Liquidity Management and Profit Performance of Pharmaceutical Manufacturing Firms Listed In Nigeria Stock Exchange

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Abstract
This study examined the impact of liquidity ratios on the profitability of pharmaceutical companies that are quoted on Nigeria stock exchange. Manufacturing companies were chosen based on the fact that they are very crucial to the development of adequate and proper healthy conditions for the nation and needs to be viable in their operations to satisfy the public expectations from them. The variables studied are the liquidity ratio, the debt ratio, the receivable ratio, and the sales growth ratio. The researchers used only secondary sources of data. The data were extracted from the annual report and financial statements of selected manufacturing pharmaceutical entities in Nigeria covering the period 2000 to 2011. The date was analyzed and the hypotheses were tested using multiple regression analytical tools. The findings show that the liquidity ratio and profitability of the companies’ studies are significantly and positively related. The debt ratio and the sales growth ratio have a positive but not significant impact on profitability of the firms. The receivable ratio has a negative impact on the profitability but the relationship is not significant. The study then recommended that the companies should engage experts in the management of their receivables, or train and retrain their managers on management of liquidity. They should also intensify efforts in the collection of debts from customers. Debt collector’s services can be obtained from consultants who are experts in the field. Realizing that unhealthy competition can affect the working capital position of firms, the study equally recommended that the government should take action towards regulating these businesses to avoid some growing companies falling into liquidity difficulty as a result of the competition.

Keywords: Liquidity Ratio, Receivables Ratio, Sales Growth Ratio, Debt Ratio, Pharmaceutical, Profitability

1. Introduction
Liquidity is a word used to describe the ease with which an asset can be turned into cash. Liquidity is a measure of the ability of a firm to pay its debts when they are due. Current assets are associated with liquidity because they can easily be converted into cash. Current assets are very crucial for the survival of any business because they provide funds for settlement of the firm's current obligations. Many business failures are traced to their inability to pay their debts; though companies may be making profits and have a long-term financial strength (Price et al., 2003). Hence the management of liquidity is a vital factor for business survival and profitability. Today, business is expanding and changing at a rapid pace following societal needs. Business is considered the lifeblood of a growing economy, and its role in the capital formation of a country is very vital. Therefore, it is crucial that businesses should be managed effectively and efficiently.

Some of the problems the business managers encounter today include procurement of funds and the meaningful deployment of resources for the generation of maximum returns. The rising cost of capital and scarce funds call for efficient utilization of resources, especially liquid funds. The importance of liquidity requires particular attention. Many researchers believe that the way and manner a firm manages its working capital helps to determine its profitability. The inefficient management of working capital is harmful to a company. It does not only reduce profitability and disrupts normal operations of the business; it can ultimately lead to varying degrees of financial crises, excessive and inadequate liquidity, business failure and bankruptcy if unchecked (Russel, 2015; Mansueto, 2009; Busutti, 2014).

The study focuses on the pharmaceutical sector of the Nigerian economy. The pharmaceutical industry in Africa including Nigeria has a considerable economic potential for growth and positively impact on gross domestic product and employment (African Development Bank Group, 2014). The increasing population of the country and the high incidence of diseases have made the sector to be a vibrant market and one of the fastest growing sectors of the economy with an estimated growth rate of 7 to 9% annually. With a Nigerian population estimated at 168 million and an average annual growth rate of 3%, there is increased demand for improved, adequate and efficient healthcare (Proshare, 2008; Elemuwa, 2013). The aggregate cumulative investment of over $44m (₦70 billion then) in the Nigerian pharmaceutical industry in 2013 for expansion and upgrading of manufacturing processes in this era of scarce investible funds and the tight fiscal policy regime calls for proper management of resources for a good return on investment (Olaopa, 2013). Moreover, most
Nigerian firms suffer from inadequate liquidity to handle their day-to-day operational activities (Olugbenga, 2010). However, low profitability and return on investment become the natural consequence (Okafor, 2011). Most of the pharmaceutical firms in Nigeria achieved negative sales growth in 2009. Ndukauba et al., (2011) attributed this result to funding the gap necessary for the capacity upgrading and challenging operating conditions giving rise to poor working capital management.

In the extant literature on financial management, relationships have been established between liquidity and profitability (Priya et al., 2013; Owolabi et al., 2012; Ben-Caleb et al., 2013). However, the empirical study of this relationship in pharmaceutical firms in Nigeria is scant and the results of studies are not currently in agreement with one another. Moreover, previous studies did not use the sales growth ratio as a factor that can impact on liquidity of a firm. In consideration of the above circumstance, an attempt has therefore been made to undertake an empirical study on the liquidity practices among companies in the Nigerian Pharmaceutical Industry (NPI) enlisted in the Nigeria Stock Exchange (NSE). We used Nigeria as the case study because of the high documented incidence of corporate failures (Adebiyi, 2015).

Therefore, this article broadly investigates the relationship between liquidity and profitability ratios on the of Nigerian pharmaceutical entities. The study focuses on the following objectives:

1. Ascertain the impact the current ratio has on the profitability of drug businesses in Nigeria.
2. Examine the impact the quick ratio has on the profitability of pharmaceutical firms in Nigeria.
3. Ascertain the impact receivable ratio has on the profitability of drug companies under study.
4. Evaluate the impact sales growth rate has on the profit performance of pharmaceutical entities in Nigeria.

To guide this study the authors developed the following hypotheses:

1. The current ratio has no meaningful and positive relationship with the profitability of pharmaceutical businesses in Nigeria.
2. The quick ratio has no considerable and positive impact on the corporate profitability of Nigerian pharmaceutical businesses in Nigeria.
3. The receivable ratio has no meaningful and positive effect on the business profitability of pharmaceutical entities in Nigeria.
4. The sales growth rate has no meaningful positive relationship with the profit performance of pharmaceutical entities in Nigeria.

2.0. Review of Related Literature

2.1 Liquidity Management and Profitability

Liquidity is the characteristic of an item that can be readily convertible to cash. Its management is a very topical issue in measuring firms’ ability to settle current obligations without any disruption in the daily operations of an organization. It involves coordination of the company's various sources of funds and use of such funds to ensure that current obligations are met as and when due without any loss or adverse result on the financial condition of the firm. Price et al., (2003) recognized that many profitable companies with long-term financial strength have failed because of their inability to honour their debts’ obligations. It is a critical factor in measuring the short-term strength of an entity. Liquidity management ensures that cash which is said to be ‘the lifeblood of businesses’ is available as and when needed in business activities (Huston, 2015). Managers are enabled to reduce the liquidity risk exposure of their firms through the management of liquidity. In the modern competitive environment, liquidity management has become so significant in that it enables companies to avoid shortage or excessive holding of cash resources. It is uneconomical to hold excessive cash instead of investing it in productive assets (Libby et al., 2001).

In managing liquidity, ratios are indispensable because they help in determining the relationship between one variable and another. Liquidity management aims at not having too high a current ratio, but at maintaining a liquidity balance that
would generate profit for the firm (Priya et al., 2013). The relevant ratios are cash, the current, the quick, the receivable and the inventory turnover ratios. Current ratio which shows how total current assets is related to total current liabilities is widely used to measure the liquidity of an entity in the settlement of its short-term obligations. Cash Ratio is the relationship between cash and current obligations and it measures the adequacy of cash in the settlement of employees, creditors, and other current debts (Libby et al., 2001). Management of liquidity has led some companies to devise a system of not carrying many inventories as part of the working capital item. This method is called just-in-time inventory which means that the stock is supplied only when needed. However, this system works better for manufacturing firms rather than retail businesses where demand may be immediate. (Libby et al., 2001)

This study tried to examine the impact some liquidity ratios have on the profitability of the firms under study; whether the way they manage their liquidity hinders the success of their businesses or not. Profitability measures the total success of a company and an essential condition for its survival (Libby et al., 2001). Profitability also measures the adequacy of income generated in a particular year by an entity by comparing the profit made by a company with those of previous years, and those of one or more other companies in a similar industry.

**Liquidity Management and Profitability Relationship**

Liquidity is a crucial factor in boosting the profitability of an entity. Management of an entity and achievement of profit planning are not possible without liquidity assets. Various studies have been carried out by authors in this regard to establish the relationship between these two variables but the results vary. While some show evidence of positive association others show negative results. For instance, studies carried out by Bhunia et al.,(2011), Ben-Caleb et al., (2013) revealed a small degree of association between liquidity management and profitability of entire firms studied even when the multiple correlation statistics disclosed that liquidity and solvency position was very satisfactory, and liquidity management relatively efficient. The implication of the results of these studies is that maximum profit is achievable at a certain level of cash management position. The result attests further to the crucial importance of liquidity management in financial management decisions. Bhunia et al., (2011) opined that a company that manages the trade-off between profitability and liquidity management can reach optimal liquidity.

The result of similar studies carried out on manufacturing firms in Nigeria by Owolabi et al., (2012) indicated that credit policies, the cash conversion cycle and cash flow management (as indices of liquidity) significantly and positively impacted upon the profitability of the firms. Out of twelve (12) manufacturing firms studied, nine (9) companies showed a good level of liquidity management, and that reflected positively on the profitability of the companies. The authors concluded that proper management of creditors' payment period, cash conversion cycle and debtors' collection period would impact positively on the profitability of firms. However, Victor et al., (2013) studied the association between liquidity and profitability of listed banks in Ghana. The authors regressed the liquidity ratio against the profitability ratio. The result obtained indicated that the liquidity and profitability relationship of the banks was positive but weak. It is an indication that the managers of cash and cash equivalent of those companies have not been able to identify the level of liquidity that could enhance the profitability of the companies. Contrary to this result was the finding of Renato (2010) which recorded that the correlation between liquidity and profitability was significant and positive. The author's observation was that company that showed signs of deterioration in liquidity were also the ones that showed low profitability. The author remarked that such result was possible only on the short run and then concluded that to guaranty stability of the firm’s finances over the medium to longer term; a level of equilibrium between liquidity and profitability has to be maintained.

Priya et al., (2013) arrived at the same result after studying the impact which the cash management has on profitability of listed manufacturing companies in Sri Lanka from the period 2008 - 2012. Inventory sales ratio (ISR) and the current ratio (CR) were used as indices representing cash and equivalent while return on the asset (ROA) represented a measure of companies' performance. The result revealed that liquidity management significantly correlated with profitability. The question is what has given rise to these differences in results of various studies? The answer is not farfetched when realizing that firstly, authors treat liquidity management using different working capital components as indicators of liquidity. The indices are such like the current, quick, cash conversion cycle and other solvency ratios in measuring the influence of liquidity on profitability. Secondly, managers and companies are not the same. That explains why liquidity and profitability relationship of a particular set of companies may be significant and positive, but for individual companies the result may be the opposite. Many analysts are now advocating for the use of quick and current ratios instead of the working capital approach which was seen as the traditional technique used in planning and control of liquidity. Now
researchers and analysts prefer using current and quick ratios because of the possibility of using them for its benefit for cross-sectional comparison (Eljelly, 2004). For instance, Eljelly (2004) adopted the current ratio and cash gap which the author called the cash conversion cycle for empirically evaluation of the relationship between profitability and liquidity of a sample of Saudi Arabia companies. The study used correlation and regression analysis and found that the firms' profitability was negatively and significantly correlated with the firms' liquidity level. The author observed that the companies whose current ratios are high and the cash conversion cycle longer were the ones that had this negative result. The implication was that as the companies' current ratio increased and cash conversion cycle elongated, the profit was decreased. However, the survey considered the cash conversion cycle more important measure of liquidity than the current ratio at the industrial level. The author concluded by saying that efficient management of receivable requires current assets and current liabilities should be planned and controlled with the objective of removing the risk of not meeting short-term obligations when due and reduce unnecessary investment on current assets (Eljelly, 2004).

2.2 Working Capital and Profitability

Working capital speaks a lot about the efficiency of entity’s management. It indicates efficiency or inefficiency of management of receivable, inventory, revenue collection, and payables (PwC, 2014). Nadeem et al., (2014) examined the components of working capital and their impacts on the profitability of companies in Pakistan. The survey result shows that the cash conversion cycle was negatively related with the profitability of the companies. This result was in contrast with the result of the study carried out by Eljelly (2004) which reported cash conversion as being more relevant than the current ratio. Differences in the management pattern of the companies might have been the cause of the variations in these results. However, a similar study by Arvit et al., (2005) on the Indian pharmaceutical industry revealed a negative relationship between working capital as a whole, and profitability. This made the authors conclude that no definite relationship existing between profitability and liquidity of the industry. Vishanani et al., (2007) came up with a similar result after evaluating the policies guiding the working capital management of the Indian consumer electronic industry. The authors equally reported of the nonexistence of established correlation between liquidity and profitability as a whole, though individual results revealed that most of the companies’ liquidity positions associated positively with profitability. The likely reason for this result could be that some components of working capital were properly managed while others were not. It is necessary to give consideration to every part of working capital because all combined must be adequately managed to attain the maximum result.

Lyroudi et al., (2000) used the cash conversion cycle as the liquidity indicator, and return on investment, net profit margin, and return on equity as performance measurement indicators to ascertain the relationship between profitability and liquidity of food industry in Greece. The result showed that the cash conversion cycle relate significantly and positively with the profit performance of the industry. Attari et al., (2012) reported the existence of a negative association between cash conversion cycle and performance as measure by return on total assets. The Cash conversion cycle has been the most modern dynamic technique for measurement of liquidity level of firms. The most traditional liquidity analysis techniques for determination of solvency level of companies are current ratio; the quick ratio and the cash ratio. Lyroudi et al., (1993) studied small U.S companies for the period 1984 – 1988 to discover the relationship between these traditional and modern liquidity measurement techniques. The authors found that the cash conversion cycle and the current ratio were negatively related. However, the cash conversion cycle was positively correlated with the quick ratio. Also, the study revealed that the period of conversion to cash differs in retail, wholesale, manufacturing, and service industries. Using the modern liquidity measurement technique has the advantage of helping to evaluate the change in the working capital, and it facilitates the monitoring and controlling of working capital components such as inventories, receivable, and payables. The shorter the cash conversion cycle, the quicker the firms can recover money from sales of finished products thereby making more cash available for business operations. A high cash conversion cycle means a longer time to recover, and that is a serious problem of liquidity for the company (Lyroudi et al., 2000).

Asiao et al., (1997) in their study assert that the substantial difference in firms’ characteristics and investment pattern across companies may affect liquidity. Karaduman et al., (2011) empirically investigated how efficient management of working capital relates with profitability of selected companies in Istanbul from 2005 – 2009. Efficiency of working capital was measured with cash conversion cycle while performance indicator was return on asset. The survey result shows that the reduction in the cash conversion Circle (CCC) positively affected return on assets.

2.3 Working Capital Adequacy

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Enyi (2005) examined the relative solvency level of 25 sample firms. The result revealed that the traditional liquidity measurement of stability level could not conclusively determine the proper volume of working capital. Also, the study showed that the firms with adequate working capital compared with their operational size showed better performance than companies with less working capital relating to their functional size. The size of working capital can be linked to the functional size of a company; still, the optimal mix of the indices remains a matter of concern. It is in determining the appropriate volume and mix that the significance of working capital management is anchored. Bhunia (2007) in his study of public sector iron and steel enterprises in India observed that the working capital adequacy of the industry depends to a large extent on the size of management. The study revealed the inadequacy of working capital to handle the current obligations of companies, and he concluded that reduced working capital position signifies poor working capital management.

Olugbenga (2010) in his survey on the association between working capital and liquid assets of companies in Nigeria found out that most Nigeria companies suffer from the inadequacy of cash to meet their short-term financial obligations. His recommendation was that businesses should strive to maintain an optimal level of liquidity and should use short-term bank facilities as their last resort.

2.4 Liquidity and debt ratio
Debt ratio represents a measure of the company’s ability to pay back loans and the attached interest obligations when due. It helps in assessing the financial risk of a company as well. Kim et al., (1998) in (Singh et al., 2010) investigated the factors that determine liquidity of 915 U.S industrial firms from 1975 to 1994. Their study reveals among other results, that liquidity and cost of borrowing are positively related (Singh et al. 2010). The result also revealed that companies with frequent changes in earning and relatively lower return on assets than liquid assets seem to have a significant liquidity. In another study carried out on the factors affecting working capital management, it was discovered that a meaningful negative correlation exists between debt ratio, net liquidity balance, and the working capital requirement (Chiou et al., 2006 in Kaveh et al., 2013). The study by Nadeem et al., (2014) showed a negative relationship between debt finance and profitability. Financing of current assets is a crucial aspect of liquidity management which should be treated with all amount of seriousness.

2.5 Sales Growth and Working Capital Improvement
Sales growth refers to the revenue increase arising from enhanced sales over a period. Sometimes decreases in sales occur and that becomes a negative growth. Sales growth can be measured using the sales growth ratio, and the measurement helps to determine how fast the firm is growing. It tries to show the rate of growth achieved by a company in its operating revenue from the previous period. The ratio is usually expected to be high every year if the business must achieve profitability. The belief is that increase in sales revenue will generate a similar increase in the cash thereby improving the working capital position of a company. Merritt (2016) argues that sales growth can only increase working capital for a business that has been operating efficiently and generating profit. For a company that has not been running efficiently, sales growth might not positively influence working capital because expenses charged to gross profit may consume the cash expected from increased sales. For sales growth to effect money used for daily operations, more profit must be generated, and sales revenue must be more than expenses required to achieve that revenue. For instance, expansion of sales needs financing so that one does not focus on just revenue growth. The finance cost must be charged to profit. So for profitable firms, monthly cash flow can turn to the positive working capital, but for small, unprofitable companies high sales growth can turn to negative cash flow (Fulmer et al., 2016). The businesses that achieve sustained working capital are found to be those that perform above average. The sustained working capital is an indicator of efficient management and companies with good performance in working capital management perform better than their counterparts (PwC, 2014).

The increase in working capital days is an indication that a company is experiencing high sales growth while a decrease is a sign that the firm is struggling to maintain sales growth. Working capital is a reflection of the company's performance inventory, debt, revenue collection and payments to suppliers' management (Investing Answers, 2016).

3. Research Methodology
The study adopted Ex-post factor design. The population of the survey is all the companies under pharmaceutical manufacturing firms quoted in Nigerians Stock Exchange (NSE), while the sample size consists of three pharmaceutical
companies whose data were available. The Pharmaceutical sector chosen was because of its importance in the national healthcare delivery, and their survival will be of great benefit to the healthcare system and wellbeing of the people of the country. The study used only secondary data extracted from Annual Reports and Statements of Accounts of the companies surveyed. The data for this study include Current Assets, Current Liabilities, Sales, long-term loan and profit before tax. Dependent variables are the current ratio, the receivable ratio, the debt ratio and the sales growth ratio while the independent variable is profitability measured by return on assets.

The study made use of generalized least square multiple regression techniques to estimate the impact the various independent variables have on profitability (dependent variable). The multiple regression estimators are:

\[ Y = B_0 + B_1 + B_2 + B_3 + U_1 \]  

Where \( Y \) = Profitability  
\( B_1 \) = Liquidity  
\( B_2 \) = Sales growth  
\( B_3 \) = Debt

The study used regression analysis in used in testing the hypothesis. Tables 4.1 to 4.3 shows the results of analysis.

### Model Specification

**Hypothesis One**

\[ \text{ROA} = \alpha + \beta \text{LR} + e \]

where ROA = Return on Asset and LR = Liquidity Ratio

**Hypothesis Two**

\[ \text{ROA} = \alpha + \beta \text{DR} + e \]

where ROA = Return on Asset and DR = Debt Ratio

**Hypothesis Three**

\[ \text{ROA} = \alpha + \beta \text{RR} + e \]

where ROA = Return on Asset and RR = Receivable Ratio

**Hypothesis Four**

\[ \text{ROA} = \alpha + \beta \text{SGR} + e \]

where ROA = Return on Asset and SGR = Sales Growth Ratio

### Regression Analysis

The analysis was carried out on each of the hypotheses but summarized in the Tables below.

#### 4.1. Test of Hypothesis One

**Current ratio has no significant and positive impact on profitability of pharmaceutical companies in Nigeria**

The study used regression analysis in used in testing the hypothesis. Tables 4.1 to 4.3 shows the results of analysis.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.590(^a)</td>
<td>0.348</td>
<td>0.282</td>
<td>0.16655</td>
<td>1.374</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), LR  
b. Dependent Variable: ROA

Based on the results shown in Table 4.1, the regression coefficient (r) of 0.590 indicates an average relationship between the independent variable (the liquidity ratio) and the dependent variable (ROA). The coefficient of

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The coefficient of determination ($r^2$) of 0.348 reveals that 34.8% of the variation observed in the return on assets (dependent variable) was caused by the liquidity ratio (the independent variable).

### Table 4.2: ANOVA Table for Hypothesis One

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.148</td>
<td>1</td>
<td>.148</td>
<td>5.329</td>
<td>.044a</td>
</tr>
<tr>
<td>1</td>
<td>Residual</td>
<td>10</td>
<td>.028</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.425</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: ROA  
b. Predictors: (Constant), LR

As presented in Table 4.2, with a regression sum of square of 0.148 < the residual sum of squares of 0.277, this variation is due to chance. The F-value and corresponding significance value of 5.329 (0.044) shows that these results are significant.

### Table 4.3: Coefficients Result for Hypothesis One

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>-.221</td>
<td>.159</td>
<td>-1.388</td>
<td>.195</td>
</tr>
<tr>
<td>CoLR</td>
<td>.211</td>
<td>.091</td>
<td>.590</td>
<td>2.308</td>
</tr>
</tbody>
</table>

a. Dependent Variable: ROA

As presented in Table 4.3 above, the model for the relationship between current ratio and profitability (ROA) for the sampled pharmaceutical companies is:

$$ROA = -0.221 + 0.211LR$$

This result reveals that liquidity ratio has positive impact on profitability. With t-value > 1.96 (t-critical) and p-value < 0.05, this impact is significant.

Based on the results, the current ratio has a significant and positive impact on profit performance of pharmaceutical companies in Nigeria.

**Test of Hypothesis Two**

**Debt ratio has no significant and positive impact on corporate profitability of Nigerian pharmaceutical companies in Nigeria**

The test of hypothesis two was carried out using regression analysis and presented in Table 4.4 to 4.6.

### Table 4.4: Model Summary for Hypothesis Two

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.058a</td>
<td>.003</td>
<td>-.096</td>
<td>.20586</td>
<td>.911</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), DR  
b. Dependent Variable: ROA

The regression coefficient (r) of 0.058 indicates a weak relationship between the independent variable (the debt ratio) and the dependent variable (ROA). The coefficient of determination ($r^2$) of 0.003 reveals that 0.3% of the variation observed in the dependent variable was caused by the independent variable.

### Table 4.5: ANOVA Result for Hypothesis Two

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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The difference observed is due to chance having a regression sum of the square of 0.001 < the residual sum of squares of 0.424. The F-value and corresponding significance value of 0.033 (0.858) shows that these results are not significant.

Table 4.6: Coefficients for Hypothesis Two

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>.125</td>
<td>.065</td>
<td>1.908</td>
<td>.086</td>
</tr>
<tr>
<td>CoDR</td>
<td>.031</td>
<td>.169</td>
<td>.058</td>
<td>.183</td>
</tr>
</tbody>
</table>

As presented in Table 4.6 above, the model for the relationship between debt ratio and profitability (ROA) for the pharmaceutical companies is:

\[
ROA = 0.125 + 0.031DR
\]

This result reveals that debt ratio has a positive impact on profitability. However, with t-value < 1.96 (t-critical) and p-value > 0.05, this impact is not significant.

Based on these results, debt ratio has no significant and positive impact on profitability of Nigerian pharmaceutical companies in Nigeria.

Test of Hypothesis Three

Receivable ratio has no significant and positive impact on corporate profitability of pharmaceutical companies in Nigeria

The results for the tests of hypothesis three are presented in Tables 4.7 to 4.9.

Table 4.7: Model Summary for Hypothesis Three

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.376*</td>
<td>.142</td>
<td>.056</td>
<td>.19104</td>
<td>1.104</td>
</tr>
</tbody>
</table>

The regression coefficient (r) of 0.376 indicates a weak relationship between the independent variable (the receivable ratio) and the dependent variable (ROA). The coefficient of determination (r^2) of 0.142 reveals that 14.2% of the variation observed in return on the assets (the dependent variable) was caused by receivable ratio (the independent variable).

Table 4.8: ANOVA Result for Hypothesis Three

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression</td>
<td>.060</td>
<td>1</td>
<td>.060</td>
<td>1.651</td>
<td>.228*</td>
</tr>
<tr>
<td>1</td>
<td>Residual</td>
<td>.365</td>
<td>10</td>
<td>.036</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.425</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
With the regression sum of the square of 0.060 < the residual sum of squares of 0.365, this variation is due to chance. The F-value and corresponding significance value of 1.651 (0.228) shows that these results are not significant.

Table 4.9:  Coefficients for Hypothesis Three

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>.171</td>
<td>.064</td>
<td></td>
<td>2.677</td>
</tr>
<tr>
<td>CoAR</td>
<td>-.009</td>
<td>.007</td>
<td>-.376</td>
<td>-1.285</td>
</tr>
</tbody>
</table>

As presented in Table 4.9 above, the model for the relationship between receivable ratio and profitability (ROA) for the pharmaceutical companies is:

\[ ROA = 0.171 - 0.009RR \]

This result reveals that receivable ratio has a negative impact on profitability. However, with t-value < 1.96 (t-critical) and p-value > 0.05, this impact is not significant.

Based on these results, the receivable ratio has no significant and positive impact on profitability of pharmaceutical entities in Nigeria.

Test of Hypothesis Four
Sales growth ratio has no significant and positive impact on corporate profitability of Nigerian pharmaceutical companies in Nigeria

The results of the regression analysis used in testing the hypothesis are presented in Table 4.10 to 4.12.

Table 4.10:  Model Summary for Hypothesis Four

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.473a</td>
<td>.224</td>
<td>.146</td>
<td>.18165</td>
<td>.558</td>
</tr>
</tbody>
</table>

The regression coefficient (r) of 0.473 indicates a reasonable relationship between the independent variable (the sales growth ratio) and the dependent variable (ROA). The coefficient of determination (r²) of 0.224 reveals that 22.4% of the variation observed on the dependent variable is caused by the independent variable.

Table 4.11:  ANOVA Results for Hypothesis Four

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.095</td>
<td>1</td>
<td>.095</td>
<td>2.885</td>
<td>.120b</td>
</tr>
<tr>
<td>1</td>
<td>Residual</td>
<td>10</td>
<td>.033</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.425</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With a regression sum of square of 0.095 < the residual sum of squares of 0.330, this variation is due to chance. The F-value and corresponding significance value of 2.885 (0.120) shows that these results are not significant.

Table 4.12:  Coefficients for Hypothesis Four

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>.081</td>
<td>.060</td>
<td></td>
<td>1.350</td>
</tr>
<tr>
<td>CoSGR</td>
<td>.042</td>
<td>.025</td>
<td>.473</td>
<td>1.699</td>
</tr>
</tbody>
</table>

a. Dependent Variable: CoROA
b. Predictors: (Constant), CoSGR
As presented in Table 4.1 above, the model for the relationship between sales growth ratio and profitability (ROA) for the pharmaceutical companies is:

$$\text{ROA} = 0.081 + 0.042 \times \text{SGR}$$

It shows that the sales growth ratio has positive impact on profitability. However, with t-value < 1.96 (t-critical) and p-value > 0.05, this impact is not significant.

Based on the results of the sampled companies, the sales growth ratio has a positive impact on the corporate profitability of pharmaceutical companies in Nigeria though the impact is not significant.

4.2. Discussion on Findings

The multiple regression analysis of the relationship between liquidity, debt, receivable and sales growth ratios of the three firms and profitability reveals that current ratio has a significant positive correlation with the profitability of the industry. It is in agreement with the study carried out by Renato (2010) albeit the author states that the relationship is for a short period necessitating that equilibrium should be maintained between optimum levels of liquidity otherwise it would result in a negative relationship with profitability.

Debt ratio has a positive but not significant relationship with the profitability of pharmaceutical firms in Nigeria. It disagrees with the result obtained by Chiou et al. (2006) in Kavey et al. (2013) in which the authors discovered a significant negative relationship between debt ratio and net working capital balance.

The regression analysis shows that receivable ratio has a negative impact on the profitability of pharmaceutical companies in Nigeria, but the relationship is not significant. The result is an evidence of poor receivable management. The implication is that any increase in receivables will reduce the working capital level. Decrease in working capital days according to Investment Answer (2016) is evidence that the company is overleveraged, struggling to grow sales, so quickly paying bills, and too slow in collecting receivables.

The regression analysis also shows that sales growth ratio of the firms has a positive relationship with the profitability of pharmaceutical companies in Nigeria though the relationship is not significant. Though increase in sales results in increase in profitability but Nwangi (2008) posits that an optimum point should be identified and maintained beyond which further sales growth may adversely affect profitability and value of firms.

5. Conclusion and Recommendation

5.1. Conclusion

In the present day context of rising capital cost and scarce funds, the importance of liquidity needs special emphasis. It has been widely accepted that profitability of a business concern depends largely upon the manner in which its liquidity is managed. Excessive or inadequate liquidity is harmful for a firm; it also interrupts the normal operations of a business as well as its growth and survival. An attempt has been made to examine the effect of liquidity management on the profitability of healthcare companies in Nigeria from 2000 to 2011. Multiple regression technique was used to test the hypotheses, and it was found out that liquidity had significant and positive relationship with the profitability of healthcare firms in Nigeria. There was also negative and significant relationship between debt ratio and profitability. This means the higher the equity financing of assets, the less profitable the firms become. Sales growth rate had positive relationship with the profitability of these companies under study. Sales gives rise to almost all the components of working capital and should not be neglected when considering the effect of liquidity on profitability of companies. Profitability rises with sales growth (Nwangi, 2008).

5.2. Recommendations:

The Federal Government should regulate the industry to avoid the unhealthy competition going on in the industry. The degree of competition in an industry market may determine the working capital condition of firms. The more the competition the more the firms may resort to borrowing which is detrimental to the health of the working capital. It has been observed that most of the healthcare firms are just at their growing stage which require more working capital then those that have attained maturity for a good number of years. It
therefore follows that advanced, adequate planning and management of liquidity is a necessary requirement for survival and growth.

The Nigerian healthcare industry should engage experts for proper management of their liquidity to ensure growth and survival of the company bearing the competitive condition in the industry. There is equally need for government to embark on policy of reduced borrowing cost for pharmaceutical and healthcare firms in Nigeria so as to give firms in the industry some financial breathing space which will go a long way in boosting their liquidity. Adequate funding by the government to enable the phamaceutical industry upgrades its capacity for expansion and acquisition of facilities for its operations. The statement of financial positions of these firms in 2009 shows that most of the firms were highly leveraged and largely depended on short-term funding without significant capital raising activity throughout the year (Ndukauba et al., 2011).

References


