IOSR Journal of Business and Management (IOSR-JBM)
e-ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 17, Issue 2.Ver. III (Feb. 2015), PP 93-103
www.iosrjournals.org

Effect of Working Capital Management on Corporate Performance: Cross-Sectional Evidence from Nigeria

[1]Kolapo, F.T., [2]Oke, M.O. (Ph.D), [3]Ajayi, L.B. (Ph.D)
[1]*Department of Banking and Finance Ekiti State University, Ado Ekiti*
[2]*Department of Banking and Finance Ekiti State University, Ado Ekiti*
[3]*Department of Banking and Finance, Ekiti State University, Ado-Ekiti*

Abstract: *The study evaluates the effect of working capital management (WCM) on corporate performance of selected listed firms in Nigeria. The period under review spans from 2001-2010. The two models built specifies Return on Assets (ROA) and Gross Working Capital (GWC) as being explained by the following measures of WCM: Inventory Turnover in Days (ITD), Average Collection Period (ACP), Average Payment Period (APP) and Cash Conversion Cycle (CCC). Following the panel data approach, the findings reveal that WCM have predictive ability on both ROA and GWC; however, none of the measures of WCM has significant influence on GWC while APP and CCC exert significance on ROA. The study identifies that WCM significantly and positively impact on corporate performance through its effect on profitability which represents a standard criterion to appraise the performance of a firm.*

Keywords: *Working Capital Management, Return on Assets, Gross Working Capital, Fixed Effect Estimates, Panel Data, Nigeria*

I. Introduction

Working Capital Management (WCM) is a major aspect of corporate financial management because of its strong nexus with the liquidity, profitability and solvency objectives of an organization. The effectiveness and efficiency of the top level management largely depends on its ability to ensure a sound working capital management. According to Ganesan (2007), WCM is the management of short-term financing requirements of a firm. This includes maintaining optimum balance of working capital components-receivables, inventory and payables with the resultant effects on the day-to-day operations of the business.

Working capital provides the avenue for a firm to meet its short-term obligations. Shin and Soenen (1998) opined that an organization's working capital is the result of the time lag between the expenditure for the purchase of raw materials and the collection from the sale of finished goods. The working capital is a trading capital, not retained in the business in a particular form for longer than a year (Padachi, 2006). It provides the liquidity base for an organization and should be managed in such a way that the profitability of the organization is not in jeopardy. Hence, there is a need for an efficient working capital management.

Eljelly (2004) stated 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 short-term obligations on one hand and avoid excessive investment in these assets on the other hand. The cognizance of an effective working capital management cannot be overemphasized as it affects the profitability and market value of a firm. A standard measure of efficiency in working capital management is the cash conversion cycle (CCC). Cash conversion cycle is the duration it takes cash to be transformed into goods and converting goods back to cash. A lower duration in the CCC implies that more funds are available to be invested in working capital.

Nwankwo and Osho (2010) viewed efficient working capital management as a continuous process that involves a number of day-to-day operations and decisions that determine the firm's level of investment in each type of current assets, and the level of short-term and long-term debts the firm will use to finance its assets. The success of a corporate entity depends on its ability to overcome the conflict that arises between liquidity and profitability. A veritable corporate strategy to deal with this conflict is an efficient working capital management which establishes trade-off and increases the chance of achieving the liquidity and profitability objectives simultaneously .This would result in the value of the firm being maximized and on the long run and ensure the survival of the firm..

The amount of the funds to be invested in a firm's working capital is a recurring source of concern for corporate managers due to the consequential effect of excessive or inadequate working capital. Hence, optimal working capital is needed. Several recent business studies suggest that corporations, on average, over-invest in working capital (Moussawi, LaPlante, Kieschnick & Baranchuk, 2006). The implication of over-investing in working capital is that idle funds earn no return and this inevitably exerts a negative pressure on the financial health of a firm. On the other hand, a firm with inadequate working capital would be incapable of withstanding financial shocks consequently stagnating growth and denting the corporate image. In the light of these, it is

pertinent to ensure an efficient working capital management which is a crucial ingredient for corporate performance.

This study aims to examine the effect of working capital management on the corporate performance of some selected non-financial firms quoted on the Nigerian Stock Exchange (NSE). The significance of the study is borne out of the fact that the empirical results would shed light on how working capital management affects corporate performance and provide basis to make policy recommendations. Also, it would assess the efficiency of the firms in working capital management. The period under review spans from 2001-2010. This study is limited to eight firms, one firm each selected purposively from eight industrial groupings quoted on the Nigerian Stock Exchange (NSE). These companies- Guinness Nigeria Plc., Berger Paints Nigeria Plc., GlaxoSmithKline Nigeria Plc. Julius Berger Nigeria Plc., VitaFoam Nigeria Plc. Total Nigeria Plc. Flour Mills Nigeria Plc and John Holt Nigeria Plc- have operated in Nigeria for more than thirty years and are major players in their respective industries and accounts for over 50% of the market share in these industries. Section one dealt with introduction, the next section deals with the literature review, section III discusses the methodology; section IV provides the empirical findings, and section V presents the conclusion.

II. Literature Review

Working capital management (WCM) plays an important role in the financing of a business. It is not only to immunize corporations from financial upheaval but can be managed strategically to improve competitive position and profitability (Darun, Roudaki & Radford, 2008). Ibenta (2005) defined working capital management as all aspects of the administration of both current assets and current liabilities. WCM aims at maximizing the value of a firm and increasing shareholders' wealth.

Working capital entails the firm's total current assets. These assets must be sufficient to allow daily operations. Firms with too few current assets may incur shortages and difficulties in maintaining smooth operations (Van Horne & Wachowicz, 2000). Therefore, there is the need for an efficient working capital in every organization. Efficient working capital is based on the decision of the management of the company in determining the volume of current assets over current liabilities that the company is prepared to have in the company's balance sheet (Nwankwo, 2005).

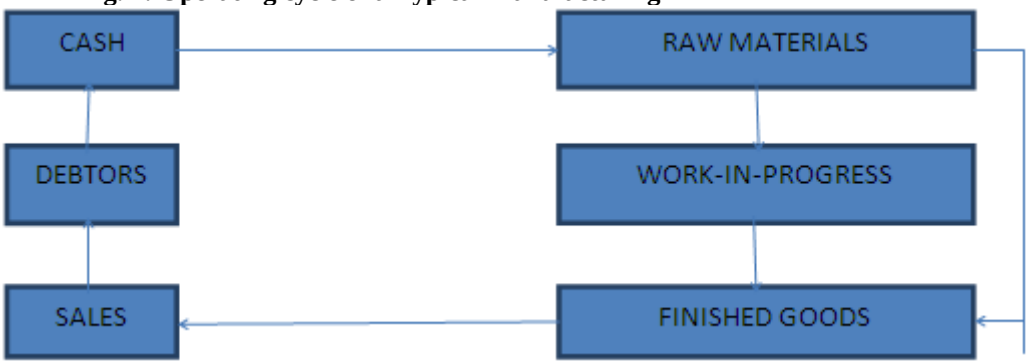
The two major concepts of working capital are: Gross working capital concept and Net working capital concept. The Gross Working Capital is the firm's total investment in current assets. This concept focuses attention on optimum investment in current assets and its financing. On the other hand, Net Working Capital is the sum when short-term liabilities are extracted from the current assets (Sen & Oruc, 2009). It shows the liquidity position of the firm and suggests the extent to which the working capital need may be financed by prominent sources of fund.

There is no gainsaying that working capital is essential for the survival of a business. A firm needs working capital because the production, sales, account receivables, and account payables are not instantaneous. In other words, the need for working capital is necessitated because of the firm's operating cycle. Pandey (1979) stated that operating cycle is the time required to complete the following sequential events in a typical manufacturing firm;

i. Conversion of cash into raw materials
ii. Conversion of raw materials to work-in-progress
iii. Conversion of work-in-progress to finished goods
iv. Conversion of finished goods into debtors through sales.
v. Conversion of debtors into cash.

The diagrammatic illustration of the operating cycle is shown in Fig. 1

Fig. 1: Operating cycle of a Typical Manufacturing firm



Source: Pandey (1979), Financial Management.

An organization should maintain a sound working capital position. It should have adequate working capital to meet short-term obligations as they arise and ensure business operations devoid of liquidity shortages. Factors that determine working capital adequacy include; nature and size of the business, working capital cycle, business fluctuation, availability of credit, and growth and expansion of a firm.

Nwankwo (2005) stated three theories of working capital which includes the conservative approach, the aggressive approach, and moderate approach.

Conservative Approach: This is a matching approach which calls for the financing fixed assets with long-term funds and current assets with short-term funds. According to Nwankwo and Osho (2010), the approach yields a lower expected profitability resulting in a lower risk and it increases the company's net working capital situation but the firm will be short of funds to be used in other productive activities.

Aggressive Approach: It calls for the financing fixed assets with long-term funds while a part of it augments short term funds to provide stable financing for current assets particularly of sensitive nature. A company adopting this approach holds a small portion of current assets in relation to the firm's total assets.

Moderate Approach: The approach attempts to strike a balance between the conservative and the aggressive approaches. The implication of this approach is that it yields moderate expected profitability resulting in moderate risk, and the working capital position of the firm will be in optimum balance.

Review of Empirical Studies

Empirical studies to provide detailed insight on the working capital management of firms are reviewed. Nwankwo and Osho (2010) examined efficient working capital management as a pre-requisite to corporate survival and growth. Using the desk research method, they found out that the risk of changes in demand or technology leaves surplus stock unsalable and the risk of inability to settle financial obligations as at when due, and excess liquid capital tied up unproductively. Raheman and Nasr (2007) investigated the effect of working capital management on the profitability of firms. A sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of 6years from 1999-2004 was used. The effect of the different variables of working capital management on the net operating profitability was analyzed employing Pearson's correlation and regression analysis. The results show that there is a strong negative relationship between variables of the working capital management and profitability of the firm.

Falope and Ajilore (2009) provided empirical evidence about the effects of working capital management on profitability performance for a panel comprising fifty Nigerian quoted non-financial firms for the period 1996-2005. The study used panel data econometrics in a pooled regression. The study found a significant negative relationship between net operating profitability and the average payment period, and cash conversion cycle. They also found no significant variations in the effects of working capital management between large and small firms. Ganesan (2007) analyzed working capital management efficiency of firms from telecommunications equipment industry. The relationship between working capital management efficiency and profitability was examined using correlation and regression analysis. Using a sample of 443 annual financial statements of 349 telecommunication equipment companies covering the period 2001-2007, the study revealed that "days working capital" is negatively related to profitability, however it does not significantly impact on the profitability of the firms.

Padachi (2006) examined the trends in working capital management and its impact on firms' performance. Return on total assets was proxy to measure profitability while working capital management was represented with inventories days, accounts receivable days, accounts payable days, and cash conversion cycle and sample of 58 Mauritian small manufacturing firms, using panel data analysis for the period 1998-2003 forms the methodology. The regression results show that high investment in inventories and receivables is associated with lower profitability. The findings also revealed an increasing trend in the short term component of working capital financing. Sen and Oruc (2009) determined the relationship between the efficiency level of firms being traded in Istanbul Stock Exchange (ISE) in working capital management and their return on total assets. 3 month-table data declared by 49 production firms between 1993 and 2007 was obtained and the two models developed analyzed using panel data analysis. The results showed that there is a significant negative relationship between cash conversion cycle, net working capital level, current ratio, account receivable period, and inventory period demonstrated on the return on total assets.

Afza and Nazir (2007) investigated the relationship between aggressive and conservative approach to working capital management and profitability as well as risk for 208 Pakistani firms listed on Karachi Stock Exchange for the period of 1998-2005 using the Ordinary Least Square (OLS) regression analysis. The empirical result showed a negative influence of the working capital policies on the profitability of the firms. Deloof (2003) examined whether working capital management affects the profitability of Belgian firms employing correlation and regression analysis, found a significant negative relationship between gross operating income and the number of days for account receivables, inventories, and account payable of the firms. He

stressed that the negative relationship existing between account payable and profitability is in conformity with the perception that less profitable firms delay payments.

Ghosh and Maji (2003) assessed the effect of efficiency in working capital management on Indian cement companies between the period spanning 1992 to 2002. Working capital management efficiency was measured using the performance utilization and overall efficiency indices calculated rather than using some common working capital management ratios. The findings provided clear evidence that the Indian cement industry as a whole did not perform well enough during the period under review. Moussawi, LaPlante, Kieschnick and Baranchuk (2006) examined the factors that influence corporate working capital management. They found that industry practices, firm size, future firm sales growth, the proportion of outsider directors on a board, executive compensation, and CEO share ownership significantly influence the efficiency of a company's working capital management. Their evidence suggested that managers respond positively to incentives and monitoring in managing their firm's working capital.

Uremadu, Egbide and Enyi (2012) showed an empirical evidence of the effect of working capital management and liquidity on corporate profits using a cross-sectional time series data for the period 2005-2006. Using descriptive statistics and OLS methodology, they found positive effect of inventory conversion period, debtors' collection period, creditors' payment period on corporate profitability measured by return on assets. Raheman, Sohail, Zulfiqar, Rehman, Komel and Bilal (2012) examined the impact of capital expenditure on working capital management in selected listed Pakistani Firms. Net liquidity Balance (NLB) and Working Capital Requirement (WCR) were used as proxies for working capital management. A sample of 35 firms listed on Karachi Stock Exchange was used and their data covering a period of seven years from 2004 to 2010 was analyzed using regression. A significant negative relationship was found between NLB, WCR and capital expenditure.

Bhunia and Das (2012) examined the relationship between the working capital management (WCM) and profitability of Indian private sector small-medium companies. Working capital management indicators and profitability indicators over the period from 2003 to 2010 were moulded as a linear regression analysis. The study revealed a small relationship between WCM including working capital cycle and profitability. Also, the multiple regression test confirmed a lower degree of association between WCM and profitability. Raheman, Afza, Qayyum and Bolda (2010) analyzed the impact of working capital management on firm's performance in Pakistan for the period 1998 to 2007. Balanced panel data of 204 manufacturing firms listed on Karachi Stock Exchange was used. The results indicate that the cash conversion cycle, net trade cycle and inventory turnover in days significantly affect the performance of the firms. The study concluded that firms in Pakistan adopt a conservative working capital management policy.

Appuhami (2008) investigated the impact of firms' capital expenditure on their working capital management using data collected from listed companies on the Thailand Stock Exchange. Net liquidity Balance and Working Capital Requirement proxy for working capital measurement and developed multiple regression models. The study provided empirical evidence that firms' capital expenditure has a significant impact on working capital management and the firms' operating cash flow has a significant relationship with working capital management. Malik and Bukhari (2014) investigated the impact of working capital management (WCM) on corporate performance in cement, chemical and engineering sectors of Pakistan. Using pooled ordinary least squares method to analyse data obtained from each firm's annual reports from 2007-2011, the results indicated that average payment period negatively and significantly relates with return on equity while cash conversion cycle positively and significantly relates with return on equity. Also, average collection period and operating cycle positively and insignificantly relates with return on equity while average age of inventory negatively and insignificantly relates with return on equity. The study concluded that WCM influences corporate performance.

III. Methodology

The primary aim of the study is to examine the effect of working capital management on the corporate performance of some selected non-financial firms listed on the First Tier segment of the Nigerian Stock Exchange (NSE). The study drew a sample of eight companies, one selected purposively from each industrial classification on the stock exchange listing. The secondary data utilized are obtained from the NSE fact books and the Annual Audited Accounts of these firms.

Model Specification

Two models adopted for this study are based on previous empirical studies. The first model (Model 1) is consistent with the model of Uremadu, Egbide and Enyi (2012). Model 1 tests for the effect of Inventory Turnover in Days (ITD), Average Collection Period (ACP), Average Payment Period (APP) and Cash Conversion Cycle (CCC) on the profitability of the selected firms measured with Return on Assets (ROA).
The functional relationship for Model 1 is stated as:

ROA=f (ITD, ACP, APP, CCC)

Model 1 can be expressed in equation form as;

$$ROA = \beta o + \beta_1 ITD + \beta_2 ACP + \beta_3 APP + \beta_4 CCC + e \ldots\ldots (1)$$

The *a priori* expectations for Model 1 are $\beta_1, \beta_2, \beta_3, \beta_4 > 0$; thus implying that all the explanatory variables are expected to be positively related to ROA (explained variable).

The second model (Model 2) is a slight modification of Model 1. It was built to exclude net operating profitability as the endogenous variable and introducing gross working capital (GWC) into the model. Model 2 is used to test for the efficiency in working capital management. The efficiency indices were represented by Inventory Turnover in Days (ITD), Average Collection Period (ACP), Average Payment Period (APP) and Cash Conversion Cycle (CCC).

The functional relationship for Model 2 is specified as:

$$GWC = f(ITD, ACP, APP, CCC)$$

Model 2 can also be expressed in equation form as:

$$GWC = \beta o + \beta_1 ITD + \beta_2 ACP + \beta_3 APP + \beta_4 CCC + e \ldots\ldots\ldots (2)$$

The *a priori* expectations for Model 2 are $\beta_1, \beta_2, \beta_3 > 0$ while $\beta_4 < 0$; thus, implying that all the explanatory variables except CCC are expected to be positively related to GWC (explained variable).

IV. Empirical Findings

1. Constant Effect Estimates

Model 1

Variable	Coefficient	P-value
C	-2.246587	0.0171*
ITD	0.151805	0.5241
APC	0.189494	0.3758
APP	-0.382421	0.1360
CCC	0.075197	0.3888

R^2= 0.137431 ***F-Statistic*** = 1.115290 **P-value (F-statistic) =** 0.369061

(*) denotes statistical significance at 5% significance level

Source: Authors' computation

Model 2

Variable	Coefficient	P-value
C	3.757170	0.0244*
ITD	0.180915	0.6761
ACP	0.700103	0.0574
APP	0.544687	0.2309
CCC	-0.218218	0.1738

R^2= 0.380697 ***F-Statistic*** = 4.610384 **P-value (F-statistic)** = 0.005073*

(*) denotes statistical significance at 5% significance level

Source: Authors' computation

The result of the pooled regression analysis as revealed in the above tables shows that the intercept (β_0) in Model 1 is negatively related to Return on Asset (ROA) and positively related to Gross Working Capital (GWC) in Model 2. The value of the intercept is -2.246587 and 3.757170 respectively; thus, implies that if all the explanatory variables are held constant, ROA reduces by 2.246587 units and GWC rises by 3.757170 units. The coefficient of Inventory Turnover in Days (ITD) has a direct relationship with ROA and GWC with a value of 0.151804 and 0.180915 units respectively and in consonance with the *a priori* expectations in both models. The implication is that if ITD increases by 0.151804 and 0.180915 units, ROA and GWC increase by the same units respectively. The coefficient of Average Collection Period (ACP) exhibits a direct relationship with the explained variables with a value of 0.189494and 0.700103 units; thus conforming to the *a priori* expectations in both models. This portends that if ACP increases by 0.189494 and 0.700103 units, ROA and GWC move upward by 0.189494 and 0.700103 units respectively.

The coefficient of Average Payment Period (APP) exhibits an inverse relationship with ROA and direct relationship with GWC with a value of -0.382421 and 0.544687 units and disagrees with the *a priori* expectation in only Model 1. This indicates that if APP increases by 0.382421 units in Model 1 and 0.544687 in Model 2, ROA decreases by 0.382421 units while GWC rises by 0.544687 units. The coefficient of Cash Conversion Cycle (CCC) gives 0.075197 and -0.218218 and in line with the *a priori* expectations in both models, this implies that an increase in CCC causes ROA to appreciate by 0.075197 units and depreciates GWC by 0.218218 units. Only the intercept in both models has statistical significance on the endogenous variable. The R^2 has low values of 0.137431 ≈ 0.14 and 0.380697 ≈0.38 in Model 1 and Model 2 respectively; hence, indicating that 14% and 38% of total variation in Return on Asset and Gross Working Capital can be explained by ITD, ACP, APP and CCC while 86% and 62% is accounted for by the stochastic variable/error term (*e*) in Model 1 and Model 2

respectively. The p-value of the F-statistics reveals that only Model 2 is statistically significant employing the pooled regression analysis.

2. Fixed Effect Estimates

Model 1

Variable	Coefficient	P-value
C	-3.108594	0.0418*
ITD	0.339440	0.1533
ACP	0.233728	0.2128
APP	-0.489744	0.0055*
CCC	0.167751	0.0273*

R^2= 0.764244 ***F-Statistic***= 7.131697 **P-value (F-statistic)** = 0.000065*
(*) denotes statistical significance at 5% significance level
Source: Authors' computation

Model 2

Variable	Coefficient	P-value
C	6.361001	0.0325*
ITD	0.351158	0.4410
ACP	0.229607	0.5234
APP	0.120857	0.6990
CCC	-0.006269	0.9639

R^2= 0.802725 ***F-Statistic***= 9.765766 **P-value (F-statistic)** = 0.000003*
(*) denotes statistical significance at 5% significance level
Source: Authors' computation

From the Fixed Effect results, APC and CCC including the intercept of Model 1 are statistically significant on ROA because the p-value is less than 0.05 while all the explanatory variables are statistically insignificant on GWC except the intercept of Model 2. The intercept in Model 1 indicates ROA decreases when all explanatory variables are held unchanged while the intercept of Model 2 shows that when all explanatory variables remain constant, GWC rises. In Model 1, only APP has an inverse relationship with ROA and not in conformity to the *a priori* expectation while the remaining explanatory (independent) variables are positively related to ROA. In Model 2, all the explanatory variables have a direct relationship with GWC except CCC and their outcome agrees to the *a priori* expectations. The R^2 is 0.764244≈ 0.76 and 0.802725≈ 0.80 in Models 1 and 2 respectively; hence, shows that 76% and 80% of total variation in ROA and GWC can be explained by ITD, APC, APP and CCC respectively while the remaining 24% and 20% is explained by the stochastic variable/error term. The p-value of F-statistic of both models indicates that they are statistically significant in explaining variations in their respective endogenous variables.

3. Random Effect Estimates

Model 1

Variable	Coefficient	P-value
C	-2.647734	0.0329*
ITD	0.259987	0.2073
ACP	0.215339	0.2131
APP	-0.492913	0.0042*
CCC	0.154824	0.0306*

R^2= 0.414454 ***F-Statistic***= 4.954650 **P-value =** 0.000065*
(*) denotes statistical significance at 5% significance level
Source: Authors' computation

Model 2

Variable	Coefficient	P-value
C	6.330907	0.0020*
ITD	0.277923	0.4306
ACP	0.340497	0.2690
APP	0.135606	0.6595
CCC	-0.046167	0.7145

R^2= 0.095573 ***F-Statistic***= 0.792541 **P-value (F-statistic)** = 0.539327
(*) denotes statistical significance at 5% significance level
Source: Authors' computation

From the random effect estimates, the results reveal that the intercept, APP and CCC are statistically significant at 5% level of significance in Model 1 while none of the explanatory variables is statistically significant in Model 2 except the intercept. The intercept in Model 1 is negatively related to ROA while it is positively related to GWC in Model 2. The relationships existing between the explained (dependent) variables i.e. ROA and GWC and the explanatory variables are in similar fashion to the fixed effect estimates. The R^2 in both models performs poorly as compared to that in the fixed effect result. The R^2 has a value of 0.414454 and 0.095573 in Models 1 and 2 respectively. Approximately 41.5% of total variation in ROA is accounted for by all the explanatory variables and the remainder of 58.5% is explained by the stochastic variable while approximately only 10% of total variation is accounted for by all the explanatory variables and a very substantial percentage of 90% is explained by the stochastic variable. The p-value of F-statistic shows that only Model 1 is statistically significant.

V. Conclusion

This study examined the effect of working capital management (WCM) on corporate performance for some selected firms in Nigeria. WCM measured with inventory turnover in days, average collection period, average payment period and cash conversion and its influence on return on assets and gross working capital was analysed. Due to the higher R^2 and the predictive ability of WCM on both return on assets and gross working capital in the fixed effect results, its empirical findings form the major outcome of this study; hence, the hub of the conclusion.

The results showed that average payment period and cash conversion cycle had significant impact on return on assets while none of the measures of WCM show no significant impact on gross working capital; thus, affirming that WCM influences profitability (a standard criterion to appraise corporate performance). Management of firms should handle working capital with keen interest if they desire to avoid shortfall in profits. All measures of WCM had a positive influence on profitability except average payment period while it was only cash conversion cycle that exerted a negative influence on gross working capital. Firms should increase their average payment period as this implies that their working capital base increases; therefore, there is free cash flow and more funds to exploit profitable opportunities. However, the increase should be done in such a way that it does not strain the relationship between the firms and its creditors.

References

[1]. Afza, T. & Nazir, M.S. (2007). Is It Better to be Aggressive or Conservative in Managing Working Capital?. Presented at Singapore Economic Review Conference (SERC), 1-15.

[2]. Appuhami, B.A. (2008). The Impact of Firms' Capital Expenditure on Working Capital Management: An Empirical Study across Industries in Thailand. *International Management Review*, 4(1), 8-21.

[3]. Bhunia, A. & Das, A. (2012). Affiliation between Working Capital Management and Profitability. *Interdisciplinary Journal of Contemporary Research in Business*, 3(9), 957-968.

[4]. Darun, M.R., Roudaki, J. & Radford, J. (2008). The Determinants of Working Capital Management Practices: A Malaysian Perspective. Research Proposal, Lincoln University, New Zealand.

[5]. Deloof, M. (2003). Does Working Capital Management Affects Profitability of Belgian Firms?. *Journal of Business Finance and Accounting*, 30(3&4), 573-587.

[6]. Eljelly, A. (2004). Liquidity-Profitability Trade-off: An Empirical Investigation in an Emerging Market. *International Journal of Commerce and Management*, 14(2), 48-61.

[7]. Falope, O.I & Ajilore, O.T. (2009). Working Capital Management and Corporate Profitability: Evidence from Panel Data Analysis of Selected Quoted Companies in Nigeria. *Research Journal of Business Management*, 3(3), 73-84.

[8]. Ganesan, V. (2007). An analysis of Working Capital Management Efficiency in Telecommunication Equipment Industry. *River Academic Journal*, 3(2), 1-10.

[9]. Ghosh, S.K & Maji, S.G. (2003). Working Capital Management Efficiency: A Study on the Indian Cement Industry. The Institute of Cost and Works Accountants of India.

[10]. Ibenta, S.N. (2005). *Investment Analysis and Financial Management Strategy*. Enugu: Institute for Development Studies.

[11]. Malik, S.M. & Bukhari, M. (2014). The Impact of Working Capital Management on Corporate Performance: A Study of Firms in Cement, Chemical and Engineering Sectors of Pakistan. Pakistan *Journal of Commerce and Social Sciences*, 8(1), 134-148.

[12]. Moussawi, R., LaPlante, M., Kieschnick, R. & Baranchuk, N. (2006). Corporate Working Capital Management: Determinants and Consequences. Available online at http://www.fina.org/SLC/Papers/cwcmf-fma.pdf

[13]. Nwankwo, O. (2005). *Dimensions of Financial Management*. Enugu: Jones Communication and Publishers.

[14]. Nwankwo, O. & Osho, G.S. (2010). An Empirical Analysis of Corporate Survival and Growth: Evidence from Efficient Working Capital Management. *International Journal of Scholarly Academic Intellectual Diversity*, 12(1), 1-13.

[15]. Padachi, K. (2006). Trends in Working Capital Management and its Impact on Firms' Performance: An Analysis of Mauritian Small Manufacturing Firms. *International Review of Business Research Papers*, 2(2), 45-58.

[16]. Pandey, I.M. (1979). *Financial Management*. New Delhi: Vikas Publishing House PVT Ltd.

[17]. Raheman, A., Afza, T., Qayyum, A. & Bodla, M.A (2010). Working Capital Management and Corporation Performance of Manufacturing Sector in Pakistan. *International Research Journal of Finance and Economics*, ISSN 1450-2887, Issue 47, 151-163.

[18]. Raheman, A. & Nasr, M. (2007). Working Capital Management and Profitability- Case of Pakistani Firms. *International Review of Business Research Papers*, 3(1), 279-300.

[19]. Raheman, A., Sohail, M.K., Zulfiqar, B., Rehman, S., Komel, F. & Bilal, A. (2012). Impact of Capital Expenditure on Working Capital Management in Selected Listed Pakistani Firms. *American Journal of Scientific Research* , ISSN 1450-228X , Issue 53, 15-23.

[20]. Sen, M. & Oruc, E. (2009). Relationship between Efficiency Level of Working Capital Management and Return on Total Assets in ISE. *International Journal of Business and Management*, 4(10), 109-114.
[21]. Shin, H. & Soenen, L. (1988). Efficiency of Working Capital Management and Corporate Profitability. *Financial Practice and Education*, 8(2), 37-45.
[22]. Uremadu, S.O., Egbide, B. & Enyi, P.E. (2012). Working Capital Management, Liquidity and Corporate Profitability Among Quoted Firms in Nigeria: Evidence from the Productive Sector. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 2 (1), 80-97.
[23]. Van Horne, J.C & Wachowicz, J.M. (2000). *Fundamentals of Financial Management.(11th Edition).* New Jersey : Prentice Hall Inc.

APPENDIX

Model 1

Constant Effect

Dependent Variable: ROA
Method: Pooled Least Squares
Date: 08/23/14 Time: 16:27
Sample: 2001 2010
Included observations: 10
Cross-sections included: 7
Total pool (unbalanced) observations: 33
Cross sections without valid observations dropped

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.246587	0.885825	-2.536151	0.0171
ITD	0.151805	0.235323	0.645091	0.5241
ACP	0.189494	0.210529	0.900087	0.3758
APP	-0.382421	0.249139	-1.534970	0.1360
CCC	0.075197	0.085903	0.875372	0.3888

R-squared	0.137431	Mean dependent var	-2.399473
Adjusted R-squared	0.014207	S.D. dependent var	0.571699
S.E. of regression	0.567623	Akaike info criterion	1.844010
Sum squared resid	9.021497	Schwarz criterion	2.070754
Log likelihood	-25.42617	Hannan-Quinn criter.	1.920302
F-statistic	1.115290	Durbin-Watson stat	0.596222
Prob(F-statistic)	0.369061		

Fixed Effect

Dependent Variable: ROA
Method: Pooled Least Squares
Date: 08/23/14 Time: 19:23
Sample: 2001 2010
Included observations: 10
Cross-sections included: 7
Total pool (unbalanced) observations: 33
Cross sections without valid observations dropped

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.108594	1.438318	-2.161270	0.0418
ITD	0.339440	0.229500	1.479039	0.1533
ACP	0.233728	0.182137	1.283255	0.2128
APP	-0.489744	0.158933	-3.081455	0.0055
CCC	0.167751	0.070928	2.365090	0.0273
Fixed Effects (Cross)				
JHNP—C	-0.810781			
FMNP—C	0.207794			
TOTAL—C	0.665418			
VFOAM—C	-0.236178			
GLAXO—C	0.129641			
BPNP—C	-0.795667			

GNPLC—C	0.630077

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.764244	Mean dependent var	-2.399473
Adjusted R-squared	0.657083	S.D. dependent var	0.571699
S.E. of regression	0.334782	Akaike info criterion	0.910527
Sum squared resid	2.465737	Schwarz criterion	1.409363
Log likelihood	-4.023691	Hannan-Quinn criter.	1.078370
F-statistic	7.131697	Durbin-Watson stat	1.940360
Prob(F-statistic)	0.000065		

Random Effect

Dependent Variable: ROA
Method: Pooled EGLS (Cross-section random effects)
Date: 08/23/14 Time: 16:32
Sample: 2001 2010
Included observations: 10
Cross-sections included: 7
Total pool (unbalanced) observations: 33
Swamy and Arora estimator of component variances
Cross sections without valid observations dropped

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.647734	1.179537	-2.244723	0.0329
ITD	0.259987	0.201409	1.290840	0.2073
ACP	0.215339	0.169014	1.274087	0.2131
APP	-0.492913	0.158211	-3.115542	0.0042
CCC	0.154824	0.067966	2.277965	0.0306
Random Effects (Cross)				
JHNP—C	-0.707414			
FMNP—C	0.143717			
TOTAL—C	0.492912			
VFOAM—C	-0.180469			
GLAXO—C	0.235585			
BPNP—C	-0.642981			
GNPB—C	0.658649			

Effects Specification

	S.D.	Rho
Cross-section random	0.726805	0.8250
Idiosyncratic random	0.334782	0.1750

Weighted Statistics

R-squared	0.414454	Mean dependent var	-0.488650
Adjusted R-squared	0.330804	S.D. dependent var	0.439003
S.E. of regression	0.320462	Sum squared resid	2.875479
F-statistic	4.954650	Durbin-Watson stat	1.659089
Prob(F-statistic)	0.003789		

Unweighted Statistics

R-squared	0.064831	Mean dependent var	-2.399473
Sum squared resid	9.780806	Durbin-Watson stat	0.487759

Model Two
Constant Effect

Dependent Variable: GWC
Method: Pooled Least Squares
Date: 08/23/14 Time: 16:35
Sample: 2001 2010
Included observations: 10
Cross-sections included: 7
Total pool (unbalanced) observations: 35
Cross sections without valid observations dropped

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.757170	1.585618	2.369530	0.0244
ITD	0.180915	0.428820	0.421891	0.6761
ACP	0.700103	0.354223	1.976444	0.0574
APP	0.544687	0.445394	1.222931	0.2309
CCC	-0.218218	0.156622	-1.393274	0.1738

R-squared	0.380697	Mean dependent var	9.611655
Adjusted R-squared	0.298123	S.D. dependent var	1.239761
S.E. of regression	1.038649	Akaike info criterion	3.045281
Sum squared resid	32.36372	Schwarz criterion	3.267474
Log likelihood	-48.29242	Hannan-Quinn criter.	3.121982
F-statistic	4.610384	Durbin-Watson stat	0.394645
Prob(F-statistic)	0.005073		

Fixed Effect

Dependent Variable: GWC
Method: Pooled Least Squares
Date: 08/23/14 Time: 16:36
Sample: 2001 2010
Included observations: 10
Cross-sections included: 7
Total pool (unbalanced) observations: 35
Cross sections without valid observations dropped

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.361001	2.802137	2.270054	0.0325
ITD	0.351158	0.448210	0.783467	0.4410
ACP	0.229607	0.354585	0.647537	0.5234
APP	0.120857	0.308796	0.391383	0.6990
CCC	-0.006269	0.137051	-0.045743	0.9639
Fixed Effects (Cross)				
JHNP—C	-0.774941			
FMNP—C	-0.282996			
TOTAL—C	1.221252			
VFOAM—C	-1.451419			
GLAXO—C	0.814617			
BPNP—C	0.261664			
GNPB—C	0.569965			

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.802725	Mean dependent var	9.611655
Adjusted R-squared	0.720527	S.D. dependent var	1.239761
S.E. of regression	0.655402	Akaike info criterion	2.244142

Sum squared resid	10.30925	Schwarz criterion	2.732965
Log likelihood	-28.27248	Hannan-Quinn criter.	2.412883
F-statistic	9.765766	Durbin-Watson stat	0.638919
Prob(F-statistic)	0.000003		

Random Effect

Dependent Variable: GWC
Method: Pooled EGLS (Cross-section random effects)
Date: 08/23/14 Time: 16:36
Sample: 2001 2010
Included observations: 10
Cross-sections included: 7
Total pool (unbalanced) observations: 35
Swamy and Arora estimator of component variances
Cross sections without valid observations dropped

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.330907	1.866688	3.391520	0.0020
ITD	0.277923	0.347831	0.799018	0.4306
ACP	0.340497	0.302339	1.126212	0.2690
APP	0.135606	0.304717	0.445023	0.6595
CCC	-0.046167	0.125029	-0.369249	0.7145
Random Effects (Cross)				
JHNP--C	-0.572108			
FMNP--C	-0.342371			
TOTAL--C	0.842869			
VFOAM--C	-1.315663			
GLAXO--C	0.728560			
BPNP--C	0.164678			
GNPB--C	0.494035			

Effects Specification

	S.D.	Rho
Cross-section random	0.817254	0.6086
Idiosyncratic random	0.655402	0.3914

Weighted Statistics

R-squared	0.095573	Mean dependent var	3.089297
Adjusted R-squared	-0.025018	S.D. dependent var	0.938136
S.E. of regression	0.661748	Sum squared resid	13.13733
F-statistic	0.792541	Durbin-Watson stat	0.536694
Prob(F-statistic)	0.539327		

Unweighted Statistics

R-squared	0.265737	Mean dependent var	9.611655
Sum squared resid	38.37133	Durbin-Watson stat	0.183750