

## CASH CONVERSION CYCLE AND FIRM PERFORMANCE NEXUS: EVIDENCE FROM LISTED NON-FINANCIAL COMPANIES IN NIGERIA

EGOLUM, PRISCILLA UCHENNA

Department of Accountancy, Faculty of Management Sciences,  
Nnamdi Azikiwe University,  
P. M. B. 5025, Awka,  
Anambra State,  
Nigeria

AND

UROM, EMMANUEL OGBONNIA  
AKANU IBIAM FEDERAL POLYTECHNIC  
UNWANA

### *Abstract*

*Recently, inflationary trend has been revealed to sky-rocket, leading to an increase in interest rates, which impacts corporate cost of capital, hence, the seemingly poor performance of firms in Nigeria might not be unconnected to failure to effectively and efficiently manage its working capital. Based on working capital management theory framework, this study x-ray on the nexus between cash conversion cycle and firm performance. Particularly, this article aims to explore a critical tool of working capital management by employing a sample of seventy-two (72) listed non-financial firms in Nigeria for the period 2010 and 2019. Working capital management measure that was considered in this study includes; cash conversion cycle which also is the independent variable while firm performance (dependent variable) is proxied with enterprise value added. Firm size and firm age are the control variables. In this study, robust least square regression analyses technique has been employed to evaluate the panel data set that were collated from annual financial reports of the sampled non-financial listed firms. The finding indicates that cash conversion cycle indeed does improve firm performance in the context of value addition. This finding is consistent with the views of working capital management theory which suggest that managers must acquit themselves with happenings in the control of inventories, receivables and payables since they all affect cash positions. Therefore, the researcher recommend that managers should improve their companies' value performance by shortening cash conversion cycle period since such actions will improve cash flow position for financial managers benefit towards running the daily activities of the organization.*

*Keywords: Cash Conversion Cycle, Firm Performance, Non-Financial Listed Companies, Robust Least Square Regression, Enterprise Value Added*

### **Introduction**

In a global context, the problematics of working capital management present an ongoing topic because of its importance in ensuring the optimal route for a successful business. Acting as a buffer of liquidity (Baños-Caballero, García-Teruel, & Martínez-Solano, 2020), working capital plays a valuable role during economic turmoil (Enqvist, Graham, & Nikkinen, 2014). Recent report of Price Water House Copper (PWC) on globally listed companies,

highlights that improving working capital may release €1.3 trillion of cash, which may boost capital investment by 55% (PWC Annual Report, 2019). Moreover, the report also noted that the last five years highlights new challenges for financial performance of listed companies which includes: capital expenditure decline and expensive process of cash conversion with marginal improvement in working capital. Against this backdrop, corporate organizations need to have a working capital culture that is strong to support firm performance.

According to Egolum, Amahalu and Obi (2019), profitability is considered an indicator for satisfying the firm's performance. Working capital management hold a significant position in financial decisions because it affects firm's profitability, risk and its market value (Sugathadasa, 2018). However, Yilmaza and Acar (2019) noted that the central issue in working capital management is the trade-off between liquidity and profitability which is consistent with the views of Smith (1980) who document that working capital management affects firm profitability and risk; and as a result, its value. Liquidity management is deemed to be one of the most crucial financial management tools since it involves intense trade-offs between risks and returns associated to short term assets and liabilities management. Little wonder why Olaoye, Adekanbi and Oluwadare (2019) posit that liquidity and profitability are two sides of the same coin since they work in opposite directions.

This suggest that increasing liquidity of the firm will reduce profitability and vice versa. However, to achieve the desired profit level and keep the business going, (Wassie, 2020) affirmed that managing working capital components, particularly cash conversion cycle is indispensable in that firms' profitability might decrease if the costs of investment in working capital increases faster than the benefits of granting more trade credit to customers or holding more inventories (Gill, Biger & Neil 2010; Ikpefan & Enahoro 2007; Ehiremmen, 2017). Profitable cash conversion cycle requires that organizations should frequently consider the adequate number of days it will take them to convert sales to cash since this period may affect profitability of such organizations in terms of return on asset (Ebben & Johnson, 2011). Hence, efficient working capital management in terms of the optimal cash conversion period becomes an integral component of the overall corporate strategy to create shareholders' wealth (Kumaraswamy, 2016). In a similar view, Dong and Su (2010) opine that even though a firm can make loss within different accounting periods, it cannot continue to persistently operate with inefficient cash conversion cycle management.

Hence, the seemingly poor performance of firms in Nigeria might not be unconnected to failure to effectively and efficiently manage its working capital. Managers do carry out various vices that affect the management of short-term assets and short-term liabilities hence, the expected profit is not achieved (Ehiremmen, 2017). This suggests that corporate organizations in Nigeria have over the years failed to understand the nitty gritty of managing their short-term investments thereby leading to either excessive or inadequate working capital. Poor management of cash conversion have serious effect on operational activities which in turn affect profitability.

Notably, the researcher is of the opinion that not much studies has been conducted recently on the relationship between cash conversion cycle management and performance of listed firms in Nigeria. Much more, existing studies have reported disaggregated findings which therefore creates a platform to pursue further evidences. While the outcomes in the studies of Wongthatsanekorn (2010); Ikechukwu and Dan-Nwakaego, (2016); Dhole, Mishara, and Pal

(2019) were seen to be negative, the outcomes obtained in the studies of Juwita and Meiryani (2021) Falope, and Ajilore (2009) Murtala Zakari, Sani Saidu (2016) have been reported to be positive. Specifically, it is revealed that related studies have sufficiently employed accounting financial ratios of Return on Asset and Return on Equity as proxies for firm performance (Andow & David 2016; Owolabi & Alu 2012; Oseifuah, & Gyekye 2016) consequently ignoring long term performance measure which signals shareholders wealth performance captured in Economic Value Added (EVA). EVA is a measure of a company's financial performance based on residual wealth that emphasizes the maximization of shareholder *value*, as opposed to mere maximization of net *profit*. Performance knowledge in terms of EVA has become very important because it is used as an indicator of how profitable a firms' projects is therefore serving as a reflection of management performance.

Most importantly, recent economic outlook motivates the present study. Over the analysed period (2010 to 2019) inflationary trend have been revealed to sky-rocket, leading to an increase in interest rates, which impacts corporate cost of capital. In the face of this threat, managers may then need to focus on areas under their control such as working capital. Against these backdrops, this present study intends to add to existing related literature by employing panel data to examine the relationship between cash conversion cycle and firms' performance in Nigeria. This present study is timely as it provides crucial empirical evidence at a time where the Nigerian economy is reeling on the wings of economic recession that have affected the operational activities of firms listed on the Nigerian Stock Exchange.

### **Objective of the Study**

The main objective of the study is to examine the effect of working capital management on firm performance of non-financial listed companies in Nigeria. Specific objective drawn from the main objective as stated below:

- a. To examine the effect of cash conversion cycle on enterprise value added of non-financial listed companies in Nigeria

### **Research Hypothesis**

The research hypothesis is states as below:

- a. Cash conversion cycle does not significantly affect enterprise value added of non-financial listed companies in Nigeria.

However, the rest of the paper is divided into four sections. Section 2 highlights literature and empirical review of key concepts; Section 3 borders on research methodology; Section 4 presents and discusses the results of the analysis, while the last section; Section 5, concludes the paper.

### **Literature Review**

#### **Cash Conversion Cycle**

Cash conversion cycle also known as cash cycle is a measure of the time between cash disbursement and cash collection. In the views of Angahar and Alematu (2014) cash conversion cycle is the tool employed to calculate the period it will take between payment and collection of cash. It contains the period of time, in days, that it takes for cash to be collected after sales, determined from the time the firm finally makes payment for goods. Similarly, ICAN (2014) describe the cycle as the average period between payment to creditors in exchange for

inventories and services delivered and cash receipt from customers for resale of the supplies or services. Its main elements are: the mean period that inventory is held before it is used or sold; the average credit period taken from creditors and the mean length of credit time taken by (or given to) account receivables. In the views of (Mohamed, 2013), the traditional link between cash conversion cycle and the firm's performance requires shortening the cash conversion cycle period in order to increase firm's profitability.

### **Firm Financial Performance**

The term financial performance cannot be put into a tight framework of definition. A financial analyst can judge performance from profitability and growth point of view (Olaoye, Olaoye & Adebayo, 2019). Financial performance assesses the fulfillment of a firm's economic goal and this relates to various subjective measure of how well a firm can use its given assets from primary mode of operation to generate profit (Joshua, Efiong & Imong 2019). The opinion of Odusanya, Yinusa and Ilo (2018) suggest that companies with high level financial performance create value, hire people, tend to be more innovative, more socially responsible and are beneficial to the entire economy through payment of taxes, income generation and overall development of an economy.

Specifically, corporate financial performance as a performance mechanism is hard to measure. Extant approaches primarily differ on whether to border on the financial prosperity or market performance of the firm. Financial prosperity refers to corporate financial performance that demonstrates a company's overall efficiency and performance and it can be expressed using different methods and ratios. Most studies including those of Osuji & Odita, (2012); Uwalomwa & Uadile, (2012); and Frezewd, (2016) preferred the use of Return on Assets as an accounting performance proxy while Tobin Q and Enterprise Value Added as market performance ratios. Hence, this study follows suit to employ Enterprise Value Added measure of market performance.

### **Theoretical Background**

#### **Theory of Working Capital Management**

This study is built on the theory of working capital management which emanated from Sagan (1955) providing the basis for working capital management studies. This theory was emphatical on the need for management of working capital and warns that it could easily affect the growth of a company. Sagan believed that the operations of financial managers are mainly in the area of funds generated in the course of daily business transactions. In this case, the managers must acquit themselves with happenings in the control of inventories, receivables and payables because; all of these accounts affect cash positions. As a result of this, Sagan echoed that the management of account receivable, payable, inventories and cash is important for the proper functioning of any firms' operation. (Ibrahim & Abdullah, 2016).

#### **Empirical Review**

The academic literature proposes different competing views to explain the relationship between working capital and firm performance. On the one hand, most prior studies find a positive relationship between cash conversion cycle and firm performance while others find a negative relationship between both measures.

Moussa (2018), examined the impact of working capital management on performance of 68 industrial firms in Egypt for the period 2000–2010 and documents a positive relationship between working capital management (cash conversion cycle) and firm profitability in terms of return on total asset. The author points out those stock markets in less developed economies do not realize the optimum efficiency of their working capital management.

Tran, Abbott, and Yap (2017), analyzed 200 Vietnamese manufacturing small and medium scale enterprises for the period 2010-2012. They found that efficient working capital management affects both profitability (with respect to return on asset) and liquidity, and also noted a negative relationship between profitability and cash conversion cycle.

Enqvist, Graham, and Nikkinen (2014), analysed the relationship between working capital management and profitability (measured by return on equity) by considering business cycle effects. Data from 1990 to 2008 for Finnish companies were employed and the result reveals that economic conditions affect the relationship. The impact of efficient working capital management (measured as cash conversion cycle) on profitability is more significant during economic downturns.

Chang (2018), investigated the impact of cash conversion cycle on corporate performance by using a large dataset consisting of 266,547 firm-year observations of 46 countries covering different industries. The result showed a significant negative relationship between cash conversion cycle and return on asset and also a significantly negative relationship with Tobin Q value. The results implied that firms may improve profitability and value by shortening their cash conversion cycle. However, the effect of cash conversion cycle reduces or reverses if the firm is at a lower level of cash conversion cycle.

Marttonen, Monto, and Kärri (2013), analysed the working capital management influence on profitability for a sample of Finnish industrial maintenance companies. Unlike previous researchers, they used return on investment as profitability measure. The results showed that return on investment has a negative correlation with cash conversion cycle. They also found that cash conversion cycle is shorter for large companies compared to Small and Medium Scale Enterprises (SMEs) in the same industry.

Altaf and Shah (2018), examined working capital management and profitability relationship using data from 437 non-financial Indian companies. They employed a two-step generalized method of moment's technique which suggested an inverted U-shaped relationship between working capital management and profitability (return on asset). They also found that profitability increases at lower levels of cash conversion cycle, and decreases at the higher levels of cash conversion cycle.

Ben Le (2019), examined how working capital management affect firm valuation, profitability and risk by using a panel data set of 497 Vietnamese publicly traded firms for the period 2007-2016. The result showed a significantly negative relationship which imply that a trade-off exists between profitability and risk control, and also suggest that decreased levels of net working capital or cash conversion cycle are associated with improvement in both firm market value and financial performance.

In the study of Zakari<sup>1</sup> and Saidu (2016) the objective of the study is to empirically find the effect of cash conversion cycle on corporate profitability measure of return on asset of Information Communication Technology (ICT) firms listed on the floor of the Nigerian Stock Exchange. Data were collected from all listed firms between the period 2010 to 2014 and

multiple linear regression analysis indicate significant positive relationship between cash conversion cycle and corporate profitability.

In summary we find that most prior literature that were reviewed have consistently employed firm profitability measure of return on asset which may not effectively provide a broader and clearer picture of a litany of performance proxies available in extant literature. Hence this study employed a different approach to the measure of performance by employing the measure of enterprise value added.

### Methodology

In this study, *ex-post facto* research design is employed. The population is made up of non-financial companies that were listed on the floor of the Nigerian stock exchange market for the period between 2010 and 2019. As at 31<sup>st</sup> December, 2019 the total number of listed non-financial companies were one hundred and six (106). However, to obtain our sample size, this study focused on those companies that joined the stock exchange before year 2010 and remained on the stock exchange till year 2019.

To this end, the sample of this study consists of seventy-five non-financial companies listed on the floor of the Nigerian Stock Exchange during the periods 2010 to 2019. Hence, in examining the relationship between cash conversion cycle and firm performance in Nigeria, the study employed Robust Least Square Regression analysis technique which accounted for heteroscedasticity that was diagnosed in the Ordinary Least Square model.

### Control Variables

In order to account for differences in sizes and ages of the firms we include both variables of firm size and firm age to control the specified model.

#### Firm Size

According to previous studies, firm size influences both working capital level and profitability, and these studies have suggested a positive relationship between firm size and profitability (Garcia-Teruel and Martinez-Solano, 2007; Mathuva, 2010).

#### Firm Age

Firm age has been regarded as an important variable that explains changes in the working capital level and in profitability (Howorth & Westhead 2003; Mathuva, 2010). They argue that older firms have better access to external financing than do younger ones, so older firms are less constrained in financing their working capital hence, finding a positive relationship between firm age and firm performance.

### Model Specification

The explicit form of the model employed in this study is stated as;

Enterprise Value = f (Cash Conversion Cycle, Firm Size and Firm Age) ..... (1)

While the mathematical form is expressed as;

$$ENVA_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 FSIZE_{it} + \beta_3 FAGE_{it} \dots\dots\dots (2)$$

However, the econometric form of the model of Ben Le (2019) is adopted and modified to suit the purpose of this study thus presented below as;

$$ENVA_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 FSIZE_{it} + \beta_3 FAGE_{it} + e_{it} \dots\dots\dots (3)$$

**Where;**

ENVA = Enterprise Value Added  
 CCC = Cash Conversion Cycle  
 FSIZE= Firm Size  
 FAGE = Firm Age  
 "i" = Cross Section (Sample Companies)  
 "t" = Time Frame (2010 to 2019)  
 $e_{it}$  = Stochastic error Term

### Measurement of Variables

#### Firm Performance (Dependent Variable)

Firm performance; ENVA is measured using Enterprise Value Added, computed as market capitalization plus total liabilities less Cash (Melicher & Leach, 2009)

#### Working Capital Management (Independent Variable)

Cash Conversion Cycle; CCC is measured as the sum of inventory period and accounts receivables period less accounts payable period (Thuvarakan, 2012)

#### Control Variables

Firm Size is measured as logarithm of total asset (Huuynh & Vergeer, 2011)  
 Firm Age is the difference between current years minus year of listing in the stock exchange + 1 (Arshad & Gondal 2013)

### Results and Discussion of Findings

**Table 1** Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ccc	741	-126.9483	2540.995	-51443.24	20401.14
enva	741	6.575977	70.72695	-1304.13	445.451
fsize	741	7.084738	.8219	5.0927	9.2409
fage	750	25.988	13.42033	1	55

#### Authors Computation (2021)

To examine the relationship between cash conversion cycle and firm performance, first, we conduct descriptive statistics which gives insight into the nature of the data obtained from the sampled firms. The result from the descriptive statistics table above shows that on average, performance level for the sampled companies in terms of enterprise value added is positive (6.576) mirroring a job well done by the managers during the period under consideration. Furthermore, it is quit noticed that on average all the sampled companies in this study enjoyed positive performance which reached about (445.451).

Particularly, it is clear from the descriptive statistics result that on average cash conversion cycle period is very short (-126.9483) which provides a clear notion that managers were optimal in the process of converting cash. This is very desirable and commendable as shorter conversion time leads to better performance (Ben Le, 2019).

More than these, the descriptive statistics showed that the mean age of the selected firms is 26years while the average size of the firms in question is 7.08 during the period under consideration.

**Table 2 Robust Least Square Regression Result**

<i>Variables</i>	<i>Cash Conversion Cycle</i>	<i>Firm Size</i>	<i>Firm Age</i>	<i>Constant</i>
<b>Firm Performance Model</b>				
<i>Coefficient</i>	-0.002	1.630	0.062	-4.437
<i>t_Statistics</i>	(-10.89)	(6.06)	(3.78)	(-2.31)
<i>Probability_t</i>	{0.0000}***	{0.000}	{0.000}	{0.021}
No. of Obs = 739				
F(3, 735) = 55.23				
Probability F = 0.0000				

**Note:** t-statistics and respective probabilities are represented in ( ) and { }

**Where:** \*\*\* represents 1% and \*\* represents 5% level of significance

**Source:** Authors' Computation (2021)

The table above display the results obtained from robust least square regression model employed to test the possible effect of cash conversion cycle on firm performance in Nigeria. The model goodness of fit as captured by the F statistics (55.23) with corresponding probability value of 0.0000 shows a 1% statistically significant level indicate that the entire model is best fit and can be employed for discussion and policy recommendation. From the table above, we observe that the effect of working capital management on enterprise value added is negative and statistically significant. This evidence indicates that non-financial firms in the Nigerian stock exchange market have been successful in the management of cash during the period under investigation. This implies that lengthening the period of cash conversion will result to reduced shareholders 'value. In other word, market provides higher valuation to the companies with efficient working capital management. This finding is consistent with those of Sharma and Kumar (2011); Enqvist, Graham, and Nikkinen (2014); Ukaegbu (2014); Wuryani (2015); Yazdanfar and Öhman (2014); Hingurala Arachchi, Perera & Vijayakumaran, (2017); Ben Le, (2019) and Puriboriboon, (2021) who noted that an unduly longer cash conversion period will invariably results in unprofitable use of the firm's resources and eventually hurts firm's profitability. The outcome is also consistent with those of Pirttilä, Virolainen, Lind, and Kärri (2019) and Tuffour and Boateng (2017).

Furthermore, a potential reason for this negative outcome is that shorter cash conversion cycle means shorter average collection time, better inventory turnover, and extended supplier credit period, resulting in lower volumes of funds being blocked in working capital channels, thus decreasing the need for working capital finance. The reduced use of working capital funding, results in less cash outflow in financing costs. As a result, the cost of working capital maintenance is also reduced; resulting in more substantial margins; increased margins and increased firm value. Nevertheless, the result obtained in this study differ from those obtained in the studies of Abuzayed (2012) and Afrifa and Padachi (2016). With respect to the control variables (firm size and firm age) employed in this study, it is observed that firm size is positively related to cash conversion cycle which indicates that larger firms tend to have longer cash conversion rates which is consistent with the findings of Huuynh & Vergeer, (2011) while older firms may also suffer the effect of longer cash conversion cycle rate (Arshad & Gondal 2013)



## Conclusion and Recommendation

In this study, the author verified the relationship between cash conversion cycle and firm and performance in the context of enterprise value added for non-financial firms listed on the floor of the Nigerian stock exchange market during the period 2010 to 2019. This study outcome showed that cash conversion cycle will increase a firm's overall value performance, which will go a long way to affect its operating profits and competitiveness. Therefore, in the light of the empirical evidence, it is recommended that managers should improve their companies' value by shortening cash conversion cycle. By so doing, financial managers will have more funds to run the daily activities of the organization. Furthermore, financial managers need to adopt various policies of collection and discounts on accounts receivables and also strike a proper balance between adequate solvency and maximum delay in paying trade creditors and suppliers. When this is done, shareholders' value maximization is guaranteed and the firm leans away from financial distress.

## Suggestions for Future Studies

The researcher does acknowledge that there are several other available proxies which may have yielded different outcomes. Hence, future studies could use other measures such as TobinQ, Market Share Price and Return on Equity to measure profitability, and later a comparative analysis of which proxy gives a better result for the firms under study. More than these, future studies may also consider the nonlinear relationship that may exist between cash conversion cycle and firm performance.

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