



International Journal of Sciences: Basic and Applied Research (IJSBAR)

ISSN 2307-4531
(Print & Online)

<http://gssrr.org/index.php?journal=JournalOfBasicAndApplied>



Effect of Working Capital Management on the Profitability of Selected Manufacturing Companies in Nigeria

Lawal, A. A.^{a*}, Abiola, B. I.^b, Oyewole, O. M.^c

^{a,b,c}*Department of Accountancy, Federal Polytechnic, Offa, Kwara State*

^a*Email: yomlaw2003@gmail.com*

^b*Email: abiola7577@gmail.com*

^c*Email: oyewoleolabode@yahoo.com*

Abstract

There is no doubt that the ultimate objective of any firm is to maximize profit. However, the preservation of the liquidity of a firm is an important objective too and it is the efficient management of the various components of working capital that helps to preserve liquidity. This paper therefore examined the effect of working capital management on profitability of selected manufacturing companies. Secondary data gathered from the annual reports of six selected companies in Nigeria covering the period between 2006 and 2013 was used for the study. Purposive sampling technique was adopted and data collected was analysed using panel data least square method of regression. The study found a significant negative relationship between the components of working capital (DCP, APP and ITID) and profitability (ROI). The study therefore concluded that working capital management has significant impact on profitability of manufacturing companies and recommended that companies should manage their cash, accounts receivables, inventories and accounts payable with a view to reducing the cash conversion cycle so as to increase their profitability amongst other things.

Keywords: Working Capital; Management; Profitability; Manufacturing; Nigeria.

* Corresponding author.

E-mail address: yomlaw2003@gmail.com.

1. Introduction

The management of working capital has remained an important component of corporate financial management over the years. This is because of its effect on firm's profitability and risk, and consequently its value [1]. Similarly, Solanki [2] posited that working capital is the life blood of any business and believes its management is important because of its effects on firm's profitability. Every business needs adequate liquid resources in the short term to maintain day-to-day cash flow needed for operations. However, this does not mean working capital is only important in the short run because adequate liquidity is also needed to ensure the survival of the business in the long run. This made Ashraf [3] to opine that efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on the one hand and avoid excessive investment in these assets on the other hand so as to increase profitability.

1.1. Statement of research problem

There is no doubt that the ultimate objective of any firm is to maximize profit. However, the preservation of the liquidity of a firm is an important objective too and it is the efficient management of the various components of working capital that helps to preserve liquidity. However, problem lies in the efficient management of these various components that makes up the working capital by managers. This problem arise as a result of the fact that most managers fight to increase inventory turnover in a bid to increase profitability without been mindful of the need to speed up the debtor collection period and to delay creditor payment period as far as possible, so as to provide the funds needed to keep the cycle flowing. This puts the firms in poor liquidity position and it consequently affects the profitability of such firms. Therefore, given this position, it is expedient that an investigation of the effect of working capital management on profitability be carried out.

1.2. Research objectives

The general objective of this study is to examine the impact of working capital management on the profitability of selected manufacturing companies. However the specific objectives of the study are to:

- i. evaluate the effect of debtor collection period as a component of working capital on the profitability of manufacturing companies;
- ii. examine the influence of creditors payment period as a component of working capital on the profitability of manufacturing companies;
- iii. determine the effect of inventory turnover as a component of working capital on the profitability of manufacturing companies.

1.3. Research hypotheses

In line with the objectives of the study, the following hypotheses were formulated.

H₀₁: Debtors collection period has no effect on the profitability of manufacturing companies.

H₀₂: Creditors payment period has no influence on the profitability of manufacturing companies.

H₀₃: Inventory turnover has no effect on the profitability of manufacturing companies.

1.4. Justification for the study

This study will help to provide clear understanding of the effect of working capital management on corporate profitability to managers. It will aid their financial management decision making aimed at maintaining a balance between profitability and liquidity. Similarly, the study will help provide information for shareholders, prospective customers and creditors with regards to profitability in relation to efficient working capital management. Furthermore, the study will help, through its findings, to provide a guideline for those who intend conduct their study on similar topic. Finally, the study will assist the researcher in obtaining new knowledge about the problem under study.

1.5. Scope of the study

The study covers six selected manufacturing companies on the Nigerian Stock Exchange (NSE) and their annual reports for eight years covering 2006 to 2013 was used in the investigation of the effect of working capital on profitability of manufacturing companies.

Though 135 manufacturing firms are listed on the Nigeria stock exchange, the availability of complete data prompted this limitation. It is believed that a reasonable level of generalization can be made since this limitation has no technical disadvantage on this study because of the homogeneity of the population. Their annual report for a period of eight years was obtained to examine the effect of working capital management on the profitability over this period.

2. Working capital and working capital management

The term working capital implies a company's investment in short term assets like cash, short term securities, accounts receivables and inventories [4]. Precisely, these assets are financed by short-term liabilities like accounts payable and short term borrowings. Working capital may also be defined as a financial metric which represents operating liquidity available to an organization or other entity, including governmental entity [1]

According to Solanki [2] the term working capital refers to the short term funds required for financing the duration of the operating cycle in a business often known as "accounting year". Similarly, Investopedia sees working capital as a measure of both a company's efficiency and its short-term financial health.

Adamu [5] opined that working capital management is concerned with all the aspects of managing current assets and current liabilities. Generally, working capital management consists of three different parts. These parts are accounts receivables, accounts payables and inventories. Put differently, working capital management is the

decision relating to working capital and short term financing, and this includes managing the relationship between the company's short term assets and its short term liabilities [4]. This enables the company to continue operations and to have enough cash flow at its disposal to satisfy both maturing short-term debts and upcoming operational expenses, which is the major objective of working capital management. Generally, working capital management involves two basic questions: first, what is the appropriate amount of current assets, both in total and for each specific account, and second, how should those current assets be financed?

The total working capital requirement of a firm is determined by a wide variety of factors and these factors affect different organizations differently. Paramasivan and Subramanian [6] posit that the factors influencing working capital decisions of a firm may be classified as internal factors and external factors. The internal factors are factors that the companies will take in to account while determining the optimal level of working capital needed for the business concern by looking inherent to factors related to the business. Internal factors include the nature and size of the business, the firm's production policy, the firm's credit policy and the growth and expansion of the firm.

Sometimes however, firm's working capital requirement can be affected by external factors which will not be controlled through the business internal administration and management process. Such external factors includes business fluctuations, changes in the technology and the taxation policy in place.

2.1. The implication of excessive or inadequate working capital

The concern for managers should be the maintenance of a sound working capital position at all times. Organisations should have adequate working capital to run their business operations smoothly and efficiently. Both excessive as well as inadequate working capital positions are dangerous [5].

Excessive working capital means idle funds lying in the concern which earn no profits for the concern. It results into unnecessary accumulation of inventories, hence, inventory mishandling, waste, theft and losses increase. It is also an indication of defective credit policy and slack collection period. Consequently, higher incidence of bad debts results, which adversely affects profits.

Paucity of working capital, on the hand, not only impairs firm's profitability but also results in production interruptions and inefficiencies. Similarly, the firm losses its reputation when it is not in a good position to honour its short term obligations as a result of which the firm faces tight credit terms.

2.2. The working capital cycle

According to Mekonnen [7], in order to understand the importance of working capital, one has to understand the working capital cycle which is described as the core for working capital management. Arnold [8] opined that working capital cycle or Cash Conversion Cycle (CCC) includes all the major dimensions of business operations. He further stated that the working capital cycle represents the time difference between the acquisition of raw materials and other inputs, and the receiving of cash from the sale of the finished goods.

The cash conversion cycle is measured using the following formula:

Cash Conversion Cycle = the number of days inventories + the number of days accounts receivables – the number of days accounts payables.

The number of days of inventory or Inventory turnover in days represents the number of days it takes on the average to sell the inventory on hand. The shorter this period; the better; because products tend to deteriorate as they sit in store [9]. It is computed as;

$$\text{Inventory Turnover in Days (ITID)} = \frac{\text{Inventory}}{\text{Cost of goods sold}} \times 365 \quad (1)$$

The number of days account receivable also known as average collection period refers to the period in time before receivables are collected after sales [9]. The lower the collection period, the more effective is the control of credit and hence better liquidity. It is computed as;

$$\text{Debtors' Collection Period (DCP)} = \frac{\text{Accounts Receivable}}{\text{Credit Sales}} \times 365 \quad (2)$$

The creditor's payment period or number of days account payables refers to the number of days taken before creditors are paid after purchases [9]. The lower the creditors' payment period the better. This is because a higher ratio will indicate a degree of insolvency and it sends a wrong signal to creditors. It is computed as;

$$\text{Creditors Payment Period (CPP)} = \frac{\text{Accounts Payable}}{\text{Credit Purchases}} \times 365 \quad (3)$$

The combination of the inventory turnover in days, average collection period and creditors payment period makes up the working capital cycle. According to Arnold [8] the shorter this cycle, the fewer resources are needed by the company. So the longer the cycle is the higher will be the investment in the working capital. But also a longer cycle could increase sales, which could lead to higher profitability. But this longer cycle, will also lead to higher investment and could rise faster than the benefits of the higher profitability. Many authors like Shin and Soenen [10] have argued that it is important for firms to shorten the CCC, as managers can create value for their shareholders by reducing the cycle to a reasonable minimum [11].

2.3. Working capital management and risk

All the decisions of the financial manager are assumed to be geared towards the maximization of shareholders wealth, and working capital decisions are no exception. Accordingly, risk return trade-off characterizes each of the working capital decision. There are two types of risks inherent in working capital management (WCM), namely: liquidity risk and risk of opportunity loss [5].

Liquidity risk is the non-availability of cash to pay a liability that fall due. It may happen only on certain days. Even so, it can cause not only a loss of reputation but also make the work condition unfavourable for getting the best terms on transaction with the trade creditors.

The other risk involved in WCM is the risk of opportunity loss, that is, the risk of having too little inventory to maintain production and sales or the risk of not granting adequate credit for realising the achievable level of sales. In other words, it is the risk of not being able to produce more or sell more or both and, therefore, not being able to earn the potential profit, because there were not enough funds to support higher inventory and book debts.

Thus, it would not be out of place to mention that it is only theoretical that the current assets could all take zero values. Indeed, it is neither practicable nor advisable in practice; all current assets take positive value, because firms seek to reduce working capital risk. However, the greater the funds locked up or deployed in current assets, the higher is the cost of the funds employed and therefore the lesser the profit [5]. Hence, the need for managers of working capital to effectively and efficiently balance the two sides' i. e. risk and return.

2.4. Rational choice theory (RCT)

This theory makes the assumption that "if individuals behave rationally, the collective will benefit". The basic principle of RCT is that an actor makes rational choices among various alternatives after the costs and benefits of each alternative have been weighted. These choices are based on a hierarchy of preferences (values and utilities) leading to choosing the option that maximizes the net benefit to the actor, while having the highest probability of occurrence. In other words, an actor chooses that option that is most in his self-interest.

Applied to working capital management, Managers will gather and evaluate all the information available before making decisions. They would calculate the net benefits of all the different options and choose the option that maximizes their desired outcome, based on their preferences on risk and profitability. Practically, this implies that managers will attempt to keep the receivables conversion period and the inventory conversion period as low as possible, whereas they will try to maximize payables conversion period.

2.5. Empirical studies on working capital management and profitability

Many researchers have studied working capital from different views and in different environments. However, the following ones that proved to be very useful will be reviewed. In a study conducted by Azam and Haider [12] to investigate the impact of working Capital Management on firms' performance for non-financial institutions listed in Karachi Stock Exchange using Canonical Correlation Analysis for identifying the

relationship between working capital management and firms' performance, it was discovered that working capital management has significant impact on firms' performance and the study concluded that managers can increase value of share holder and return on asset by reducing their inventory size, cash conversion cycle and net trading cycle.

Dong [13] reported that the firms' profitability and liquidity are affected by working capital management. In his analysis, pooled data are selected for carrying out the research for the era of 2006-2008 for assessing the companies listed on the stock market of Vietnam. He focused his study on variables such as profitability, conversion cycle and its related elements and the relationship that exists between them. From his study, he concluded that the relationships among these variables are strongly negative. This denote that decrease in the profitability occur due to increase in cash conversion cycle.

Ganesan [14] selected telecommunication equipment industry to study the effectiveness of working capital management on profitability. The sample used in his study was 349 telecommunication equipment companies covering the period 2001 to 2007. Data was gathered from the annual financial statements of the companies. The statistical tests used included correlation, regression analyses and Analysis of variance (ANOVA). The results showed that days of the working capital negatively affects the profitability of these firms.

Shin and Soenen [10] studied the relationship between working capital management and value creation for shareholders. In their study, they used net-trade cycle (NTC) as a measure of working capital management. NTC is basically equal to the cash conversion cycle (CCC) where all three components are expressed as a percentage of sales. They examined this relationship by using correlation and regression analysis. Using a COMPUSTAT sample of 58,985 firm and years covering the period 1975-1994, they found a strong negative relationship between the length of the firm's net-trade cycle and its profitability. Based on the findings, they suggest that one possible way to create shareholder value is to reduce firm's NTC.

To test the relationship between working capital management and corporate profitability, Deloof [1] used a sample of 1,009 large Belgian non-financial firms for a period covering 1992-1996. By using correlation and regression tests, he found significant negative relationship between gross operating income and the number of days accounts receivable, inventories, and accounts payable of Belgian firms. Based on the study results, he suggests that managers can increase corporate profitability by reducing the number of day's accounts receivable and inventories.

Lazaridis and Tryfonidis [15] conducted a cross sectional study by using a sample of 131 firms listed on the Athens Stock Exchange for the period covering 2001 – 2004. The data collected was analysed using correlation and regression tests. They found out that statistically significant relationship exist between profitability, measured through gross operating profit, and the cash conversion cycle and its components (accounts receivables, accounts payables, and inventory). Based on the results, they suggested that managers can create profits for their companies by correctly handling the cash conversion cycle and by keeping each component of the conversion cycle (accounts receivables, accounts payables, and inventory) at an optimal level.

Falope and Ajilore [16] used a sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005. Their study utilized panel data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They found a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of fifty Nigerian firms listed on the Nigerian Stock Exchange. Furthermore, they found no significant variations in the effects of working capital management between large and small firms.

In summary, the literature review indicates that working capital management impacts on the profitability of the firm. This study therefore intends to add to the existing body of knowledge by domesticating the study of the relationship between working capital management and profitability in Nigeria and to use more recent data as it was observed by the researchers that there exist only few studies in Nigeria in recent times that have used such data.

3. Methodology

This study empirically investigated the effect of working capital management on profitability of selected listed manufacturing companies covering a period of eight years. In view of this, the study therefore adopted an analytical research design method. Secondary data gathered from the annual reports of six manufacturing companies in Nigeria covering the period between 2006 and 2013 was used for the study.

The population of the study covers the entire listed manufacturing companies in Nigeria totalling 135. However, a purposive sampling technique was adopted in selecting 6 companies into the sample based on their ranking as part of the twenty most capitalised companies on the Nigeria stock exchange. The companies selected are Dangote Sugar Refinery Plc, Flour Mill Company of Nigeria, Guinness Nigeria Plc, Lafarge Wapco Plc, Nestle Plc and Unilever Plc.

The paper adopted econometric approach to test the effect of working capital management on profitability by employing the multiple regression analysis of the Panel Least Square Method using E- Views 7.0 package. This statistical technique was selected as a result of the nature of data and its ease of use. Panel normality test, multicollinearity test and Hausman test were performed on the data to determine the normality of the variables, multi correlation between independent variables of the model and to make a choice between the fixed effect model (FEM) and random effect model (REM) approaches to panel regression respectively.

The Panel Normality Test is a test that is carried out to test whether the variables are normally distributed [17]. Thus, the normality test was performed to test the hypothesis that the variables are not normally distributed and the probability value of the Jarque-Bera statistics was utilized for this purpose. The decision rule is to accept the null hypothesis that states that the variables are not normally distributed when p-value of the Jarque-Bera statistics is < 0.05 . Furthermore, the correlation between the independent variables was used to test whether the problem of multicollinearity exist between the independent variables. This is because multicollinearity problem is said to exist when the correlation between two independent variables is equal to or greater than 70% [18].

The Hausman specification test tests the null hypothesis that the random effect model is the preferred model to be used. The decision rule is to accept the null hypothesis where the p-value of the cross section random effect is greater than the 0.05 absolute Mackinnon value. If the null hypothesis must be rejected, the fixed effects model is the model to use [17].

3.1. Model specification

The general form of the model used for this study is as follows;

$$ROI = f \{ ACP, CPP, ITID \} \quad (4)$$

The explicit form of equation (1) above is represented as follows;

$$ROI = \alpha + \beta_1 DCP + \beta_2 CPP + \beta_3 ITID + \mu \quad (5)$$

Where

ROI = Return on Investment

ACP = Average Collection Period

CPP = Creditors Payment Period

ITID = Inventory Turnover

α = Intercept of the regression line

β (1 to 3) = Coefficient of independent variables

μ = the Error Term

Return on Investment (ROI) was used in this study to proxy profitability. This stands as the dependent variable in the model. The formula used in arriving at the ROI value is;

$$ROI = \frac{\text{Profit After Tax}}{\text{Total Asset}} \quad (6)$$

Total Asset

On the other hand, the independent variables of Average Collection Period (DCP), Inventory Turnover in Days (ITID) and Creditors Payment Period (CPP) were used as a proxy of working capital management.

The apriori expectation of the model is $\beta_1 < 0$, $\beta_2 < 0$ and $\beta_3 < 0$. This means that a negative relationship is expected between the dependent variable (ROI) and independent variables (DCP, ITID and APP).

4. Presentation, analysis and interpretation of result

4.1. Panel normality test

The following are the result of the panel normality test carried out on the variables of the model.

Table 4.1: Result of panel normality test

Variable	ROI	DCP	CPP	ITID
Jarque-Bera	4.3883	418.9021	95.9380	6.9997
P-Value	0.8153	0.0000	0.0000	0.0302

Source: Author’s computation, 2014

Table 4.1 presents the result of the normality test conducted. The result indicated that the p-value of the Jarque-Bera statistics for all the variables except ROI is less than 0.05. This shows that DCP, CPP and ITID are not normally distributed. Thus, the hypothesis that DCP, CPP and ITID are not normally distributed is accepted. Thus, DCP, CPP and ITID will be transformed into their logarithm form as follows:

LNDCP = logged value of debtor collection period

LNCPP = logged value of creditor payment period

LNITID = logged value of inventory turnover

4.2. Multicollinearity test

The result for the spearman rank correlation carried out is presented in Table 4.2

Table 4.2: Spearman rank correlation

	LNDCP	LNCPP	LNITID
LNDCP	1		
LNCPP	0.5432	1	
LNITID	-0.1917	0.1648	1

Source: Author’s computation, 2014

Table 4.2 shows the result of the correlation among the independent variables. The result revealed that the correlation between debtors’ collection period and creditors’ payment period is positive (0.5432). Similarly, the relationship between creditors’ payment period and inventory turnover is positive (0.1648). However, the

correlation between debtors' collection period and inventory turnover is negative (-0.1917). Therefore, this result revealed the absence of the problem of multicollinearity in the model because the correlations between the independent variables are all less than 70% [18].

4.3. Hausman specification test

The results of Hausman test conducted for the Model is presented in table 4.3

Table 4.3: Hausman test result

Correlated Random Effects		
Test cross-section random effects		
Test Summary	Chi-Sq. Stat	P-Value
Cross-section random	4.8854	0.0180

Source: Author's computation, 2014.

The null hypothesis for the Hausman test is that the random effect model is the preferred model to be used. The p-value of the test for the model which is 0.0180 is statistically significant, therefore the hypothesis is rejected. Therefore, for the purpose of the model, the REM is not appropriate and FEM is preferred.

4.4. Data analysis

This presents an analysis of the regression carried out for the study

Table 4.4: Regression analysis result

Dependent Variable	ROI		
Explanatory Variables	Coefficient	t- statistics	Prob.
C	1.1939	5.3775	0.0000
LNDPC	-0.0494	-2.3417	0.0244**
LNCPP	-0.0472	-1.8022	0.0792***
LNITID	-0.1390	-3.3728	0.0017*
R- Squared	0.7019		
Adjusted R- Squared	0.6408		
F- statistic	11.4798		0.0000
Durbin Watson stat	1.24		

*Significant at 1% level **Significant at 5% level ***Significant at 10% level.

Source: Researcher's computation (2014)

Table 4.4 revealed that the result of the panel regression for the model has a R^2 value of 0.70 which suggested a 70% explanatory ability of the independent variables (LNDCP, LNCPP and LNITID) of the model for the systematic variations in the dependent variable (ROI) with an adjusted R^2 of 0.64. The p-value of the f-stat (0.0000) indicated that the hypothesis of a significant linear relationship between the dependent and independent variables could not be rejected at 1% level. The result confirms the a priori expectation of the model since the coefficients of debtors' collection period, creditors' payment period and inventory turnover days are all less than zero. The independent variables are all significant at acceptable level of significance thus establishing the relevance of the independent variables to the determination of profitability in manufacturing companies. The coefficient of debtors' collection period of -0.05 indicates that a unit increase in the average collection period of manufacturing companies will lead to ₦0.05 decrease in their profitability and vice versa. Similarly, the coefficient of creditors' payment period of -0.05 indicates that a unit increase in the creditors' payment period of manufacturing companies will lead to ₦0.05 reduction in their profitability and vice versa. Also, the coefficient of inventory turnover days of -0.14 indicates that a unit increase in the inventory turnover days of manufacturing companies will lead to ₦0.14 reduction in their profitability. The coefficient of intercept of the model of 1.19 shows that fluctuations in profitability of manufacturing companies to the tune of ₦1.19 is attributable to other variables outside the ones being studied.

4.5. Summary of Findings

The result showed that there is a negative relationship between the profitability of manufacturing companies and average collection period. The practical implication of this is that as the firms' makes effort to reduce the number of days their accounts receivables remain uncollected, it boost their profitability. This is because sales are converted into cash that can be reinvested to generate more profit. Thus the null hypothesis that states that debtors' collection period has no effect on the profitability of manufacturing companies is hereby rejected.

Furthermore, the result indicated that there is a negative relationship between the profitability of manufacturing companies and the inventory turnover days. This implies that, the lower the inventory turnover days, the higher the profitability of the manufacturing companies. Put differently, this means that, the faster the firm is able to convert its inventory at hand to cash, the greater are its chances to boost its profitability. Hence, the null hypothesis that states that inventory turnover has no effect on the profitability of manufacturing companies is hereby rejected.

Similarly, the result depicted a negative relationship between profitability of manufacturing companies and their creditors' payment period. By this, the more prompt the firms' are in making payment to their suppliers, the more credit worthiness and opportunity for higher supplies from their suppliers. This in no doubt will help to boost their profitability. The firms should only stretch payment to creditors as much as possible within the credit period so as to make funds available for other investment opportunities. Finally, the null hypothesis that states that creditors' payment period has no influence on the profitability of manufacturing companies is hereby rejected.

Therefore, it is evident that there exist an inverse relationship between working capital management and the profitability of manufacturing companies. This result is in conformity with outcome of prior studies conducted by [15] and [11].

5. Conclusions

This paper examined the effect of working capital management on profitability of selected listed manufacturing companies. From the findings of the study, it became apparent that there exist an inverse relationship between the components of working capital and profitability. It can therefore be concluded that working capital management has significant impact on profitability of manufacturing companies. This means that, managers of manufacturing companies can create more profits for their companies and share holders by keeping each different component of working capital to a possible optimum level.

5.1. Recommendations

Based on these findings, the study puts forward the following recommendations: (i) Companies should put in place proper inventory management policies to ensure that an optimal level of inventory is kept. (ii) managers should ensure that optimum cash balance is held at any point in time. (iii) Managers should ensure that sound credit collection policies are instituted within the organisation. (iv) Efforts should also be made to ensure that payments to creditors are not stretched beyond the credit period. (v) Finally, companies should make concerted effort to manage their cash, accounts receivables, inventories and accounts payable with a view to reducing the cash conversion cycle so as to increase their profitability

References

- [1] M. Deloof. "Does Working Capital Management Affect Profitability of Belgian firms?" *Journal of Business Finance and Accounting*, vol. 30(5), pp. 573-588, 2003.
- [2] A. H. Solanki. "Working Capital Management in Selected Small Scale Industries of Gujarat State". Phd. thesis, Saurashtra University, India, 2009.
- [3] C. H. Ashraf. "The Relationship between Working Capital Efficiency and Profitability". *Journal of Accounting and Management*, vol. 2(3), pp. 76-85, 2012.
- [4] J. F. Weston and E. F. Brigham. *Essentials of Managerial Finance*. Illinois: The Dryden Press, 1977.
- [5] L. Adamu. BMH 745, Class lecture, Topic: "Working Capital Management." Lr 01, National Open University of Nigeria, Lagos, Sep. 17, 2010.
- [6] C. Paramasivan and T. Subramanian. *Financial Management*. New Delhi: New Age International Ltd, 2009.
- [7] M. Mekonnen. "The Impact of Working Capital Management on Firms' Profitability" Masters thesis. Addis Ababa University. Ethiopia, 2011.
- [8] G. Arnold. *Corporate Financial Management*. 4th ed. Essex: Prentice Hall, 2008.
- [9] A. K. Kurfi, A. K. Principles of Financial Management. Kano: Benchmark Publishers Limited, 2006.

- [10] H. H. Shin and L. Soenen. "Efficiency of Working Capital Management and Corporate Profitability". *Financial Practice and Education*, vol. 8(2), pp. 37-45, 1998.
- [11] A. K. Sharma and S. Kumar. "Effect of Working Capital Management on Firm Profitability: Empirical Evidence from India". *Global Business Review*, vol. 12(1), pp. 159 – 173, 2011.
- [12] M. Azam and S. I. Haider. "Impact of Working Capital Management on Firms' Performance: Evidence from Non – Financial Institutions of KSE – 30 Index". *Interdisciplinary Journal of Contemporary Research in Business*, vol. 3(5), pp. 481-492, 2011.
- [13] H. P. Dong. (2010), "The Relationship between Working Capital Management and Profitability." *International Research Journal of Finance and Economic*, vol. 49(5), pp. 473-483, 2010.
- [14] A. Ganesan. "An Analysis of Working Capital Management Efficiency in Telecommunication Equipment Industry". *Rivier Academic Journal*, vol. 3(2), pp. 1-10, 2007.
- [15] I. Lazaridis and D. Tryfonidis. "Relationship Between Working Capital Management and Profitability of Listed Companies in the Athens Stock Exchange". *Journal of Financial Management and Analysis*, vol. 19(1), pp. 26-25, 2006.
- [16] O. I. Falope and O. T. Ajilore, O. T. "Working Capital Management and Corporate Profitability: Evidence from Panel Data Analysis of Selected Quoted Companies in Nigeria". *Research Journal of Business Management*, vol. 3(1), pp. 73-84, 2009.
- [17] D. N. Gujarati and D. C. Porter. *Basic Econometrics*. New York: McGraw-Hill, 2009.
- [18] C. Drury. *Management & Cost Accounting*. 7th ed. London : Cengage learning, 2008.

Appendices

Appendix I: Result of Normality Test

	ROI	DCP	CPP	ITID
Mean	0.235225	37.80959	93.82128	81.97369
Median	0.229754	34.27998	84.50024	77.78665
Maximum	0.611737	242.1832	394.3373	169.2893
Minimum	-0.061905	1.399521	19.29211	19.38062
Std. Dev.	0.131704	39.85523	69.25071	30.11818
Skewness	0.628671	3.143300	1.917250	0.872645
Kurtosis	3.783090	16.03571	8.767636	3.673670
Jarque-Bera	4.388277	418.9021	95.93801	6.999736
Probability	0.111455	0.000000	0.000000	0.030201
Sum	11.29079	1814.860	4503.421	3934.737
Sum Sq. Dev.	0.815261	74656.65	225396.1	42633.93
Observations	48	48	48	48

Appendix II: Result of Hausman Specification Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq.		
	Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.885362	3	0.01804

Appendix III: Spearman Rank Correlation Result

	ROI	LNDCP	LNCPP	LNITID
ROI	1.000000	0.180743	0.207447	-0.134173
LNDCP	0.180743	1.000000	0.543205	-0.191706
LNCPP	0.207447	0.543205	1.000000	0.164785
LNITID	-0.134173	-0.191706	0.164785	1.000000

Appendix IV: Regression Analysis Result

Dependent Variable: ROI

Method: Panel Least Squares

Date: 12/10/14 Time: 18:34

Sample: 2006 2013

Periods included: 8

Cross-sections included: 6

Total panel (balanced) observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.193943	0.222027	5.377476	0.0000
LNDCP	-0.049384	0.021089	-2.341722	0.0244
LNCPP	-0.047157	0.026166	-1.802213	0.0792
LNITID	-0.138961	0.041200	-3.372832	0.0017

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.701924	Mean dependent var	0.235225
Adjusted R-squared	0.640780	S.D. dependent var	0.131704
S.E. of regression	0.078937	Akaike info criterion	-2.072978
Sum squared resid	0.243010	Schwarz criterion	-1.722128
Log likelihood	58.75147	Hannan-Quinn criter.	-1.940391
F-statistic	11.47989	Durbin-Watson stat	1.240004
Prob(F-statistic)	0.000000		

Appendix IV: Data Used for the Study

SN	Company	Year	ROI	ITID	DCP	CPP
1	Dangote Sug	2006	0.4501	19.3806	23.9203	222.2039
		2007	0.6117	31.6959	24.5976	48.1873
		2008	0.5672	67.8669	24.4415	64.3570
		2009	0.3504	83.4636	26.3410	80.6442
		2010	0.2693	81.0429	242.1832	49.7067
		2011	0.1534	94.1613	23.9520	65.8703
		2012	0.2800	61.2277	84.5314	111.3015
2	Flour Mills	2006	0.0761	56.5158	14.3196	38.0017
		2007	0.1237	57.7576	13.1445	32.8268
		2008	0.0834	59.4107	13.3164	24.5003

		2009	0.0927	56.7841	9.4086	21.4649
		2010	0.1912	59.2020	9.9082	21.4361
		2011	0.1689	57.9001	9.9323	20.6660
		2012	0.0825	58.9399	67.6846	42.7284
		2013	0.0612	73.9079	82.4218	66.4404
3	Guinness	2006	0.1757	169.2893	21.9829	242.4047
		2007	0.1981	135.9866	39.0538	153.0307
		2008	0.2116	131.8866	34.4507	148.7398
		2009	0.2681	134.3751	37.2780	131.6948
		2010	0.2651	95.5982	44.2414	127.5333
		2011	0.2877	92.4535	53.5237	126.4516
		2012	0.2835	78.5873	29.7693	39.5513
		2013	0.2321	68.1785	45.1207	133.0836
4	Lafarge	2006	0.2663	84.5929	1.4663	22.5356
		2007	0.2288	134.1455	1.5344	23.0785
		2008	0.1963	138.3265	1.3995	19.2921
		2009	0.0950	142.3802	1.4834	28.8370
		2010	0.0695	111.4538	4.7420	25.5274
		2011	0.0764	87.9649	3.7631	44.5347
		2012	0.1736	79.8791	2.4853	123.3082
		2013	0.1941	77.7317	4.6368	99.2228
5	Nestle	2006	0.4336	87.7947	16.5421	69.4967
		2007	0.3983	68.5998	26.9835	69.3321
		2008	0.4068	74.8078	37.2737	98.7104
		2009	0.3115	97.7209	34.1092	83.5470
		2010	0.3023	66.6803	37.5852	61.2276
		2011	0.2341	63.0021	40.9228	85.4535
		2012	0.2921	48.1898	42.0870	94.1194
		2013	0.4346	63.5911	47.4147	145.6203
6	Unilever	2006	-0.0619	105.6471	55.1435	394.3373
		2007	0.1254	82.2536	54.4096	108.9709
		2008	0.1904	69.4051	69.3124	130.2583
		2009	0.2982	66.3821	55.7863	97.6116
		2010	0.2625	78.1516	40.7928	118.2445
		2011	0.2539	81.0070	37.4263	140.1027
		2012	0.2202	77.8416	37.0447	134.9120
		2013	0.1743	67.9222	49.5354	170.2308

Source: Authors Computation, 2014