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TRANSYLVANIAN REVIEW

VoL XXVI, No. 25, 2018



Transylvanian Review

Centrul de Studii Transilvane | str. Mihail Kogalniceanu nr. 12-14, et.5, Cluj-Napoca

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Impact of Accounts Receivable Period on the Profitability of Quoted Insurance Companies in Nigeria

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Abstract

The paper examines the impact of average collection period on the profitability of quoted insurance companies in Nigeria. The return on assets and account receivable period were the dependent and independent variables respectively. The annual financial reports of 20 quoted insurance companies in Nigeria spanning from 2000 to 2011 constituted the sample of the study. A detailed conceptual framework of debate on the relationship between accounts receivable period and corporate performance was formulated from the review of related literature. The data obtained were utilized in running a cross-sectional regression analysis. The descriptive statistics and correlation matrix were obtained with the aid of the SPSS version 20.0 after conducting some multi collinearity and heteroskedasticity tests. This study used regression analysis as a means for finding out the impact of accounts receivable period on return on assets, taking current ratio, growth, size of the firm, and fixed financial total asset ratio as control variables. The results show that accounts receivable period has negative and insignificant impact on profitability. Current ratio, fixed financial total asset ratio, debt asset ratio and growth have the expected positive relationship whereas the firm size indicates unexpected relationship with profitability. This unexpected correlation may be due to gaps in managerial performance. The study concludes that accounts receivable period does not have a significant causal relationship with the profitability of quoted insurance companies in Nigeria. The fixed effect was negative even though the impact was not significant.

Keywords: Accounts receivable, average collection period, insurance firm, profitability, nigeria.

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Introduction

One of the most important components of working capital is accounts receivable. The effective management of receivables helps one to increase the size of business activities by increasing total sales, and, by so doing, increasing the recycling of funds and generating higher incomes. On the other hand, according to Madishetti and Kibona (2013), the failure of management of receivables will result in long average collection period (ACP), leading to reduced recycling of funds which would, in turn, affect profitability and liquidity of the enterprise. Researchers like Manyo and Ike (2013) and Deloof (2003) indicate that current assets of a typical manufacturing firm, or even a distribution firm, accounts for more than half of the firm's total assets. For Van- Horne and Wachowicz (2005), firms may incur shortages and difficulties in maintaining smooth operations if they have too few current assets. All forms of business possess either products or services to sell to customers with the intention of maximizing their sales. In a bid to enhance the level of their sales, firms use policies to attract customers. One of such policies is offering trade credit to customers. According to Long *et al.*, (1993) in Baveld (2012), accounts receivables, which is a part of trade credit, promotes sales as it allows customers to examine product quality before paying for it. Manyo and Ike (2013) assert that when trade credit is allowed, it implies that the firm is selling its products now and would receive payment at a specified date in the future. Hill and Satoris (2005) opine that one-sixth of the total assets for manufacturing organizations is made up of accounts receivable. In their view, as a result of its huge proportion in total assets, accounts receivable could become a problem for an organization in such a manner that it may require more financing for the period for which payment is due from customer. In as much as accounts receivable can raise profit by increasing sales, it is also possible that, because of high opportunity cost of invested money in accounts receivable and bad debts, the effect of this change might become difficult to realize. A company that adopts a policy to have a low level of accounts receivable can reduce its profitability by reducing sales. However, it contributes to the income by reducing the risk of bad debts and curtailing investment in accounts receivable. Shin and Soenen (1998) understand accounts receivable as representing the money owed by entities to the firm on the sale of products or services on credit and considers account receivable period (ARP) as the amount of time that a business holds its accounts receivables. Granting of credit leads to the creation of trade debts in business. This can be further classified into good debts, doubtful and bad debts. Ksenija, (2013) posits that accounts receivable measures the unpaid claims that a firm has over its customers at a given period. It usually comes in the form

of operating line of credit. It is usually due within a relatively short period up to one year. Manyo and Ike (2013) perceive accounts receivables as debts owed a firm by her valuable customers that are trusted with the goods and services after taking into consideration the character and integrity of the customer. The authors believe that necessary steps need to be taken by the firm before handing over the goods to the buyer. Otherwise, credit sales would be a costly exercise. For Pandey (2004), bad debt losses arise when the firm is incapable of collecting its accounts receivable. The credit policy offered by the company to creditors influences the level of accounts receivable. Manyo and Ike (2013) show that while strict policy will reduce the collection period and accounts receivable, a relaxed policy raises the level of accounts receivable. According to Ksnija (2013), the competitive nature of business environment makes it imperative for firms to adjust their action plans and use financial policies to not only remain alive but also grow. Consequently, Yadav *et al.*, (2009) regard credit control as an essential aspect of working capital management. According to Solomon and Pringles (1977, 2001), a firm may have either tight or loose credit policy. Whichever is the case, a firm's credit policy is determined by the trade-off between opportunity cost and credit administration cost which includes bad debt losses. The trade-off occurs at a point where the total cost of lost contribution, credit administration cost and bad debt losses is minimum. The objective of credit control, according to Brain (1981), is to strike a correct balance between incremental return and incremental cost. An efficient management of accounts receivables requires a proper analysis of credit and the establishment of veritable criteria for evaluating credit risk. Western and Brigham (1986, 260) and Emekekwe (1990, 190) present the criteria as character, capacity, capital, collateral and condition of the customers. For Ifurueze (2013), a collection policy for effective and efficient management of credit sales should be put in place because it is usual for customers to default in paying their debt as at when due. According to Ksenija (2003), receivables have three characteristics which explain the basis and the need for their efficient management, viz the element of risk, economic value and futurity. Berry and Jarvis (2006) postulate that a firm that is setting up a policy for determining the optimal amount of accounts receivable ought to take the following into account: The trade-off between securing sales and profit on one hand, and the administrative cost of the increased account receivables, on the other. The level of risk which the firm is prepared to take when extending credit to a customer because the latter could default when payment becomes due. The investment in debt collection management. A number of theories hold that receivables exist for commercial reasons, transaction cost motivations and financial incentives (see Bastos and Pindado, 2007, Deloof

and Jegers, 1999, Marotta, 2005, Petersen and Jajan, 1997). Accounts receivables which constitute one of the most important aspects of working capital, are of different levels and forms around the world. While Demircugunt and Maksimovic (2004) show evidence that accounts receivable exceeds a quarter of firm's total assets in countries such as France, Germany and Italy, Rejan and Zingales (1995) argue that 18% of the total assets of US firms consists of receivables. Uchebu (2004) suggests that it is wise to discourage bad debts and make effort to encourage cash discount. Past studies reveal that, in the period of economic boom, customers tend to make cash purchases, pay their debts timely and minimize the incidence of bad debt. However, when there is economic recession, the situation is different. According to Budhathoki (2017), whenever a significant part of a firm's assets is tied up in sundry debtors, the accuracy achieved in estimating the provision for doubtful debts will assume a special importance. Consequently, the author attempted to build a statistical model to increase the level of accuracy in such estimation. Researchers have studied accounts receivable individually but mostly as a part of working capital management, they did so from various angles and points of view. On the whole, in agreement with the opinion of Madishelli and Kibona (2013), accounts receivable period was found to be having a significant impact on profitability in studies from different countries. Deloof (2003) studied the relationship between average collection period (ACP) and corporate profitability with the use of a sample of 1,009 large Belgian non-financial firm for the period 1992-1996. He found a significant negative relationship between gross operating income and ACP of Belgian firms, He opined that managers can increase firm profitability by reducing their ACP. Garcia Teruel and Martinez Solano (2007) employed a panel of 8,872 small to medium size enterprises (SMEs) from Japan covering a period of 1996-2002 to test the effect of average collection period on SME profitability using panel data methodology. They discovered from the study that managers can create value by reducing their ACP, Several other researchers who explored the impact of receivable management on profitability all pointed to the negative relationship between the two variables. For instance, the studies of Lazaridis and Tryfonidis (2006), Demircugunt and Samilogu (2008), Gill *et al*, (2010) and Mathuva (2010) which were carried out in Greece, USA, Turkey and Kenya respectively report negative correlation between the two variables. Contradicting evidence was, however, seen by Sharma and Kumar (2014) who found a positive relation between Return on Assets and Accounts Receivable Period. Ksenije (2013) studied how public companies in the Republic of Serbia manage their accounts receivables during recession

period. Using a sample of 108 firms that were the most successful Serbian companies listed at the Prime and Standard Listing and the Multilateral Trading Platform of the Belgrade Stock Exchange, accounts receivable policies were examined in the crisis period of 2008-2011. The relationship between accounts receivable and firms' profitability was investigated from a short term perspective. The results demonstrate that between accounts receivable and the two dependent variables-return on total assets and operating profit margin-there is a positive but non-significant correlation. According to Ksenije, the result implies that the impact of receivables on firm profitability changes in crisis periods. Okpe and Duru (2015) investigated the effect of receivable management on the profitability of building materials/chemical and plant manufacturing firms in Nigeria the results of the study show that accounts receivable has significant and positive effect on the profitability of building materials, chemical and plant manufacturing firms in Nigeria at 1% level of significance while debt ratio and sales growth rate have negative and non-significant effect on these companies. Yazdanfar and Ohman (2016) carried out a study using a large cross sectional panel data set covering 15,897 Swedish SMEs in five industrial sectors from 2009 to 2012 in order to find out the impact of trade credit on profitability among the SMEs. This was done using statistical techniques. The results indicate that the use of trade credit significantly and negatively affect firm profitability. After conducting a survey study to determine the effect of accounts receivable on financial performance of firms funded by government venture capital in Kenya, Kilonzo *et al*, (2016) affirms a positive relationship between accounts receivable and the financial performance of firms funded by government venture capital. Onuorah and Ifeacho (2017) investigated the effect of credit management on the profitability of manufacturing firms in Nigeria. The results of the study, which used some selected companies listed on the Nigerian Stock Exchange as sample and covering the period from 2010 to 2014, show that credit policy and liquidity management are negatively correlated with return on assets. The authors therefore recommend that the sales department of a company ought to make use of adequate credit policy for efficient operations. Table 1, provides the summary of some of the previous studies on the effect of receivables turnover on firms profitability. As is observed on the study of Sharma and Kumar (2014), the consequence of a financial crisis on receivables are of enormous relevance because, according to Bastor and Pindado (2012), a crisis causes trade credit contagion as a consequence of financial contagion between intermediaries.

Table 1: Summary of Previous Research on the effect of Receivables Turnover on firm Profitability

Research	Sample period	Type of relation
Deloof (2003)	1009 large Belgian non- financial firms for the period 1992- 1996	Significant negative relationship with profitability
Lazaridis and Tryfonidis (2006)	131 companies listed in the Athens stock exchange (A S E) for the period of 2001 – 2004.	Significant negative relative relationship with profitability.
Gill <i>et al</i> (2010)	88 American firms listed on New York Stock Exchange for the period 2005 – 2007	Significant negative relationship with profitability
Garcia-Teruel and Martinez Solano (2007)	8,872 Spanish SMEs for the period 1996-2002	Significant negative relationship with profitability
Saniloglu and Demirgunes (2008)	Istanbul Stock Exchange (ISE) listed manufacturing firms for the period of 1998-2007	Significant negative relationship with profitability
Mathuva (2010)	30 firms listed on the Nairobi Stock Exchange (NSE) for the period 1993 to 2008.	Significant negative relationship with profitability
Sharma and Kumar (2011)	263 non-financial BSE 500 firms listed at the Bombay Stock (BSE) from 2000 to 2008	Significant positive relationship with profitability
Baveld (2012)	37 large firms in the Netherlands during the non-crises period of 2004-2006 and during the financial crisis of 2008 and 2009	Significant negative relationship with profitability.

Source: Ksenija (2013)

Accounts receivable management is a very important field of corporate finance owing to its impact on a firm's profitability and value. It is important to manage debtors efficiently because poor management of trade debt can lead to the provision of large amount of funds as bad and doubtful debt. The importance of accounts receivable notwithstanding, according to Ksenija (2013), the body of literature on accounts receivable has concentrated attention on determining their relationship with firm probability mostly in the developed markets and during non- crises period. Also, the results of past studies have been inconsistent. To the best of the knowledge of this researcher, not many of such study has been carried out on the Nigerian insurance sector. In addition, the study of Ifurueze (2013) contends that the extent to which receivables increase both profitability and liquidity position of firms has not been established. Consequently, the main objective of this study is to determine the impact of accounts receivable period on the profitability of quoted insurance companies in Nigeria. Though mostly in developed countries, several studies have been carried out on the causal relationship between accounts receivable period and corporate profitability. Apart from few works like Sharma and Kumar (2011), Ksenije (2013), Kilonzo *et al*, (2016) and Okpe and Duru (2015), a majority of studies found negative association. For instance, Garcia Teruel and Martinez Solano (2001), Deloof (2003), Lazaridis and Tryfonidis (2006), Raheman and Nasr (2007), Samiloglu and Demirgunes (2008), Falope and Ajilora (2009), Mathuva (2010), and Karaduman *et al*, (2011) as reported by the study of Baveld (2012) all show negative results. This is obvious especially in crisis-free environment. This study examines the impact of average collection period on the profitability of quoted insurance companies in Nigeria. The return on assets and account receivable period were the dependent and independent variables respectively. The annual financial reports of 20 quoted insurance companies in Nigeria spanning from 2000 to 2011 constituted the

sample of the study. Because of the several evidences for negative relationship and the argument stated above, the following hypotheses were developed. The null and alternative hypotheses are Ho: There is no significant relationship between accounts receivable and profitability of listed insurance firms in Nigeria, and Ha: There is a significant relationship between accounts receivable and profitability of listed insurance firms in Nigeria. As stated by Gill *et al*. (2010), the managers will be capable of creating profits for their companies if they keep their accounts receivable at optimal heights. The next section presents the materials and methods, while sections three and four provide the result and discussion respectively. Section five concludes the study.

Materials and Methods

In order to comprehend how accounts receivable management is carried out in listed insurance companies in Nigeria, the hypothesis (Ho) needs to be tested. This section explains how the postulate will be studied. The data for the study extracted from the audited and published financial statements and accounts of 20 insurance firms listed on the Nigerian Stocks Exchange (NSE) from 2000-2011 were used for this research work. Ex post facto research design was adopted in the study as one was dealing with historical accounting data already out there To a large extent, this study borrows a leaf from the methodology used in articles such as Sharma and Kumar (2011), Karaduman *et al*, (2011), Lazaridis and Tryfonidis (2006), Deloof (2003) Falope and Ajlore (2009) as well as Dong and Su (2010). However, its methodology differs from those of the aforementioned authors in the sense that while the latter used both return on assets (ROA) and gross operating profit (GOP) as dependent variables for robustness, this study used only ROA as dependent variable for the purpose of simplicity. For reliability purpose of the research instruments, a

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reliability examination was conducted. The data generated were used to run both cross sectional and time series regression. Multiple regression technique was employed in analyzing the model stated. Data were analyzed using the SPSS program. Descriptive analysis exhibited the minimum, maximum, mean and standard deviation of different items in the study while quantitative analysis showed the correlation matrix, regression analysis as well as multi collinearity and hetoskedasticity test results. The correlation matrix indicated the degree of association between accounts receivable and profitability. The correlation matrix, regression analysis, multi collinearity and heteroskedasticity tests were carried out in line with the models advocated by Gauss (1809), University Libraries (2018), Farrar and Glauber (1967) and Bliss (1038) respectively. While running the regression, precaution was taken against the illusions that tend to reduce forecast accuracy namely, complexity illusion, illusion that regression models are sufficient forecasts, illusion that regression puts in place the best linear unbiased estimator, illusion of control and the 'Fit implies accuracy' illusion. Armstrong (2012) asserts that regression-based prediction is most effective when employing a small number of variables, large quantity of reliable and valid data where alterations are expected to be large and predictable while using well-established causal relationships. In order to verify the causal relationship between the variables studied, regression analysis was carried out after adjusting for the heteroskedasticity of the data to minimize the effect of outliers. One dependent variable, Return on Assets (ROA) was put against one explanatory variable, Accounts Receivable Period (ARP), Current ratio, Fixed Financial Total Asset Ratio, Debt Asset Ratio, Growth and Size were included in the model as control variables. The general form of the multiple regression analysis is given thus,

$$Y = b + b_1X_1 + b_2X_2 + \dots + b_nX_n + e \quad (4)$$

Where:

Y = dependent variable

bo = constant of the equation

b1- bn = coefficient of independent variables

X1-Xn = independent variables

e = error term

According to Gujarati (1995), the constants b1,b2...bn determine the slope or gradient of the line and the constant term "b" determines the point at which the line crosses the y-axis, This is otherwise known as the y-intercept. In a bid to test the hypothesis of this study which stated as follows: Account receivables Period does not have a significant effect on return on assets of listed insurance companies in Nigeria, the model could be written as follows:

$$ROA_{it} = B_0 + B_1 (ARPI_{it}) + B_2 (CR_{it}) + B_3 (FFTAR_{it}) + B_4 (DAR_{it}) + B_5 (GDPGR_{it}) + B_6 (NLTA_{it}) + e_{it} \quad (2)$$

Where:

ROA = Return on Assets

ARP = Accounts Receivable Period

CR = Current Ratio

FFTAR = Fixed Financial Total Asset Ratio

DAR = Debt Asset Ratio

GDPGR = per capita Gross Domestic Product Growth Rate

NLTA = Natural Logarithm of Total Asset

Bo = constant of the equation

Bit = coefficient of independent variable

i = insurance firm 1, 2, 3...20th

t = year 1, 2, 3...12th

e = error term.

Return on Assets (ROA), which is the dependent variable, is used as a measure of firm's profitability. Though there exists various measures of ROA, the most often used measure which was used in this study is defined as: Return on Assets = Net income after Taxes ÷ Average Book Value of Total Assets. This was used by the studies like Demirgunes and Samiloglu (2008), Falope and Ajilore (2009), Nasir and Afza (2009), and a lot others. Accounts Receivable Period (ARP) was used here as the explanatory variable. It is calculated thus:

$$ARP = \text{Average accounts receivable} \times 365 \text{ days} \quad (3)$$

Sales

This variable was used in line with the studies carried out by Karaduman *et al*, (2010), Alipour (2011), and Mathuva (2009).

The control variables used are calculated as follows:

$$\text{Size} = \text{Natural Logarithm of Total Asset (NLTA)} \quad (4)$$

This variable was used by Gill *et al*, (2010), Padachi (2006), Alipour (2011) and Dong and Su (2010) to capture and control for economies of scale.

Growth: (GDPGR) = Nigeria's Real per capita Gross Domestic Product Growth Rate the previous year for insurance firm I in year T

This control variable, which was also used by Mathuva (2009), Enqvist, *et al* (2011) and Karaduman *et al*, (2010) is relevant because it controls for the inflationary pressures that affect working capital components. Current Ratio is proxy for short term liquidity. Current Ratio is calculated thus:

$$\text{Current Ratio} = \text{Current Asset} \div \text{Current Liabilities} \quad (6)$$

It was also used as a control variable by studies like Shin and Soenen (1998), Sharma and Kumar (2014) and Zariyawati *et al*, (2008). Debt Asset ratio (DAR). This is calculated thus

$$\text{Average Total Debt} \quad (7)$$

Average Total Assets

This alternative approach for calculating DAR was adopted by Reheman and Nasir (2007), Demirgunes and Samiloglu (2006), Sharma and Kumar (2014) and Shin and Soenen (1998), among others. It was used as control variable to control for leverage. Fixed Financial Total Asset Ratio (FFTAR) is calculated as follows:

$$\text{Fixed Financial Assets} \div \text{Average Total Assets} \quad (8)$$

Among other studies which used this as control variable are Deloof (2003), Raheman and Nasir (2007), Dong and Su

(2004), Lazaridis and Tryfonidis (2006) and Mathuva (2009). According to Deloof (2003), fixed financial assets include the shares in affiliated firms and loans granted with the purpose of establishing a lasting relationship with the affiliates. As stated by Baveld (2012), other studies were hesitant to use this variable because of the possible dearth of data on fixed financial assets.

Secondary data were used for the study. They were extracted from the financial statements obtained from the websites of the National Insurance Commission (NAICOM), the Securities and Exchange Commission of Nigeria (SEC), the Nigerian Stock Exchange (NSE) and the corporate headquarters of the sampled firms.

Population and Sampling

The insurance firms quoted on the Nigerian Stock Exchange (NSE) were used for the purpose of this study to measure the impact of accounts receivable management on the profitability of listed insurance companies. Out of a population of all the quoted insurance companies in Nigeria, a sample of 20 was selected based on the availability of information for the period of study. The sample insurance companies are as follows: All CO Insurance PLC, Cornerstone insurance PLC, Crusader Insurance PLC, Custodian and Allied Insurance PLC, Equity Indemnity Insurance PLC, Guaranty Insurance PLC, Goldlink Insurance PLC, Guinea Insurance PLC, Law Union and Rock Assurance PLC, LASACO Assurance PLC, Mutual Benefit Assurance PLC, NEM Insurance PLC, Niger Insurance PLC, Oasis Insurance PLC, Prestige Insurance PLC, Regency Insurance PLC, Royal Exchange Assurance PLC, Sovereign Trust Assurance PLC, Standard Alliance Insurance PLC and UNIC Insurance PLC.

Period of Study

Twelve years financial statements were considered by the study for the period spanning 2000 to 2011.

Nature of Data

Data Validity and Reliability

The data base which had been used in previous studies are audited and published financial reports. The book values, rather than market values of the data were used.

Potential Research Limitation

The study was limited to listed insurance companies in Nigeria. Consequently, the result may be biased towards the insurance companies that were listed. By limiting the study to quoted insurance companies, the results may not be applicable to those unquoted insurance companies excluded. In addition, the use of ROA as an indicator may be impacted by many other factors apart from the working capital management (WCM) policy towards receivables. These additional factors could be considered as the bases for further research. Further, the variables were calculated using balance sheet (book) values.

Results

Descriptive statistics which aim at providing some basic idea about the variables used in this study in terms of mean, standard deviation, minimum and maximum values of the data collected for the period from 2000 to 2011 and relating to 20 quoted Nigerian insurance companies, are presented in table 2.

Table 2: Descriptive statistics of variables (2000-2011)

Variable	Observations	Minimum	Maximum	Mean	STD Deviation
ROA	240	0.00000	2.590000	0.103363	0.211776
ARP	240	2.530000	1170.522	1443.397	8582.563
CR	240	0.020000	62.90000	6.00341	9.228802
FFTAR	240	0.00000	94515300	4.600575	62.86858
GDPGR	240	125.0000	1984.000	774.7500	432.6076
DAR	240	0.00000	23.21000	0.659823	1.694071
NLTA	240	0.00000	608492.0	68930.96	51338.46

Source: SPSS output from firms Annual Report (2000-2011) Correlations Analysis

Table 3: Correlation Matrix

ROA			ROA	ARP	CR	FFTAR	GDPGR	DAR	NACTA
	Pearson Correlation Si (2-tailed)	R	1	.026	.078	.184	.181	.181	-.015
		P-Value		.704	.791	.000	.000	.000	.826
		N		.221	.225	.226	.226	.226	.226
ARP	Pearson Correlation Si (2-tailed)	R		1	.190	.009	.022	.115	.028
		P-Value			.005	.900	.742	.088	.681
		N			.220	.224	.222	.224	.222
CR	Pearson Correlation Si (2-tailed)	R			1	.017	-.061	-.008	.006
		P-Value				.805	.364	.901	.929
		N				.225	.225	.225	.225
FFTAR	Pearson Correlation Si (2-tailed)	R				1	-.011	.889	-.003
		P-Value					.867	.000	.968
		N					.226	.226	.226
GDPGR	Pearson Correlation Si (2-tailed)	R					1	-.032	-.024
		P-Value						.629	.724
		N						.226	.228
DAR	Pearson Correlation Si (2-tailed)	R						1	-.005

		P-Value	
		N	.936
NACTA	Pearson Correlation Si (2-tailed)	R	.226
		P-Value	1
		N	

Correlation is significant at the 0.01 level (2-tailed) Correlation is significant at the 0.05 level (2. Tailed) Source: SPSS Output on firm's annual reports (2000-2011)

Table 4: Test for multi collinearity and individual contributions of the predictors.

Model	Correlations			Collinearity statistics	
	Zero-order	Partial	Part	Tolerance	VIF
(Constant)					
Accounts Receivable Period	0.26	0.040	0.023	0.892	1.121
Current Ratio	0.19	.058	.034	.958	1.043
Fixed Financial Total Asset Ratio	.786	.300	.186	.796	1.099
Debt Asset Ratio	.782	.293	.181	.893	1.176
GDPIGR	-.007	.022	.013	.993	1.007
Size (log of total assets)	-.016	-.023	.013	.998	1.002

Sources: SPSS output on firm's Annual Report (2000- 2011)

Test for Multi collinearity

Table 4 shows the collinearity statistics. The statistic shows that the tolerances are far away from zero, thereby indicating that there is no case of multi collinearity among the data series. The variance inflation factors (VIFs) are less than 2-indicating that there are no problems of collinearity.

Regression Analysis

Return on assets was regressed with the independent and control variables to obtain the outcome of the predicted relationship.

Decision Rule

Accept the null hypothesis, which states that Accounts Receivable Period does not have a significant positive relationship with the profitability of quoted insurance firms in Nigeria and reject H_0 , if the p-value of the t-statistics is greater than significance level of 0.05. (ii) Reject H_0 and accept H_a if the P-value of the t-statistic is less than or equal to 0.05 level of significance.

Table 5: Regression Result of Equation of Accounts Receivable Period with Dependent Variable (ROA)

Dependent variable:	ROA			
Method:	Panel least squares			
Date:	04/22/15	times	08:25 am	
Sample:	1228			
Included observation:	240			
Excluded observation:	9			
Cross sections included:	20			
White heteroskedasticity – consistent standard errors and covariance.				
Variables	Coefficient	Std error	t-statistics	Prob.
C	0.059672	0.030613	1.949248	0.0526
ARP	-6.26E-07	1.08E-06	-0.580977	0.5619
CR	0.00784	0.000410	1.911704	0.0573
FETAR	0.001417	0.001144	1.238855	0.2168
DAR	0.051087	0.047483	1.075916	0.2832
GDPIGR	6.60E-06	1.74E-05	0.379562	0.7046
NLTA	-5.42E-08	1.26E-07	-0.429769	0.6678
R Squared	0.651206	Mean dependent var		0.105500
Adjusted R Squared	0.641381	S.D, Dependant var		0.214131
SE of Regression	0.128232	Akaike info criterion		-1.238648
Sum squared resid	3.502461	Schwarz criterion		-1.130669
Log Likelihood	143.2513	f-statistic		66.27939
Durbin-Watson Stat	2.098252	Prob (f-statistic)		0.0000

Sources: SPSS output on firms' annual reports (2000-2011).

Discussion

The following observations can be made from table 2 which was prepared based on 12-year data from 2000-2011, for quoted insurance companies. The ROA has a

mean of 0.01 and a standard deviation of ± 0.21 indicating high variance with the mean value of about 10%. It may be concluded that, on the average, the quoted insurance companies faced low profitability during the period. ARP has an average of 1443.397 days and standard deviation of ± 8583 signifying very high variability across the 20

quoted insurance firms. The high variance is normally related to managerial decisions and efficiency in executing their policies. These results of variability are by far higher than those of Deloof (2003), Gill *et al.*, (2010) and Dong and Su (2010) who found an average of 53, 54, 93 days respectively. Table 3 exhibits the Pearson's correlation matrix. It indicates how accounts receivable period correlates with the Return on Assets. The table discloses that accounts receivable period has a weak positive relationship with Return on Assets ($r = 1.026$ at 0.01 level of significance). However, the implication of a positive link between accounts receivable period and ROA is that a higher level of ARP could cause a higher profitability. The regression analysis was examined to find out whether autocorrelation and multi collinearity are present in the data. Durbin Watson (DW) and Variance Inflation (VIF) statistics were used. As the tolerances level exhibited by the multi collinearity test are far away from zero and the VIFs are less than two, the implication is that there are no collinearity problems. The DW statistical value (2.098252) lies between 1.5 and 2.5, this is an acceptable level (see Wheelwright (1978). This means that there was no problem of autocorrelation. The highest VIF score was 1.176 and according to Bavelde (2012), is acceptable because the common rule of thumb is that a VIF score of 5 or higher implies that there exists a high degree of multi collinearity. The White skedasticity test showed consistent standard errors and covariance implying the absence of heteroskedasticity. Since the probability values of the t-statistics are greater than 5% level of significance for the variables tested the null hypothesis is hereby accepted. Therefore, accounts receivable period does not have a significant causal relationship with the profitability of quoted insurance companies in Nigeria. The fixed effect was negative even though the impact was not significant. The model, therefore, is: $ROA = 0.059 - 6.26E - 07ARP + 0.007CR + 0.001FFTAR + 0.05DAR + 6.60E-06GDPGR - 5.42E-08NLTA$.

The coefficient for each of the variables indicates the amount of change expected in ROA given one unit change in the value of that variable, should all other variables be held constant, If ARP increases by one unit (one day) then the ROA will decrease by 6.26×10^{-7} amount. This negative result is consistent with Karaduman, *et al.*, (2004), Lazaridis and Tryfonidis (2006), Garcia Teruel and Martinez-Solano (2007), Padachi (2006) and Enqvist, *et al.*, (2009). The implication is that insurance firms in Nigeria improve their profitability by reducing the credit period granted to their customers. Contradictory result which showed positive relationship between ROA and ARP were found by Sharma and Kumar (2011) and Waweru (2011) and few others. For Sharma and Kumar (2011), the argument is that the positive relationship was caused by the fact that Indian firms had to grant more trade credit to sustain their competitiveness with their foreign competitors who had superior products and services. The adjusted R-Squared which is 0.65 implies that approximately 65% of

the variations in the model is explained by the changes in accounts receivable period.

Conclusion

Based on the forgoing results, this study observes that managers of insurance companies can create value for their shareholders by reducing their number of days Accounts Receivable to an optimal level. Credit terms are a function of competitive environment together with a thorough assessment of the nature and credit-worthiness of the customers. Weak relationship between the variables together with their high variability connotes lack of effective management in accounts receivables. This calls for the effective managerial intervention by listed insurance firms. Their management should concentrate effort on reducing the high variability of accounts receivable period. This study should be further improved upon with larger sample size different variables for working capital and other external variables. In summary, this study has attempted to provide empirical evidence concerning the impact of accounts receivable period on profitability of insurance companies in Nigeria for a sample of 20 Nigerian quoted insurance companies for the period 2000-2011. Multiple regression and correlation analysis were applied in testing the hypothesis. The Results showed that accounts receivable period has an insignificant negative impact on return on assets. The result of negative relationship is in agreement with most of the studies carried out in other countries in the past.

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