Analysis of the Effects of Working Capital Management on Profitability of Listed Nigerian Conglomerate Companies

Olaniyi Taiwo Azeez, Muhammad Abdul Abubakar and Fagbemi Temitope Olamide
University of Ilorin, Ilorin, Kwara State, Nigeria

Although increment in sales/turnover enhances profitability but turnover and profitability consistency depends primarily on liquidity position in the service sector. However, in manufacturing and conglomerate businesses, customer satisfaction is the hallmark which cannot be achieved without effective working capital management (WCM) policy in place. This analogy implies that WCM and profitability are indirectly related compared to theoretical and empirical beliefs. Hence, this study evaluates the effect of working capital variables on the profitability of sampled listed conglomerates in Nigeria between 2003 and 2014. The secondary data used relate to average payment period (APP), average collection period (ACP) and inventory turnover period (ITP) as explanatory variables while firm size (SZ) and leverage (LEV) are the control variables. Profitability variables used are return on assets (ROA) and return on equity (ROE). These data were obtained from financial statements of the selected conglomerates and were analysed using balanced panel econometric model, while the model was estimated using correlation matrix. Hausman specification test was used to objectively select fixed effect model instead of random effects model for analysis purpose. The fixed effect regression results revealed that ACP, and APP are significant determinants of profitability while ACP has negative effect on firms' profitability. Based on these findings, it was recommended that liquid cash should be judiciously channeled towards operational activities with a view to expand business scope and increase profitability. The study also recommends that companies should sufficiently plan and control their working capital combinations with a view to cater for any shortfall and to maintain consistent profitability.

Key words: conglomerates, profitability, return on assets, return on equity and working capital
                  management

Profit and sale maximization remain the major objectives of any business the world over, and as such, they serve as important yardsticks for measuring the performance of companies. While being liquid is of paramount importance; profitability which is the firm's ultimate objective cannot be achieved without liquidity. Consequently, companies tend to encounter difficulties in establishing and maintaining an appropriate balance between the unseparated twins: liquidity-profitability.

According to Baasi and Niresh (2013) liquidity helps the firm to meet their short term obligations and ensures firm's prudence and solvency. Contrarily, profitability is a strategic means used to meet the long-term needs of companies, as high profit margins attract and maintains/retain investors in the company. Maintaining a balance between the two is a concept that requires a pragmatic approach and sufficient attention. Meanwhile, (Deloof, 2003; Padachi, 2006; Ganesan,2007) pointed out that harmonising a company's short-term and long-term objectives as well as ability to maintain sufficient liquidity and simultaneously generate profit requires an effective working capital management (hereafter referred to as WCM).

The latest global financial crisis that led to the collapse of some big companies in the U.S. (such as Lehman Brother, Bear Stearns, General Motors etc), has further emphasised the need for efficient and effective WCM and other components of capital. Karadagli (2012) affirms that effective handling of a firm's working capital dictates its performance. As such, the result of an ineffective and /or inefficient working capital management is not limited to profitability reduction but also has tremendous financial implications in terms of insolvency, loss of customer/patronage, loss of revenue and crisis.

 According to Jegers and Gomes (2013), decisions relating to value, risk and profitability etc of a firm can be achieved through effective WCM. Thus, WCM model offers an avenue for the management to establish adequate WC level as well as factors affecting WC movements in a firm.

Correspondence concerning this article should be addressed to Olaniyi Taiwo Azeez, senior lecturer, Department of Accounting, University of Ilorin, Kwara State, Nigeria, E- Mail: niyitaiwo03@yahoo.com

Raheman and Nasr (2007) Appuhami, (2008) further point out that there should be an equilibrium between company's liquidity and profitability in order to avoid crisis, bankruptcy and insolvency as the consequence of inappropriate balance between the two. To achieve this equilibrium, the components of the cash conversion cycle should be properly managed. As such, decisions relating to the component of a firm's assets and liabilities as well as their utilisation and influence on the risk-return characteristics of the firm are those embedded in WCM.

A manager in maximizing profit can adopt either aggressive or conservative policies. An aggressive policy involves making firms more profitable and more exposed to risk by cutting down investment in working capital accounts while a conservative policy means that firms are less profitable and less exposed to risk through an increase in investment in working capital accounts (Deloof, 2003; Jegers & Gomes, 2013).

Attari and Raza,(2012) affirms a company willing to achieve smooth management of business must have an effective WCM in place as one of its cardinal decisions. In order to handle working capital efficiently, a company has to be conscious of the average length of time between sales of goods and services and the receipt of the associated cash (*cash conversion cycle).*

The importance of working capital management cannot be over-emphasised as it involves planning for resources and controlling them which serves as current assets investment guide for firms as well as helps in avoiding wastage and in meeting a firm's short term obligations as at when due. Thus, an effective management of working capital also assists firms in decreasing the need to lend funds to pay back short term debts. As such, efficient management of working capital needs effective administration of all the three areas of working capital: Revenue Management (Account Receivable), Expenditure management (Account Payable) and Supply Chain Management (Inventory Management).

Conglomerates in Nigerian are challenged with infrastructural decay, capital constraints, corruption as well as ineffectiveness and inefficiency in the management of their capital structure. The manifestation of these inefficiencies is evidenced in BGL Research Companies Report (2011) which shows that conglomerate firms' performance fell below that of single product companies

Despite all these challenges, conglomerates play significant roles in the Nigerian economy by generating employment and revenue from services like hotel accommodation, real estate business, transportation and the supply of building materials, medical equipment, etc.

The significant impact WCM exerts on firms' liquidity and profitability makes it occupy a central focus in value creation as part of a company's corporate planning strategies tailored towards avoiding a mismatch between liquidity and profitability (Panigrahi, 2014). The motivating factor behind this study (the dearth of literatures on the relationship between WCM and profitability, as identified by Mathias, 2012) also applied in the case of Nigerian Conglomerate firms.

Existing studies on WCM include Mbawuni, Mbawuni and Nimako (2016), Deloof (2003), Ganesan (2007), Karadagli (2010). With reference to Nigeria, the relative contribution of WCM to capital structure, dividend payout ratio as well as profitability and financial strategy in manufacturing firms have been addressed by Folashade and Ailemen (2014) as well as Ademola (2014) Oladipupo and Okafor 2013. However, they failed to consider the relationship that exists between working capital and profitability. This study expands the research frontiers of these researches/studies using listed conglomerate firms in Nigeria which before now has not been considered by any study. It is thus a pioneer study which is non-existent in Nigerian literature in respect of conglomerates.

The study is significant in the sense that it will be of immense benefit not only to the companies in the Nigerian conglomerate sector, but also to the Nigerian economy in its entirety in improving WCM, enhancing value driving performance for company's survival and in evaluating investment options.

The study is also motivated by lack of a general agreement regarding the influence that WCM variables have on corporate profitability in previous studies. A study of this nature is therefore critical to this period of volatility of the business environment (risk, profitability impairment and liquidity insufficiency). The magnitude of profit /turnover these companies reported in the last few years is not reflective of the problems of liquidity and/or WCM they need to cope with. Indeed, one may be dissuaded to believe that all is well without WCM.
The following research questions became pertinent :

Research Questions
i.   What impact does CCC and inventory days have on profitability of Nigerian conglomerates?
ii.   How effect does receivables and payables days has on profitability of Nigerian conglomerate?
iii.   What is the relationship between firms' sizes, leverage and profitability among Nigerian Conglomerates?

Without duplication or prejudice to the works of Darshini and Thapa (2012), Ponsian, Chrispina, Tago and Mkiibi (2014), Kwaku, and Mawutor (2014). This study evaluates the effect of WCM on profitability with specific reference to Nigerian conglomerates. The period of study was twelve (12) years (between 2003-2014). The specific objectives are to:

i. evaluate the effect of cash conversion cycle and inventory turnover period on profitability of Nigerian conglomerates;
ii. assess the effect of receivable (average collection period) and payable (average payment period) on profitability of Nigerian conglomerates; and
iii. examine the effect that firm size and leverage has on profitability of Nigerian conglomerates.

Conceptual Clarification

Working Capital according to Preve and Sarria-Allende (2010) means current assets minus current liabilities. Current assets include firm's inventories, account receivable, and minimum level of liquidity while current liabilities are account payable, expenses payable, including accrued wages and taxes. However, Richard, Dadson and Peter (2013) define WCM as a strategy tailored towards having adequate cash balance in a firms current assets and current liability combinations for the purpose of meeting short term obligations as at when due.

Efficient WCM involves adequate planning and maintenance of working capital components that include: account payable, account receivable, cash and inventory. Accounts Payable is defined by Preve and Sarria-Allende (2010) as outstanding dues yet to be paid on suppliers invoices that were raised earlier for goods or services. Thus, such unpaid credits are classified as costless fund and the longer this amount remain unpaid the more beneficial it is to the firm.

Accounts Receivables according to Majeed, Makki, Saleem and Aziz, (2013), SU3 Finance (2014) is the opposite of account payables and it unpaid moneys on good and services offered by a firm. Such receivables are managed with a view to reduce time frame between when sales are made and when actual cash is received. This will avoid the firm being cash trapped.

Cash according to Al-Shubiri and Aburuumman (2013) represents money deployed in the acquisition of non-current assets, inventories and in settling current expenses such as wages and salaries, rent, rates etc. Thus, cash management responsibilities -cash collection, mobilisation and lodgement/banking, short term borrowing and investments and cash forecasting (Owolabi & Alu 2012) presumes that sufficient cash must be kept because, excess cash tied in a business fails to generate income while inadequate cash exposes a firm to risk of losing profitable opportunities (Thuvarakan, 2014). The concept of cash management upheld in this study is limited to improving cash inflow and restricting outflow in the process of managing fund transfer and receivables.

Inventories according to Rimo and Panbunyuen (2010) comprise either production consumables (raw materials and work in progress) or completed /finished goods) ready for sale. Inventory days represents the period of holding stocks without being used or sold and adequate balance must be kept to avoid stock-out or excess stocks. Hence, the task of inventory management is an arduous one such that inventory should not be reduced to zero level to avoid running out of stock meant for production or keeping insufficient finished goods to meet customers demand at peak periods. Such a condition portends danger for every company because of propensity of losing revenue.

Corporate Profitability determines the survival and growth of an organisation and is the difference between revenues and expenses over a given period of time and it measures a company's ability to earn income/revenue in all its activities Sandhar and Janglani (2013). It thus, reveal how efficient a firm is in resource management and is measured in the firm's ability to utilise its assets in generating revenue (return on asset or return on equity).

Return on Assets (ROA) represents the percentage of income earned by a business over its total assets such that the higher the company's assets the higher is its propensity to earn more income/profits. On the other hand Return on Equity (ROE), according to Sharaf & Haddad (2015), measures the company's performance in terms of usage of shareholders' funds rather than company's assets as obtained in ROA.

Theoretical Framework

The only theory identified providing a link between profitability and liquidity is the cash cycle theory. This Theory rest on the believe that a company's death or survival depends on its cash level while the objective of cash management is to maintain liquidity and growth. At whatever stage of a company (introductory or growth stage), cash flows and cash cycle management is very vital such that the growth in the company's performance depends on how effective it is able to manage its available cash (Churchill & Mullin, 2001). In addition, people find it easy to understand the effect of liquidity on business using cash flows and how quick cash can be collected.

This theory is premised on the belief that inherent (internal) growth rate of a company can be achieved using three levers: how long cash is tied up in the business, the amount of cash itself and how much cash is generated from sales activities during the period).

This present study finds the cash cycle theory worthy and relevant because the theory when applied to this work, views the indicators of the relationship between profitability versus dynamic WCM in terms of cash management, receivable days, payable days and inventory days.

Empirical Evidences

A perusal of the literature reveals quite a number of studies on the effect that WCM has on profitability with little or no attention on conglomerates firms. For instance, Deloof (2003) sampled 1009 non-financial firms between 1992 -1996 to evaluate if WCM affects profitability of Begian firms and finds similar results to that of Wang (2002) whose study was in Japan and Taiwan, that the shorter that cash to cash cycle has positive impact on corporate value and vice versa.

In a comparative manner, Amarjit, Biger & Mathur (2010) found a mixed impact of WCM on companies' performance in United States. However, a negative relationship between WCM and corporate performance were recorded by Padachi (2006) in small manufacturing firms of Mauritania, Falope and Ajilore (2009) in Nigeria, Rimo and Panbunyuen (2010) in Sweden.

The scope of these studies were expanded by Owolabi and Alayemi (2010) to cover the effects of WCM as a financial strategy on liquidity and profitability of Nestle Nigeria Plc between 2004-2009. The result of these studies showed similar negative correlation among the variables. The emerging markets in Cyprus was studied 1998-2007 by Charitou, Elfani, and Lois (2010) using multivariate regression analysis to evaluate what effect WCM has on financial performance. The result indicates that the cash to all components of cash cycle is associated with the firm's profitability.

The inventory management effect on performance of SMEs in Kwara State of Nigeria was studied by Abdulrasheed, Yahaya, Isiaka and Aliu (2011). The regression result reveals a strong positive relationship between profitability and inventory management.

The study of Owolabi and Alu (2012) over five years period in the manufacturing sector evaluate profitability-liquidity relationship in Nigeria using trend cum multivariate analysis. The results reveal that the combined effect of WC variables used in the study on profitability is insignificant while the company's individual WC components affect company's profitability differently.

Usama (2012) re-examined Raheman and Nasr (2007)'s finding on the relationship between WCM and profitability in Pakistan but by using 18 companies listed on the Karachi Stock Exchange. His study made use of data from food sector between 2006-2010, adopted multiple regression technique and find profitability and WCM to be negatively related. This result and that of Deloof (2003) are in the same direction.

Karadagli (2012) evaluated the difference in effects of profitability on WCM on SMEs and bigger companies. This was achieved by through a sample of Turkish listed companies upon which net trade cycle and cash to cash cycle performance effect was measured using pooled panel regression analysis. The result reveals that for SMEs, their stock market returns and operating income were associated with changes in net trade cycle and cash to cash cycle. Conversely, a negative relationship exist between net trade cycle and cash to cash cycle on one hand and profitability on the other hand for bigger firms.

Raheem and Qaisar (2013), Sandhar and Janglani (2013) Stephanou (2010) examined the relationship between liquidity (measured by receivable period, payable days, cash cycle and inventory periods) and profitability (measured using ROA and ROE). The study reveals depending on the profitability variables used varied results with respect to profitability and liquidity relationship.

Moshin, Hassan, Mohammad and Mohammad (2014) examined the impact of WCM on financial charges in Pakistani's manufacturing industry and finds that individual component of WC are not significant but a collective policy on WCM may help revive/control financial charges .

Yousaf, Mohammed ,Khalid, Touqueer and Mustaq (2015) finds WCM as provider of profit in their study on the relationship between WCM and profitability in Pakistan. The recent global financial crisis was characterised by an economic recession that affected the entire world. This economic downturn stifled effective demand which posed great challenges to the survival of most companies especially conglomerates due to different environmental factors in their operating countries.

Furthermore, a lack of general agreement among scholars as regards the effect WCM has on profitability in addition to terse literature in that regard, especially with respect to Nigerian conglomerates, necessitate the need for this study.

Method

Model Specification

The structural form of the model connecting profitability with WCM is given as:

$$ROA_{it} - f\left(ITP_{it}, ACP_{it}, APP_{it}, CCC_{it}, SZ_{it}, LEV_{it}\right) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(i)$$

$$ROE_{it} = f\left(ITP_{it}, ACP_{it}, APP_{it}, CCC_{it}, SZ_{it}, LEV_{it}\right) \ldots\ldots\ldots\ldots\ldots\ldots\ldots(ii)$$

Equation (i) and (ii) is re-specified in the form of panel stochastic-form model to fit both fixed and random effects models as follows:

$$ROA_{it} = \alpha_1 + \beta_2 ACP_{it} + \beta_3 APP_{it} + \beta_4 ITP_{it} + \beta_5 CCC_{it} + \beta_6 SZ_{it} + \beta_7 LEV_{it} + \varphi_i \ldots(iii)$$

$$ROE_{it} = \alpha_1 + \beta_2 ACP_{it} + \beta_3 APP_{it} + \beta_4 ITP_{it} + \beta_5 CCC_{it} + \beta_6 SZ_{it} + \beta_7 LEV_{it} + \varphi_i \ldots.(iv)$$

Where;

ROA = Return on Asset
ROE = Return on Equity
TTP = Inventory Turnover Period
ACP = Average collection period
CCC = Cash Conversion Cycle
SZ = Size (measured by Log of Sales)
LEV = Leverage
β = Coefficient Term
A = Constant Term
φ_t = Error term
I = No of Firms
T = Time Period

Research Design

Ex-post factor research design involving the use of historical data (Oladeji, 2011) obtained from annual reports and accounts in decision making was adopted in this study. The population of the study comprise all the quoted conglomerates in Nigeria. These are : (A.G Leventis Nigeria Plc, Chellarams Plc, John Holt Plc, SCOA Nigeria Plc, Transnational Corporation of Nigeria Plc) and UAC of Nigeria Plc,).

However, only five (5) companies were considered as sample of the study leaving out Transnational Corporation of Nigeria Plc on the ground that it lacks the required data covering the period of the study.

Variables and their Measurement

The dependent variable for this work is profitability proxy by return on assets (ROA) and return on equity (ROE). ROA is the most widely used and acknowledged basis of profitability. It is calculated as ratio of a company's net income to its total assets expressed as a percentage. The higher the company's assets the higher will be its potential of earning income on these resources. Contrarily, ROE is interpreted to mean how effective a company's decision is in creating shareholders' rate of return.

The WCM (independent variables) of this study are: cash conversion cycle, average payment period, average collection period, and inventory turnover period while the control variables adopted are the company's logarithms of total sales (size) and leverage measured as ratio of total debt to total assets.

Inventory Turnover Period (ITP) measures the number of day's a company hold its stock before being sold. The higher the rate, the less the number the inventory days and thus, the better the performance of the company.

$$ITP = \frac{Average\ Invotry}{Cost\ of\ Sale} \times \frac{365}{1}$$

Average Collection Period (ACP) is the average number of days between sales and cash collection. It measures the effectiveness of the firm's credit policy and it is calculated as:

$$ACP = \frac{Average\ Debtors}{Cost\ of\ Sale} \times 365$$

Average Payment Period (APP) is the time period between credit purchase by a company and the time of settling the debt. This period serves represents a costless and riskless fund for running its activities. $APP = \frac{Average\ Creditors}{Cost\ of\ Sales} \times 365$.

Cash Conversion Cycle (CCC) is the conversion period between a firm's expenditure for production purpose and receipt from sales. It is calculated as:
CCC= ACP+ITP-APP

Technique of Data Analysis
The panel econometric techniques of descriptive statistics, correlation coefficient, fixed and random effects were used in analysing the relationship between the study while Hausman Specification test was conducted to choose between fixed and random effects models.

Analysis and Discussion of Results
Descriptive features of the study variables as shown in Table I reveals the mean of (ROE) and ROA recorded by the five (5) quoted conglomerate firms as 16.97% and 4.98% respectively for period 2003 to 2014.

Table I

Summary Statistics

Variables	Obs.	Mean	Max	Min
ROA	60	4.98	42.24	0.07
ROE	60	16.97	86.59	2.51
ITP	60	143.94	402.99	1.54
ACP	60	58.00	290.48	1.15
CCC	60	132.92	692.97	-44.44
APP	60	41.44	206	0.00
LEV	60	0.76	6.1	0.03
SZ	60	6.91	5.99	7.87

Source: Authors' Computation, (2016).

During same period, the firm's inventory turnover period (ITP) and average collection period (ACP) were 143 and 58 days respectively. On the other hand, the time it takes the companies to convert activities to cash (CCC) was 138 days while it takes 41 days for the firms to settle their dues.

As for the leverage (Lev) and firm size (Sz), an average of 0.76k of debt to ₦1 of equity and 6.92% were recorded respectively during the period under review. The smallest and highest values of all the variables within the twelve (12) year period as shown on the table indicate that maximum and minimum values of ROE were 42.24 and 0.07 respectively while for size, they are 5.99 and 7.87 respectively.

Table 2

Multicollinearity Test

	ITP	ACP	CCC	APP	LEV	SZ
ITP	1.00					
ACP	0.35	1.00				
CCC	**0.46**	**0.85**	1.00			
APP	0.05	0.23	-0.13	1.00		
LEV	0.00	-0.23	-0.11	-0.07	1.00	
SZ	-0.03	-0.19	-0.34	0.17	0.23	1.00

Source: Authors' Computation, (2016).

Table II shows possible degree of perfect linear relationship (pairwise correlation) among the independent variables. According to the table, insignificant relationship exists between most pairs of the variables except for CCC and ACP. For instance, correlation between ACP and ITP is 0.35 and between APP and ITP is 0.05 while between Sz and Lev is 0.23. However, the relationship between APP and CCC, LEV and APC and between SZ and ITP are all negative (-0.13, 0.23 and -0.03 respectively). In view of this, Panel regression appears the suitable tool of analysis as it suffers less multicollinearity.

Table 3

Hausman Specification Test

Model	Summary of Test	Chi-Sq. Statistic	Chi-Sq. d.f	Prob.
One	Cross-section random	χ^2 =14.65	6.00	p= 0.0232

Source: Authors' Computation, (2016).

Table III shows the results of the Hausman test which gave a p-value (0.0232) that is lower than 5% level. As such, we are not inclined to accept the null hypothesis that the differences between the estimated parameters yielded by the two

estimation techniques are not systematic. Thus, Fixed Effects method produces better results for the model and is therefore adopted for this study.

Table 4
Effect of Working Capital Management (WCM) on Profitability- Proxy by Return on Equity (ROE)

Return on Equity (ROE)	Coefficient	Std. Error	t-Statistics	Prob (p).	Rank
Constant	101.9598	33.19443	3.071595	0.0035	-
ITP	-0.007055	0.011998	-0.588014	0.5592	5
ACP	-0.143916	0.067279	-2.139083	0.0374	3
CCC	-0.042097	0.045277	-0.929761	0.3571	4
APP	0.142901	0.052889	2.701925	0.0094	1
LEV	1.137031	1.934514	0.587760	0.5594	6
SZ	-11.82049	4.791401	-2.467022	0.0172	2
R-Squared Value	0.579328				
Adjusted R^2 Value	0.493476				
F-statistic Value	6.748021				
Prob(F-stat) Value	0.000002				

Source: Authors' Computation, (2016).

Regression result evaluating the effect of WCM on ROE as presented in table 5 shows that (ROE) is significantly positively related to APP (coeff= 0.142901) with t statistics of 2.70. The implication of this is that all things being equal, an increase of one (1) day delay in paying the creditors (APP) would induce an increase of 0.14% in return on equity. This practice will provide more cash to the firm for running meeting expenses, to ensure smooth business operation and thus facilitates meeting of customers demand. The multiplier effect of these will be an upsurge in sales/revenue and eventually, increase in ROE.

Conversely, ROE has a significant negative relationship with (ACP) (coeff= -0.14391) and SZ (coeff= -11.82049) with respective t statistics of -2.13 and -2.46. The negative coefficient of ACP (-0.14391) indicates that when the credit period given to debtors is increased by one day, ROE would experience a fall of 0.14% on the average. The negative coefficient of firm size indicates that a fall of 11.82% in ROE would be recorded if firm Size should rise by 1%.

In financial terms, the twin effects of increasing the ACP by one day is to spur trade (debtors to buy more from the conglomerate firms thereby resulting to increase in sale which is a significant drive to boost profitability. Secondly, it may also reduce available cash for meeting the firms' obligations, but the cumulative effect observed in this study is a negative relationship as shown in table 4. Similarly, a delay in APP may discourage trade creditors to increase their supply of goods to the conglomerates firms but makes cash available for meetings operational expenses.

The parameters of ITP, CCC and leverage are not individually statistically significant. This is evidenced by probability values of 0.5592, 0.351 and 0.5594 respectively.

In terms of goodness of fit of the model, an R-squared of 0.58 shows that 58% systematic variations in profitability of the conglomerates were explained by working capital variables, leverage and firm size. On the whole, the F-statistic of 6.75 shows that the null hypothesis that all the explanatory variables considered is simultaneously equal to zero, cannot be accepted. The inference that is apparent from this analogy is that WCM has a significant effect on profitability of Nigerian conglomerates if measured by return on equity.

Table 5
Effect of Working Capital Management on Profitability - Proxy by Return on Assets (ROA)

ROA	Coefficient	Std. Error	t-Statistics	Prob.	Rank
Constant	-162.450	57.052	-2.85	0.006	
ITP	-0.355	0.219	-1.63	0.110	5
ACP	-0.457	0.235	-1.94	0.058	3
CCC	**0.387**	0.219	1.77	0.083	4
APP	**0.481**	0.226	2.13	0.038	2
LEV	4.534	3.100	1.46	0.150	6
SZ	26.583	57.052	3.19	0.006	1
R-Squared	0.74				

Adjusted R^2	0.68
F-statistic	3.83
Prob(F-stat)	0.0033

Source: Author's Computation, (2016)

Table5 presents the results on the effect of WCM on ROA in quoted conglomerate companies in Nigeria. It reveals that (ROA) is significantly positively related to (CCC); (coeff= 0.387) and (APP); (coeff= 0.481). Furthermore, ROA has a significant negative relationship with ACP (coeff= -0.457) with t-statistics values of -1.94, and P-values of 0.058.

The implication of this is that if CCC increase by 1 day, all things being equal, will lead to an increase of 0.39% in ROA. The positive coefficient of APP indicates that when the credit period received from creditors is increased by one day, ROA would experience a rise of 0.48% on the average. The negative coefficient of ACP shows that a drop of 0.46% in ROA would be recorded if the ACP should rise by 1%. Also, ROA has a significant positive association with firm size indicating that a rise of 1% in firm size would bring about a surge of 26.58% in ROA.

ITP, CCC and LEV parameters with p= 0.110, 0.083 and 0.150 respectively are not individually statistically significant. In terms of goodness of fit of the model, an R-squared of 0.74 shows that 74% systematic variations in profitability of the conglomerates were explained by working capital variables, leverage and firm size. On the whole, the F-statistic of 3.83 shows that the null hypothesis that all the explanatory variables considered are concurrently equal to zero cannot be accepted. It can therefore be said by way of inference that WCM exerts significant influence on profitability of Nigerian conglomerates

Although it has opposing impact of profitability when measured by ROA and ROE but going by ranking, the most important determinant of profitability among the working capital variables is APP. IPP has the least impact (although negative) on profitability measured by either ROA or ROE.

The findings of this study agree with that of Usama (2012) Amarjit, Biger and Mathur (2010) who reported a significant relationship between working capital management and profitability. These findings also agree with the cash cycle theory and prior expectations that WCM impact significantly on firm's profitability.

Conclusion and Recommendations

This study by making use of Fixed Effects Panel regression technique reveals the relationship between return on equity (ROE) and average collection period (ACP) to be negative and significant. However, ROE is significantly positively associated with APP. Conversely, inventory turnover period (ITP) and cash conversion cycle (CCC) are not individually statistically significant. Thus, the more conglomerate firms are able to delay payment to creditors and fast track collection from debtors, the more their returns (ROE) will be.

Further evidence reveals the relationship between (CCC& APP) and ROA as positive and significant but ROA has inverse relationship with ACP. Contrarily, a non-statistically significant relationship exist between inventory turnover period and leverage.

Based on our research findings, it was concluded that profitability (measured by either ROA or ROE) of quoted Nigerian conglomerates is affected by average payment period, cash conversion cycle as well as inventory turnover period and average collection period.

Hence, profitability performances of these companies depend on the extent of efficiency with which these working capital variables are being handled/managed.

Based on these findings the study recommends that:

i. Debts outstanding for a long period should be written off by the management while cash collected should be judiciously used for expansion purpose with a view to increase profitability and maintain the going concern status of the firms;

ii. Time of payment should be set as late as possible to optimize /maximize the advantages of external financing all with a view to increasing the firm's value in terms of profitability.

iii. Since the shorter the cash conversion cycle the more profitable a firm is, the cash conversion circle should be effectively managed to realise the business liquidity-profitability objectives.

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