International Journal of Advanced Studies in Economics and Public Sector Management | IJASEPSM
p-ISSN: 2354-421X | *e-ISSN: 2354-4228*
Volume 13, Number 1 February, 2025

Impact of Receivable Management on Selected Pharmaceutical Firms in Nigeria

[1]Evelun Bassey Ewah, & [2]Onyimba Roseline C.
[1]*Department of Accounting and Finance, Godfrey Okoye University Ugwuomu Enugu*
[2]*Department of Banking and Finance, Faculty of Business Administration, University of Nigeria Enugu Campus*

Article DOI: 10.48028/iiprds/ijasepsm.v13.i1.24

Abstract

This study set out to empirically examine the effect of accounts receivable management on profitability of selected pharmaceutical firms listed on Nigerian stock exchange for the period, 2014-2018. Adopting the average collection period as independent variable and gross operating profit as dependent variable then controlled for liquidity, financial assets to total assets, size and leverage. The objective of was to investigate the impact of average collection period on profitability of selected pharmaceutical firms in Nigerian. Analysis was done, employing fixed effect model (FEM) after diagnosing the data. Findings from the study revealed that average collection period of selected firms in Nigerian had negative and significant impact on profitability. The result implies that firms can increase profitability measured by gross operating profit by shortening collection period of accounts receivable as tightfisted trade credit policy may lead to increase in cash flow and decrease in bad debt. Cash becomes free for other usages, and thus brings company with higher operating profitability.

Keywords: *Working capital Management, Profitability, Receivable Management, Average collection period, Pharmaceutical Firm, Nigeria*

Corresponding Author: **Evelun Bassey Ewah**

Background to the Study

Accounts receivable arises when a firm sells its products or services on credit and does not receive cash immediately. It is an essential marketing tool that a firm uses to expand its sales, protects its sales from competitors and maintains market shares. Trade credit crates account receivables or book debt which the firm is expected to collect in the near future. The receivables arising from the credit sales have some element of risk unlike cash sales which is totally riskless. The management of credit sales is known as account receivable management or debtor's management. Account receivables arising from credit sales have to be critically analysed and managed.

Thus, account receivable management is one of the Working Capital Management (WCM) that determines the profitability and liquidity of an organization. It has been observed as one of the most important components of company's asset and it often represents large investment in current assets. Account receivable management is a critical aspect of corporate finance decision because of its effect on a firm's profitability and risk and consequently on the firm's value. A firm's investment in account receivable is determined by two key factors: the volume of credit sales and the collection period. Average credit sales = daily credit sales x average collection period. While volume of credit sales = firm's total sales x percentage of credit sales. Financial managers therefore affect investment in account receivables through credit policy. Credit policy can be referred to as the policy that guards the firm on granting of credit such as credit standard, credit terms and collecting period. In practice, firms follow credit policies ranging from stringent to lenient.

The primary objective of account receivable is to collect debt due and assist in meeting cash flow requirement of an organization. This would help to solve the problem of overtrading where by a firm trade with a low capital due to huge cash pile outside the firm. A well designed and implemented account receivable management policy is expected to contribute positively to the firm's profitability. Generally, accounts receivable occupies second important place after inventories in the company's financial statement and thereby constitute a substantial portion of current assets in several firms. The capital invested in account receivables is almost of the same size as that of the investment made in cash and inventory (Ramana, Ramakrishnaiah and Chengairayulu 2013). Deloof (2003) holds the same proposition that account receivable and inventories comprises a substantial percentage of the total assets of the firm. As observed from the firm's financial statement, account receivables thus form over one third of current assets in the selected pharmaceutical firms in Nigeria.

Statement of the Problem

There are controversies as to which factors of working capital management via: account receivable period, inventory turnover period, account payable and cash conversion cycle that really impact on the firm's profitability. Some argue that the major determinant is account payable management or stock management while others argue that it is account receivables management or cash conversion cycle. Also, many financial managers are finding it difficult to identify the important drivers of working capital management that can enhance their company's profitability (Huynh, 2012). Again, Anup and Aminm, (2007) in their study on

working capital practiced in Bangladesh pharmaceutical firms revealed that "there are many business failures as a result of inadequate working capital" Given that there is no agreement among researchers on the key determinant of firm's profitability among the working capital management indicators, the study aimed to empirically examine the impact of account receivable management as a major determinant of firms profitability among working capital management components. Pharmaceutical firms play vital role in socio-economic and should be considered as extreme important segment because of its involvement in not tertiary product but likewise secondary products (drugs) which is used as material in other important segment of the economy.

Review of Related Literature

One of the important studies in 1990s on accounts receivable policy includes Mian and Smith (1992) examine Accounts Receivable Policy: Theory and Evidence. The paper developed and tested the hypotheses that explain the choices of accounts receivable management policies. The study employed regression analysis and the available evidence suggests that both accounts receivable secured debt and captive finance subsidiaries can control the under-investment problem by segregating the accounts receivable cash flow from the firm's operating cash flows, in practice, the two-financing method do not appear to be close substitutes.

Another research focused on examining the link between profitability and selected WCM is Padachi (2006). They used manufacturing Mauritian companies over the period 1997-2003 and employed Fixed effect model and Pooled ordinary least squares. The WCM indicators variables were, ARP, the ICP, the PDP, and the CCC. The results showed that the only accounts receivable period (RCP) indicated significant and negative effect on firm's profitability. Similarly, Madishetti and Kibona (2013) assessed the effect of Receivable and Payables Management on Profitability of SME in Tanzania (2006-2011). The study employs regression analysis and results indicated that there was a negative and significant impact on Accounts Receivable Period and Profitability.

Likewise, Takon and Ugwu (2013) examine the effect of Accounts Receivable on Return on Assets of selected Nigeria firms (2000-2009). Using cross sectional and time series regression, the results also showed that Accounts Receivable had a negative and significant effect Return on Assets. Equally, Deloof (2003) investigated the relationship between working capital management measures and profitability for a sample of 1009 large Belgian non-financial companies over the period 1992-1996. He used regression models with fixed effects model and OLS regressions with dummy variable for time and industries. WCM measures were ARP, the ICP, the PDP, and the CCC. The results for the two regression models estimated highlighted that ARP HAD negative and significant effect on profitability.

Differently, Arunkumar & Ramanan (2013) analyzed the effect of working capital management on the profitability of 1198 manufacturing firm listed in Centre for Monitoring Indian Economy for a period of 5 years manufacturing firms. The relationship of debtor's days, inventory days, creditor's days, current ratio, ratio of current liability to total assets, assets turnover ratio, financial assets to total assets and size with return on assets employed is

analyzed. The study adopted correlation analysis and group wise weighted least squares regression analysis to identify the effects of these variables on profitability. The correlation analysis showed that the firms' profitability is highly influenced by the variables relating to assets. They found positive relationship between profitability and debtors' days and inventory days. Creditor's days also showed a significant positive relationship. Another research which focused on determining the impact of Accounts Receivable Management on the Profitability during the financial Crisis is Ksenija (2011). They used evidence from Serbia and a sample of 108 firms 2008-2011 at the prime and standard listing as well as the multilateral trading platform of the Belgrade Stock Exchange. The study as well highlighted that positive relationship exists between accounts receivable and firm's profitability.

Broad Theoretical Base: Working Capital Management Components and Profitability
Conservative Theory

This approach suggests that the estimated requirement of total funds should be met from long term sources, the use of short-term funds should be restricted to only emergency situations or there is unexpected outflow of funds. In essence, cash conversion cycle (+ accounts receivable period + inventory period - accounts payables period) will have positive impact on firm's profitability. It could be understood through series of positive impact of receivable period and account inventory periods with a negative effect of accounts payable period on the company profitability. The lengthy the inventory period, the lower the cost concerned in postponing of goods or service supplied. In mean time, the longer the account receivable period, the higher credit sales earned. And the lower the accounts payable period, the higher the reputation earned for borrowing opportunities. Converge the three effects into one place, we can explain for an increase in company profitability due to the long cash conversion cycle.

Hedging Theory

Hedging approach is riskier in comparison to conservative approach. There are two reasons for this. First, there is, as already observed, no net working capital with the hedging approach because no long-term funds are used to finance short term seasonal needs, that is, current assets are just equal to current liabilities. It could be interpreted through a chain of negative impact of accounts receivable and inventory period with a positive of accounts payable period on the firm's profitability. When the cash conversion cycle (accounts receivable period + inventory period - accounts payables period) decreases in length, cash turns out to be free for supplementary usages such as investing on other cost-effective ventures (Huynh, 2012). It thus brings firms with higher operating profitability. In those cases, cash conversion cycle is said to have negative association with firms' profitability.

Trade off theory (tradeoff between the hedging and conservative approaches)

It has been shown that the hedging approaches are associated with high profits as well as high risk; while the conservative approach provides low profits and low risk. Obviously, neither approach by itself would serve the purpose of optimal working capital management (efficient receivable management, inventories management and accounts payable management). A balance between these two extremes would give an acceptable financing strategy. The third approaches strike a balance and provide a financing plan that lies between these two extremes.

The exact trade-off between risk and profitability will differ from case to case depending on risk perception of the decision makers. One possible trade off could assume to be equal to maximum monthly requirements of funds during a given period manage. This level of requirement of fund may be financed through long run source and for any additional financing need short term fund may be used.

Methodology

The study was quantitative in nature and in essence relied on *Ex post facto* research design, as it examined the effect of accounts receivable management on financial performance of selected pharmaceutical firms listed on Nigeria stocks exchange. The panel data of the preferred firms were used to carry out the statistical analysis. Employed purposive sampling techniques and the sample covered 80% of the population for the period of five years. The models were estimated with Fixed Effect Model (FEM), after analyzing the necessary diagnostic test.

A fixed effect model examines individual differences in intercepts, assuming the same slopes and constant variance across individual (group and entity). Since individual specific effect is time invariant and considered a part of the intercept, $u_i$is allowed to be correlated with other regressor; that is OLS assumption 2 is not violated. This fixed effect model is estimated by least square dummy variable (LSDV) regression (OLS with a set of dummies) and within effect estimation methods.

The general form for a multiple regression analysis is given in the form below:

$$FEM: GOP_{it} = (a + u_i) + b_1ARP_{it} + b_2SIZE_{it} + b_3CR_{it} + b_4FATA_{it} + b_5DR_{it} + e_{it}$$

Where:

u_i	=	is a fixed effect specific to industry that is not included in the regression
e_{it}	=	errors are individual identical distributed
b	=	Coefficient of independent variables
i	=	Sampled firms = 1,2,3,4 5 firms
t	=	Time = 1,2,3,4,5, years
GOP	=	Gross Operating Profit
ARP	=	Accounts Receivable Period
SIZE	=	Firm Size
CR	=	Current Ratio
FATA	=	Financial Assets to Total Assets
DR	=	Debt Ratio

Description of Variables

Dependent Variable

Gross Operating Profit (GOP)

GOP is gross operating profit and is the dependent variable in the study. This ratio has been used by several authors in the financial literature including (Vural, Sokmen and Cetenak, 2012; Mamoun, 2011; Deloof, 2003; among others). To obtain dependent variable (gross operating profit), we subtract cost of goods sold from total sales and divide the results with total assets

minus financial assets. The justification for using this variable as an alternative of earnings before interest tax depreciation amortization (EBITDA) or profit before or after tax is that we want to link operating "success" or "failure" with an operating ratio and relate this variable with other operating variables (e.g., cash conversion cycle). In addition, we want to leave out the contribution of any financial activity from operating activity that may affect general profitability. Thus, we subtracted financial assets from total assets (Amarjit, Nahum and Neil, 2010).

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

Independent Variables

Accounts Receivable Period (ACP): Is the average required time for changing the company's receivables into cash (Alipour, 2011).it is calculated in this way:

$$ARP = \frac{\text{accounts receivable period} * 365}{\backslash\text{annual sales}}$$

Control variables

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

$$CR = \frac{\text{current assets}}{\text{current liabilities}}$$

Financial Assets (FATA): A few sums out of the total assets in pharmaceutical firms are financial assets and since they are brought for profitability reasons, so these assets affect profitability. As a result, this variable will be used as control variable in order to make its effect neutral on the firm profitability. Long- and short-term investment in stock and bills of exchange of the other companies, certificates and bonds are considered as financial assets (Nzioki, et al, 2013).

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

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

SIZE = natural logarithm (sale).

Leverage ratio (LR): will be used as proxy for debt and is calculated by dividing total debt by total assets (Nzioki, et al, 2013).

$$LR = \frac{\text{total debts}}{\text{total assets}}$$

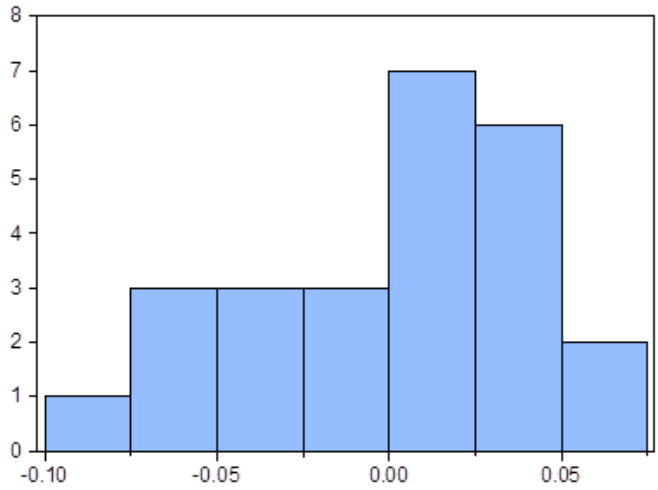
Results and Analysis
Pre-regression test
Coefficient Diagnostic
Table 1: Redundant variables test

Null hypothesis: a
ARP SIZE CR FATA are jointly insignificant
Specification: GOP ARP SIZE CR FATA
Redundant Variables: ARP SIZE CR FATA

	Value	df	Probability
F-statistic	5.417983	(4, 16)	0.0059
Likelihood ratio	21.40816	4	0.0003

As observed in table 1 above, the null hypothesis is rejected, signifying that the independent variable utilized were jointly significant in explaining the changes in dependent variable (GOP).

Residual Diagnostic
Table 2: Normality test (Null hypothesis the residuals are normally distributed)



Series: Standardized Residuals
Sample 2014 2018
Observations 25

Mean	-1.08e-18
Median	0.006806
Maximum	0.059303
Minimum	-0.081121
Std. Dev.	0.039901
Skewness	-0.472711
Kurtosis	2.256200
Jarque-Bera	1.507354
Probability	0.470633

In table 2 above, do not reject null hypothesis. The results revealed that the error terms are normally distributed. As the p-valuue of Jargue-Bera test is greater than 5% (Jargue-Bera: p = 0.4706 > 0.05). skewness = 0 and Kurtosis close to 3. Therefore, parametric techniques (e.g. OLS) will be appropriate for the estimation.

Table 3: Residual Cross-Section Dependence Test

Null hypothesis: No cross-section dependence (correlation) in residuals

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	12.78617	10	0.2359
Pesaran scaled LM	-0.495028		0.6206
Bias-corrected scaled LM	-1.120028		0.2627
Pesaran CD	-0.321896		0.7475

In table 3 above, the outcomes indicated that the null hypothesis of no cross-section dependence was accepted as p-values are greater than 5 % among the entire test. This test is an alternative to the Q-statistics for testing serial correlation, is a test for the correlation of the residual. The test has to do with impact of shocks in one bank on another bank when both banks belong in the panel data set. As a result, correlation in residuals does not exist in the model as p-values of the tested F-statistics, do not reject null hypothesis. Therefore, the error terms were not correlated.

Fixed/Random effect Testing

Table 4: Correlated Random Effects - Hausman Test:

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	73.556637	4	0.0000

As observed in table 4 above, null hypothesis that stated that random effect is appropriate is rejected as $p = 0.0000 < 0.05$. Therefore, fixed effect model (FEM) is an appropriate model to use for the analysis as indicated by the Hausman test.

Multicollinearity Test

Table 5: Correlation analysis (70 – 100% degree of correlation is considered a problem-multicollinearity)

	ARP	SIZE	CR	FATA	DR
ARP	1.000000	-0.241634	0.440115	0.082708	0.020366
SIZE	-0.241634	1.000000	-0.337560	0.277293	0.722242
CR	0.440115	-0.337560	1.000000	-0.094924	-0.050650
FATA	0.082708	0.277293	-0.094924	1.000000	-0.039640
LR	0.020366	0.722242	-0.050650	-0.039640	1.000000

As observed in the correlation results above, all the variables had permissible degree of correlation except debt ratio and size which were highly correlated at 72 degrees. For this reason, LR was drooped in order to prevent spurious outcomes.

Regression Analysis

Table 6: Fixed effect model (FEM)

Dependent variable: GOP
Included observation: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.965196	0.953318	-2.061428	0.0559
ARP	-0.141398	0.062978	-2.245199	0.0392
SIZE	0.346463	0.145609	2.379407	0.0301
CR	0.028757	0.021313	1.349258	0.1960
FATA	7.199327	11.14433	0.646008	0.5274

	Effects Specification
R-squared	0.888811
Adjusted R-squared	0.833217
F-statistic	15.98743
Prob(F-statistic)	0.000003
Durbin-Watson stat	1.968387

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

As observed in table 6 above, first, the study revealed that the constant (intercept) term had a negative sign which is consistent with a priori expectations. This implies that in absence of maximum receivables management policy the firm is likely to have a negative GOP (credit sales promote turnover, and turnover determines the profit while feasible collection policy increases cash flow). Also, the t-value (-2.0614) and p-value (0.05) which indicates that constant terms is statistically significant at five percent level of significance.

Second, the result indicates that Accounts Receivable Period (ARP) had a negative and significant impact on profitability of Selected Pharmaceutical firms in Nigeria (coefficient = -0.1414, t-value = -2.2452). One percent (1%) increase in receivables collection period results in 0.1414 decreases in total gross operating profit. The coefficient of determination (R^2) is 89%, implying that 89% variation in the dependent variable (GOP) is explained by the change in the independent variable (ARP), while the unexplained part of 11% is the effect of the other variables impacting on profitability that is not included in the regression. The variation was properly adjusted by the adjusted R^2 at 83%. The F-statistics is highly significant at 5% level of significant implied that the whole model is good in measuring the effect on GOP.

Third, the result revealed that firm size had positive and significant effect on GOP. Gross operating profit increases with an increase in firm size. It confirmed with the a priori expectation.

Finally, the Durbin-Watson value (1.96) falls with the perfect level and show that there is no presence of autocorrelation.

Findings Implication

Analyzing the results derived above, it can therefore be expected that the way in which Accounts Receivable is managed will have a significant impact on profitability of the firms. We had found a negative and significant impact of average receivable period on gross operating profitability of the sampled firms. This result suggests that managers can create value for their shareholders by decreasing the number of days, accounts receivable to a reasonable minimum. The negative relationship between accounts receivable and profitability is consistent with the view that shorter period of collection of account receivables could result into higher cash flow, and more sales along with feasible collection policy bring more profit into the business. If the amount in Accounts receivable is not properly collected, it will have an adverse effect on both liquidity and profitability of the firm. In contrast, extending the ARP could harm the firm profitability. However, the growing consensus of opinion on this issue argued that ARP has a strong negative impact on of firm's Profitability, in order words, if the length of the (ARP) decreased or shortened, firm's profitability will increase. It is so according to following authors; Jayarathne, 2014; Almmazari, 2014; Gulia, 2014; Igbal, Ahnad&Raiz, 2014; Jafari, Rehman, 2013; Nziko et al, 2013; Leon, 2013; Tufail, 2013; Adarqual, 2013; Egbide, Olubukunola & Uwuigbe,2013; and many others.

Conclusion

The study set out identifies the optimal accounts receivable management evidence from pharmaceutical firms in Nigeria. The findings highlighted negative impact of Accounts Receivable Period on profitability of the selected pharmaceutical firms. It suggested that shorter collection period of accounts receivable is more profitable than taking longer period to convert their receivables into cash. As generous trade credit was offered by the pharmaceutical firms to their customers for increment in sales volume, cash flow can only be significantly enhanced if the amounts owing by the customers are collected faster and in contrast, the company could lose good credit suppliers as increasing accounts receivable period will tie up cash. However, the outcome concerning the optimal accounts receivable management relied mostly on the nature of the business involved.

Recommendation

Among the four indicators of WCM (ARP, ITP, APP & CCC), Accounts Receivable management (ARP) is the key stimulator of the other variables as it plays a key role in the maximizing firm's value. The way an organization manages it accounts receivable period has significant impact on its profitability and liquidity. The rate of sales determines the amount of firm's profitability. So, increase in credit sales will pilot an increase in sales volume which in turn enhances profitability if the accounts receivables are properly collected. Also, cash flow/liquidity can be significantly enhanced if the amounts owing by the customers are properly collected faster. Then the cash collected can be used to pay up the trade creditors, taking advantage of discounts from early payment. There by extending the length of ARP will harm the firms' profitability.

Therefore, it is recommended that the listed pharmaceutical firms in Nigeria should promote its sales volume and reduce the period of converting receivables into cash to possible feasible

period as this will increase profitability and cash flow. Firm can increase their sales through sales promotion, allowing credit sales and providing sales discount to their customers. When the cash conversion cycle shortens, cash becomes free for other usages, and thus brings company with higher operating profitability. Appropriate accounts receivable management is therefore essential if the firms are to achieve their objectives of improving profitability and value creation for the shareholders.

References

Alipour, M. (2011). Working capital management and corporate profitability: evidence from Iran, *World Applied Science Journal,* 12(7), 1093-1099

Anup, C. & Amin, M. M. (2007). Working capital practiced in Pharmaceutical companies listed in Dhaka Stock Exchange, *BRAC University Journal,* 4(2), 75-86.

Arunkumar, O. N. & Ramanuan, J. R. (2013). Working capital management and profitability: A sensitivity analysis. *Journal of Research and Development- A Management Review*, 2(1), 52-58

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business Finance and Accounting,* 30(3-4), 573-588

Huynh, N. T. (2012). The influence of working capital management on profitability of listed companies in the Netherlands. *Master of Research in Business Administration, 1*-58

Ksenija, D. M. (2011). Determine the impact of accounts receivable management on the profitability during the financial Crisis: evidence from Serbia. *9TH International ASEC Conference on Systemic Economic Crisis,* UDC: 658.155 (497.11)

Madishetti, E. & Kibona, U. (2013). Assess the impact of receivable and rayables management on profitability of SME in Tanzania. *Journal of Economics and Management,* 2(3), 9-21.

Mian, S. L & Smith, C. W. (1992). Examine accounts receivable policy: theory and evidence, *Journal of Finance*, 47(1),169-200.

Muhammad M., Jan W.U. & Ullah K. (2011). Working capital management and profitability: an analysis of firms of textile industry of Pakistan. *Journal of Management Sciences,* 4, (2), 155-167

Nasir, S. Z. S. & Ali S. C. (2013). Relationship between cash conversion cycle and profitability moderator role of firm size. *2nd* International Conference on Management*, Economics and Finance Proceeding*, 28-29, 692-705

Nwude, C. E. (2004). *Basic principles of financial management second edition,* Enugu: Chuke Nwabude Nigeria

Nzioki, P. M., Kimeli, S. K. & Abudho, M. R. (2013). Management of working capital and its effect on profitability of manufacturing companies listed on Nairobi securities exchange Kenya, *International Journal of Business and Finance Management Research,* 1, 35-42

Onwumere1, J.U.J., Ibe, I. G. & Ugbam, O. C. (2012). The impact of working capital management on profitability of Nigerian firms: a preliminary investigation, *European Journal of Business and Management,* 14(15), 192-201

Padachi, K., Howorth, C. & Narasimhan M. S. (2012). Working capital financing preferences: the case of Mauritian manufacturing small and medium-sized enterprises, *Asian Academy of Management Journal of Accounting and Finance,* 8(1), 125–157

Pauraghajan, A., Rekabdarkolaei, E. A. & Shafie, M. (2013). Investigation the effects of working capital management and capital structure on profitability and return on assets: a selection from the automotive companies in Iran, *Journal Basic Applied Science Research,* 3(4), 847-854

Takon, S. M. & Ugwu, J. I. (2013). The effect of accounts receivable on return on assets of selected Nigeria firms, *International Journal of Current Research*, 5(12), 3767-3772

Vural, G., Sokmen, A. G. & Cetenak, E. H. (2012). Effects of working capital management on firm's performance: evidence from Turkey. *International Journal of Economics and Financial Issues,* 2(4), 488-495