26	109.94	0.74	0.04	14.45	0.59
2006	0.44	27.32	105.9	56.71	76.51	0.81	0.04	14.57	0.54
2007	0.45	37.37	112.7	52.88	97.19	0..99	0.03	14.58	0.49
2008	0.56	32.94	94.3	46.62	80.62	1.38	0.19	14.62	0.43
2009	0.59	30.55	90	48.34	72.21	1.54	0.28	14.62	0.43
2010	0.64	54.22	110.8	41.9	123.12	1.82	0.29	14.76	0.38
2011	0.53	23.84	141.1	51.51	113.43	1.88	0.32	14.68	0.35
2012	0.3	22.53	130.4	66.82	86.11	1.76	0.22	14.74	0.39
2013	0.48	31.16	166.9	58.03	140.03	2.26	0.37	14.81	0.31

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Source: Calculation Based on Annual Reports of Berger Paint from 2000-2013

Table 3.3 Value of model proxies for cross section firm 3 (PREMIER PLC)

YEAR	GOP	ACP	ICP	APP	CCC	CR	FATA	COYSIZE	DR
2000	0.49	60.73	70.9	76.47	59.86	1.32	0.02	19	0.61
2001	0.55	55.13	53.6	69.51	45.55	1.14	0.058	19.3	0.71
2002	0.41	93.59	63.9	102.36	55.13	1	0.006	19.09	0.77
2003	0.45	63.32	55.2	79.68	25.14	1	0.03	19.11	0.83
2004	0.24	65.03	44.5	66.66	42.87	0.77	0.005	19.04	0.4
2005	0.27	47.09	41.8	57.63	31.26	1.06	0.1	19.06	0.36
2006	0.33	40	63.6	84.74	18.86	0.83	0.006	19.13	0.51
2007	0.3	36.82	80.1	97.28	19.64	0.66	0.007	19.04	0.48
2008	0.32	37.94	71	75.16	33.78	1.18	0.031	19.27	0.46
2009	0.61	44.74	82.3	64.81	62.23	0.73	0.014	19.22	0.66
2010	0.19	46.05	55.8	54.85	47	0,24	0.004	19.93	1.09
2011	0.22	34.62	36.4	50.70	20.32	0.32	0.01	19.02	1.38
2012	0.25	49.95	36.2	43.55	42.6	0.04	0.02	19.37	0.96
2013	0.33	64.49	41.5	56.13	49.86	0.34	0.013	19.5	1.03

Source: Calculation Based on Annual Reports of the Premier Paint PLC from 2000-2013

Table 3.4 Value of model proxies for cross section firm 4 (DN MEYER PLC)

YEAR	GOP	ACP	ICP	APP	CCC	CR	FATA	COYSIZE	DR
2000	0.59	24.15	124.3	41.26	107.19	0.28	2.03	20.26	0.34
2001	0.75	18.62	80.7	48.14	51.18	0.3	1.79	20.62	0.41
2002	0.5	29.05	95.4	38.14	86.31	0.05	1.2	20.86	0.64
2003	0.61	41	87	39.40	88.6	0.07	1.17	21.13	0.63
2004	0.45	68.90	77	40.24	105.66	0.015	1.16	21.29	0.71
2005	0.29	92.20	118	47.48	162.72	0.045	0.9	21.04	0.89
2006	0.48	63.52	90	37.03	116.49	0.014	1.14	21.42	0.85
2007	0.35	89.89	108.3	51.29	149.9	0.018	0.95	21.46	0.69
2008	0.23	73.63	125.2	66.79	132.04	0.161	0.72	21.54	0.55
2009	0.18	47.84	129.5	99.14	78.2	0.08	0.43	21.36	0.69
2010	0.17	30.52	204.3	203.18	31.64	0.113	0.48	20.9	0.78
2011	0.23	10.18	105.3	183.46	-67.98	0.068	0.81	21.03	0.75
2012	0.23	36	117.2	147.39	5.81	0.09	0.77	21.11	0.87
2013	0.24	73.16	89.1	119.72	42.54	0.08	0.87	21.19	0.79

Source: Calculation Based on Annual Reports of DN Meyer PLC from 2000-2013

Table 3.5 Value of model proxies for cross section firm 5 (AFRICAN PAINT PLC)

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YEAR	GOP	ACP	ICP	APP	CCC	CR	FATA	COYSIZE	DR
2000	0.19	68.06	263.4	128.76	202.7	0.45	0.031	19.17	0.74
2001	0.2	38.28	191.1	128.28	101.1	0.33	0.024	19.24	0.93
2002	0.023	56.26	134.1	164.53	25.83	0.34	0.027	19.24	0.89
2003	0.28	96.31	96.6	224.11	-31.2	0.42	0.013	19.25	0.93
2004	0.055	221	167	603	-215	0.22	0.009	19.18	0.72
2005	0.027	88.78	124	717	-504.22	0.09	0.004	18.19	0.87
2006	0.095	33.18	130	1094.51	-931.33	0.12	0.005	18.07	0.92
2007	0.051	25.43	80.6	759.15	-653.12	0.06	0.007	18.17	0.97
2008	0.02	10.47	42.6	299.05	-245.98	0.03	0.005	17.91	0.87
2009	0.026	11.44	56.2	235.9	-168.26	0.06	0.014	17.57	0.78
2010	0.027	11.16	58	295.71	-226.55	0.03	0.001	17.77	0.81
2011	0.008	31.01	32.8	226.76	-163.45	0.03	0.0004	17.89	0.95
2012	0.023	46.49	38.6	353.69	-268.5	0.03	0.0003	16.97	0.71
2013	0.027	29.46	58.4	609.39	-552.53	0.08	0.009	16.16	0.38

Source: Calculation Based on Annual Reports of African Paint PLC from 2000-2013

4.0 RESULT / ANALYSIS

Table 4.1 below is the summary of results from Estimation of the model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.257112	0.287167	0.895338	0.3751
CCC	0.000192	0.000325	0.590781	0.5574
CR	0.088806	0.130045	0.682887	0.4980
FATA	0.827569	0.339783	2.435580	0.0186
DR	0.010024	0.254196	0.039433	0.9687
R-squared	0.737852	Mean dependent var		0.554986
Adjusted R-squared	0.623162	S.D. dependent var		0.418870
S.E. of regression	0.25713	Akaike info criterion		0.372824
Sum squared resid	3.173612	Schwarz criterion		1.079494
Log likelihood	8.951171	Hannan-Quinn criter.		0.653522
F-statistic	6.433455	Durbin-Watson stat		1.696797
Prob(F-statistic)	0.000000			

Source: The Researcher's E-view Result; Probability level of acceptance is 5%

GOP = 0.257 + 0.0002CCC + 0.089CR + 0.082FATA +0.010DR + 0.0003

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As observed in table 4.1 above, the result indicates that cash conversion period has positive and non-significant impact on profitability of the firms. The regression indicates that the coefficient of CCC is positive with 0.0002, but it is not significantly different from zero (p-value = 0.557) while the (t-value = 0.591). This suggests that, though longer CCC is good for explaining the financial success of listed chemical and paint firms in Nigeria, it is not a critical factor to consider when taking decision to improve profitability. However, the overall model is highly significant, as it indicated by the F- value of 6.43 (p-value = 0.0000). The coefficient of determination (R^2) is 74%, implying that 74% variation in the dependent variable (GOP) is explained by the change in the independent variable (CCC), The model is properly adjusted by adjusted R^2 (62%). The coefficient of one other variable included in the model is also significant. Gross operating profit increases with financial assets (FATA).

5.0 FINDINGS/CONCLUSION

The study used cash conversion cycle (independent variable) which is known as an overall measure of working capital to test whether working capital management has a significant effect on profitability, The above findings indicated clearly that cash conversion cycle in the research has positive but non -significant effect on profitability of the selected chemical and paint firms in Nigeria and Thus implies that, either longer or shorter, it take the companies to sell their inventories, has no influence on profitability. In order words, the period between the expenditure for the purchases of raw materials and the collection of sales from finished goods has no impact on the profitability of sampled chemical and paint firms in Nigeria. This finding, however, is in support of earlier research by Ebenezer & Asiedu, (2013); Ganesamoorthy & Rajavathana, (2013); Muhammad, Jan & Ullah, (2012); Natarajan & Getachew, (2012); Ali, (2011); Ani, Okwo & Ugwunta, (2013). Although, most of the studies proved to indentify that the most popular measurement of working capital management which is cash conversion cycle had a negative relationship with profitability, which means that if the length of cash conversion cycle shortened firm's profitability will increase. However, if firm has higher level of account receivable due to the generous trade credit policy, it would result into longer cash conversion cycle. In this case, cash conversion cycle had positive relationship with profitability and thus longer cash conversion cycle will lead to increase in profitability.

Moreover, theoretically, Cash conversion cycle can also have positive influence on company profitability and it could be interpreted through a chain of positive impact of inventory periods and account receivable period with a negative impact of accounts payable period on the company profitability. The longer the inventory period, the lower the cost involved in procrastinating goods and / or service supply. In the mean time, longer accounts receivable period the higher credit sales earned. And lower the accounts payable period, the higher reputation earned for borrowing opportunities. Converge the three effects into one place, we can explain for an increase in company profitability due to the long cash conversion cycle. In contrast, shortening the cash conversion cycle could harm the company profitability. The company could lose good credit customers as reducing account receivable period, incur unnecessary carrying cost if the inventory period is lengthened and hamper its credit reputation as lengthening the account payable period. In those cases, cash conversion cycle is said to have a positive relationship with company profitability. The study further reveals that the ratio of financial asset to total asset (FATA) is also significant and positively impact on the firm's profitability. The management of chemical and paint companies listed in Nigeria stock

exchange should keep enough financial assets to match their total assets. This implies that an increase in the amount of financial asset will also cause an increase in the profitability since they are brought for profitability purposes.

Regarding the hypotheses, it is concluded that the null hypothesis (H_0) is the one to be accepted; thus Cash Conversion Cycle has a positive but non- significant impact on profitability of the selected Chemical and Paint firms in Nigeria and therefore, rejecting the Alternate hypothesis (H_I). The conclusions are in confirmation with Ebenezer & Asiedu, (2013); Ganesamoorthy & Rajavathana, (2013); Muhammad, Jan & Ullah, (2012); Natarajan & Getachew, (2012); Ali, (2011); Ani, Okwo & Ugwunta, (2013.

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APPENDIX

APPENDIX 1: TABLE (i) CAP PLC (FINANCIAL DATA)

YEAR	AVG. DR	AVG. CR	AVG. INV	ANNUAL SALES	ACOGS	TCA	TCL	TA	TL	FA
2000	141105.5	79805	295586.5	878884	631906	333098	305984	399380	360151	5028
2001	76479.5	55597	251525.5	1051489	708643	713114	323631	788313	380908	384057
2002	40795.5	28073.5	244570.5	1093`99	702615	786400	370330	918075	437066	464829
2003	75481.5	59004	263153.5	1203038	758263	963404	482501	1118352	569561	689737
2004	112161.5	61882.5	269614.5	1466765	910332	1023168	559377	1243371	648625	761439
2005	152242	43472.5	312369.5	1525426	914407	1146684	488892	1361395	565078	551223
2006	7590.5	52151.5	275875.5	1986247	1216406	1325760	598188	1545108	688043	933482
2007	121219	35828	143493.5	2099929	1150016	1804953	871736	1978401	977581	1359808
2008	97054.5	54152.5	153367	2679857	1464302	1984455	1402393	2221429	1534968	1486432
2009	111799	115695	263456	3027604	1710913	1918054	1274230	2163208	1408765	1271559
2010	128586.5	121434	320695	3644934	1919169	2033084	1203922	2370301	1349004	1430350
2011	96297	121828.5	399749.5	4312774	2255466	2616262	1278775	2924512	1466854	1827199
2012	72815	151551.5	754162.5	5231330	2771534	2423767	1682098	2875802	1757230	1307718
2013	66024.5	152410.5	776487.5	6195824	3040720	2554584	1684572	3035012	3035012	1523854

Notes 1- AVG = AVERAGE, 2- DR = DEBTOR, 3- CR = CREDITOR, 4- INV = INVENTORY, 5- ACOGS = ANNUAL COST OF GOODS SOLD, 6- TCA = TOTAL CURRENT ASSETS, 7- TCL = TOTAL CURRENT LIABILITIES, 8-

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Vol. 7, No.12; December - 2021
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TA = TOTAL ASSETS, 9- TL = TOTAL LIABILITIES, 10- FA = FINANCIAL ASSETS. **DEPENDENT VARIABLE:** 11- GROSS OPERATING PROFIT = SALES-ACOGS/TA-FA, **INDEPENDENT VARIABLES:** ACCOUNTS COLLECTION PERIOD = AVG.DR/ANNUAL SALES * 365, 12- ACCOUNTS PAYABLE PERIOD = AVG. CR/ACOGS *365, 13- INVENTORY CONVERSION PERIOD = AVG. INV/ACOGS * 365, 14- CASH CONVERSION PERIOD = ACP + ICP – APP, **CONTROL VARIABLES:** 15- LIQUIDITY RATIO = TCA/TCL, 16- LEVERAGE RATIO = TL/TA, 17- FINANCIAL ASSETS TO TOTAL ASSETS = FA/TA, COMPANY SIZE = LOG.SALES

APPENDIX 2: TABLE (ii) BEERGER PAINT PLC (FINANCIAL DATA)

YEAR	AVG. DR	AVG. CR	AVG. INV	ANNUAL SALES	ACOGS	TCA	TCL	TA	TL	FA
2000	146526.5	110759	402402	1118933	696378	733538	503465	923190	5261669	59836
2001	151352.5	130973.5	435423.5	1483915	903362	764449	529388	984386	567624	101888
2002	155717	141677.5	466030	1406301	763198	979818	728225	1236601	809135	87398
2003	175417.5	154847.5	511905.5	1822202	1170071	1468642	1174445	1711435	1277450	69551
2004	184890	174550	515549	1723605	996354	1172070	902276	1459803	964253	83812
2005	156547	187646	440105.5	1892290	1155836	767051	1042762	2055479	1211962	85855
2006	158996	200678	374870.5	2124150	1291602	717196	887702	1977994	1065139	70033
2007	219037.5	183706.5	391445.5	2139252	1267949	784310	788690	2003085	973242	70051
2008	213950	183706.5	371626.5	2370721	1438215	929662	674317	2029739	864551	375682
2009	186272.5	167744	312341.5	2225468	1266502	1201008	780553	2270055	983225	631582
2010	203783	157464	416463	1371772	1371772	1538749	847562	2600602	989565	742442
2011	155174.5	199807.5	547554	2375563	1415962	1430014	759796	2654532	928662	850242
2012	155132.5	281293	549074	2513664	1536612	1538464	874960	2848115	1112632	928424
2013	231200.5	260699	525030.5	2708448	1639886	1978847	877196	3536641	1100939	1322952

Notes 1- AVG = AVERAGE, 2- DR = DEBTOR, 3- CR = CREDITOR, 4- INV = INVENTORY, 5- ACOGS = ANNUAL COST OF GOODS SOLD, 6- TCA = TOTAL CURRENT ASSETS, 7- TCL = TOTAL CURRENT LIABILITIES, 8- TA = TOTAL ASSETS, 9- TL = TOTAL LIABILITIES, 10- FA = FINANCIAL ASSETS. **DEPENDENT VARIABLE:** 11- GROSS OPERATING PROFIT = SALES-ACOGS/TA-FA, **INDEPENDENT VARIABLES:** ACCOUNTS COLLECTION PERIOD = AVG.DR/ANNUAL SALES * 365, 12- ACCOUNTS PAYABLE PERIOD = AVG. CR/ACOGS *365, 13- INVENTORY CONVERSION PERIOD = AVG. INV/ACOGS * 365, 14- CASH CONVERSION PERIOD = ACP + ICP – APP, **CONTROL VARIABLES:** 15- LIQUIDITY RATIO = TCA/TCL, 16- LEVERAGE RATIO = TL/TA, 17- FINANCIAL ASSETS TO TOTAL ASSETS = FA/TA, COMPANY SIZE = LOG.SALES

APPENDIX 3: TABLE (iii) PREMIER PAINT PLC DATA (FINANCIAL DATA)

YR	AVG. DR	AVG. CR	AVG. INV	ANNUAL SALES	ACOGS	TCA	TCL	TA	TL	FA
2000	38651.423	27502.702	27201.913	172191.261	131269.178	67560.616	51263.606	84523.737	5763.606	1821.622

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Vol. 7, No.12; December - 2021
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2001	41742.7275	36060.18	27798.345	247914.986	189359.060	89221.253	77954.077	113090.035	80254.077	6574.029
2002	50156.4895	40390.736	26447.196	195614.481	151132.537	81001.943	80639.895	107950.484	82939.895	681.765
2003	48572.3325	40390.736	23515.331	279977	187317	77530826	78694.318	100216.687	82994.318	3152.064
2004	33049.7235	27466.59	18342.4475	185508.313	150389.075	40862006	52895.061	144957.577	58475.737	733.574
2005	24392.9605	23607.7965	17156.316	189053.462	149787.101	50678310	47964.843	148184.378	53545.519	1438.036
2006	22258.0205	35021.7375	26286.4485	203082.286	150854.608	48722562	58782.141	158805.302	80936.636	873.895
2007	18764.901	18764.901	30258.899	186017.710	137864.760	51449.083	77815.163	163650.809	78395.839	1121.150
2008	24420.4855	34145.5475	32234.1675	234925.046	165816.231	70398.056	59703.785	226126.775	103589.417	7043182
2009	27396.496	26434.1635	33548.1905	223511	148862	63207	86393	213953	141593	1677
2010	20949	20062.5	20392	166062	133499	25707	108959	167982	182704	754
2011	17335	19870	14265.5	182740	143055	42487	132242	179171	246876	1835
2012	35289.5	22371.5	18606	257886	187488	68048	177369	291702	279806	5550
2013	49471	28806.5	21275	279977	187317	71652	207713	285772	295006	3793

Notes 1- AVG = AVERAGE, 2- DR = DEBTOR, 3- CR = CREDITOR, 4- INV = INVENTORY, 5- ACOGS = ANNUAL COST OF GOODS SOLD, 6- TCA = TOTAL CURRENT ASSETS, 7- TCL = TOTAL CURRENT LIABILITIES, 8- TA = TOTAL ASSETS, 9- TL = TOTAL LIABILITIES, 10- FA = FINANCIAL ASSETS. **DEPENDENT VARIABLE:** 11- GROSS OPERATING PROFIT = SALES-ACOGS/TA-FA, **INDEPENDENT VARIABLES:** ACCOUNTS COLLECTION PERIOD = AVG.DR/ANNUAL SALES * 365, 12- ACCOUNTS PAYABLE PERIOD = AVG. CR/ACOGS *365, 13- INVENTORY CONVERSION PERIOD = AVG. INV/ACOGS * 365, 14- CASH CONVERSION PERIOD = ACP + ICP – APP, **CONTROL VARIABLES:** 15- LIQUIDITY RATIO = TCA/TCL, 16- LEVERAGE RATIO = TL/TA, 17- FINANCIAL ASSETS TO TOTAL ASSETS = FA/TA, COMPANY SIZE = LOG.SALES

APPENDIX 4: TABLE (iv) DN MEYER PLC (FINANCIAL DATA)

YEAR	AVG. DR	AVG. CR	AVG. INV	ANNUAL SALES	ACOGS	TCA	TCL	TA	TL	FA
2000	41553	48890	147290.5	628134	432511	311857	153345	462780	159572	128966
2001	46098.5	57040.5	138601.5	903755	626522	371026	207279	526108	213506	156103
2002	90956	82978.5	207602	1142995	794135	457296	382460	729835	441471	38554
2003	168528.5	114178	252186.5	1500188	1057680	510951	436445	787934	498359	56543
2004	332363.5	140905.5	269720.5	1760874	1278069	810725	701731	1085430	772282	15749
2005	345793.5	152911	355158	1368935	1098733	720525	800071	971763	869159	43745
2006	349597	151312	367966	2008794	1491512	836299	735621	1097222	933865	15764
2007	515695	201743.5	425910	2094034	1435749	1155260	1217017	1920638	1317195	34381

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Vol. 7, No.12; December - 2021
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2008	457418	367350	576174	2266913	1679618	1143893	1592171	3219652	1785580	517366
2009	248321.5	393763.5	514534.5	1894487	1449738	635267	1490048	2637019	1830016	217758
2010	99055.5	417360	419616.5	1184594	749771	807103	1686625	2715977	2128593	286088
2011	30016.5	430248.5	246953	1362715	855991	695748	859098	2728698	2049602	174999
2012	145089.5	367548	292148	1472734	910200	613437	795795	2577673	1924685	233653
2013	300660	303760.5	226194.5	1500112	926124	615028	710169	2627558	1934550	217758

Notes 1- AVG = AVERAGE, 2- DR = DEBTOR, 3- CR = CREDITOR, 4- INV = INVENTORY, 5- ACOGS = ANNUAL COST OF GOODS SOLD, 6- TCA = TOTAL CURRENT ASSETS, 7- TCL = TOTAL CURRENT LIABILITIES, 8- TA = TOTAL ASSETS, 9- TL = TOTAL LIABILITIES, 10- FA = FINANCIAL ASSETS. **DEPENDENT VARIABLE:** 11- GROSS OPERATING PROFIT = SALES-ACOGS/TA-FA, **INDEPENDENT VARIABLES:** ACCOUNTS COLLECTION PERIOD = AVG.DR/ANNUAL SALES * 365, 12- ACCOUNTS PAYABLE PERIOD = AVG. CR/ACOGS *365, 13- INVENTORY CONVERSION PERIOD = AVG. INV/ACOGS * 365, 14- CASH CONVERSION PERIOD = ACP + ICP – APP, **CONTROL VARIABLES:** 15- LIQUIDITY RATIO = TCA/TCL, 16- LEVERAGE RATIO = TL/TA, 17- FINANCIAL ASSETS TO TOTAL ASSETS = FA/TA, COMPANY SIZE = LOG.SALES

APPENDIX 5: TABLE (V) AFRICAN PAINT PLC (FINANCIAL DATA)

YEAR	AVG. DR	AVG. CR	AVG. INV	ANNUAL SALES	ACOGS	TCA	TCL	TA	TL	FA
2000	39583.203	49618.051	101501.7465	212283.089	140649.011	131099.809	308658.473	415339.098	308658.473	131095.6
2001	23788.233	52491.9895	78176.1515	226849538	149352.638	112495.872	344170.153	387811.464	361670.150	9131.022
2002	35174.971	66163.528	53926.0565	228215000	146777000	106211.909	309426.349	367337.887	325426.349	9918
2003	56355	83449	35977.5	213571	135911	103052	245515	278436	259514	3647
2004	48082.5	97502.5	27054	79412	58978	56973	255525	376514	269224	3520
2005	17120	120863	290904	70387	61515	25702	272937	330817	286636	1259
2006	7100	143369	16982	78113	47811	29978	281494	319725	295193	1450
2007	4174	94016	9981	59905	45203	16466	280907	292711	284606	2025
2008	1221	28680.5	4088.5	42579	35005	9131	326542	375990	326542	1723
2009	1596	26771	6382	50941	41421	17508	326542	377692	294866	5283
2010	1596	34569.5	61776.5	52203	42670	8739	288685	357122	288685	489
2011	4989	33843	4817	58719	54475	10732	329350	347539	329350	149
2012	2995	33056.5	3605.5	23490	34114	7345	260343	403553	287487	101
2013	842	33085.5	31705	10433	19817	10434	128814	394864	151451	3453

Notes 1- AVG = AVERAGE, 2- DR = DEBTOR, 3- CR = CREDITOR, 4- INV = INVENTORY, 5- ACOGS = ANNUAL COST OF GOODS SOLD, 6- TCA = TOTAL CURRENT ASSETS, 7- TCL = TOTAL CURRENT LIABILITIES, 8- TA = TOTAL ASSETS, 9- TL = TOTAL LIABILITIES, 10- FA = FINANCIAL ASSETS. **DEPENDENT VARIABLE:** 11- GROSS OPERATING PROFIT = SALES-ACOGS/TA-FA, **INDEPENDENT VARIABLES:** ACCOUNTS COLLECTION PERIOD = AVG.DR/ANNUAL SALES * 365, 12- ACCOUNTS PAYABLE PERIOD = AVG.

CR/ACOGS *365, 13- INVENTORY CONVERSION PERIOD = AVG. INV/ACOGS * 365, 14- CASH CONVERSION PERIOD = ACP + ICP – APP, **CONTROL VARIABLES:** 15- LIQUIDITY RATIO = TCA/TCL, 16- LEVERAGE RATIO = TL/TA, 17- FINANCIAL ASSETS TO TOTAL ASSETS = FA/TA, COMPANY SIZE = LOG.SALES.