**Liquidity and Profitability of Selected Qouted Agricultural nd Agro-Allied firms In Nigeria**

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***ABSTRACT***

 *Achieving equilibrium between profitability and liquidity continued to be a source of concern to the company’s financial managers. Most of the extant studies has been done before the adoption of International Financial Reporting Standard (hereafter referred as IFRS) in Nigeria. Due to the mixed results from these extant studies, this subject area remains open for further studies. Since the adoption of IFRS in Nigeria, the relationship between liquidity and profitability is still not well known. The study is aimed at finding out the relationship between liquidity [proxied by quick ratio (QR), current ratio (CUR), cash ratio (CAR) and cash conversion cycle (CCC)] and profitability measured by return on asset (ROA) of quoted agricultural and agro- allied companies Nigeria since adoption of IFRS in 2012 to 2016. The study covered the 15 listed agricultural and agro –allied companies in Nigeria between the periods of 5 years from 2012 to 2016. The study used E-views 9.0 under which the regression analysis was used in the analysis and findings of the study which suggest that there is a positive significant relationship between liquidity and profitability of listed agricultural and agro –allied companies in Nigeria. It showed that there is a positively significant relationship between cash conversion cycle and profitability measured by return on asset. This study found out that there is a positively insignificant relationship between quick ratio, current ratio and cash ratio and the profitability of listed agricultural and agro –allied companies in Nigeria. The study recommends that managers should increase length of cash conversion period (account receivable) for listed agricultural and agro-allied companies by increasing the length of time to pay their debtors and decreasing the length of time of account payable.*

***KEYWORDS:*** *Profitability, Liquidity, Agro-allied companies and stock exchange*

## **1.0 Introduction**

## **1.1 Background of Study**

Liquidity is the measure of a firm capacity to satisfy the short-term financial obligation of the firm as they fall due. Padachi (2006) suggested that a company is obligatory to uphold equilibrium between liquidity position and its management with its profitability since both insufficient liquidity and excess liquidity unswervingly influence profitability. Liquidity and profitability are inversely related in such a way that when liquidity increases profitability decreases, therefore there should be a proper degree of liquidity. This indicates that liquidity should neither be in excess or inadequate. When liquidity is in excess it implies that there will be increase in the cost of capital, return on asset will reduce and increase in overall risk by destroying business value and can create overly confident management team which will later lead to decrease in profitability, while inadequate liquidity will affect the business operation in a negative way (Raheman & Nasir, 2007; Otekunrin, Nwanji, Agba, Olowookere, Fakile, Lawal, Ajayi, & Falaye, 2018). Since the adoption of IFRS in Nigeria there are little research done on the relationship between liquidity and profitability on quoted agricultural and agro-allied companies in Nigeria. Hence this study examined whether liquidity and profitability after adoption of IFRS are related. Liquidity is proxied by quick ratio (QR), current ratio (CUR), cash ratio (CAR) and cash conversion cycle (CCC) and profitability measured by return on asset (ROA).

## **Research Questions**

## The following specific research questions were answered:

## What is the relationship the relationship between QR and ROA?

## What is the relationship the relationship between CUR and ROA?

## What is the relationship the relationship between CAR and ROA?

## What is the relationship between cash conversion cycle and ROA?

## **Objectives of the Study**

This study seeks to achieve the following specific objectives to:

1. examine the relationship between QR and ROA
2. investigate the relationship between CUR and ROA.
3. examine the relationship between CAR and ROA.
4. examine the relationship between CCC and ROA.

##

## **1.4 Research Hypothesis**

Hypothesis 1

Hο; there is no relationship between QR and ROA

Hypothesis 2

Hο; there is no relationship between CUR and ROA

Hypothesis 3

Hο; there is no relationship between CAR and ROA

Hypothesis 4

Hο; there is no relationship between CCC and ROA.

## **1.5 Scope of Study**

The study centres on the relationship between liquidity and profitability of agriculture and agro-allied sector of Nigeria Stock Exchange (NSE) from 2012 to 2016 effectively since adoption of International Financial Reporting Standards (hereafter referred as IFRS). This study was conducted on only selected quoted agricultural and agro-allied companies in Nigeria, therefore the finding should not be generalised for the whole agricultural and agro-allied companies operating in Nigeria

## **1.6 Significance of Study**

The need for liquidity management in a business cannot be overemphasized. The favourable liquidity and performance growth are helpful indicators to drive stakeholders’ behaviours (Manyo & Ogakwu, 2013). The liquidity position of a company is important to both the stakeholders and shareholders of company. Suppliers would check the liquidity position of the company to decide whether to supply goods on credit. The employees of the company also want to know the liquidity position of the company in order to whether the company can perform it obligation to it employees such as salaries, pension etc. Also, the shareholder cannot be left out in this because they know the impact of liquidity on the profitability of the company. Therefore, liquidity management ensures that liquidity is at an efficient level to ensure suppliers provide goods to the company on credit, to assure employees that their entitlement will be paid and also assure shareholders that there will be maximization of wealth.

# Literature Review

## **2.1 Concept of Profitability**

A firm or investment with ability to make profit after matching the required period expenses to revenue generated for the period is considered to be profitable firm or investment and such firm is considered to be on going concern. Going concern means the business is not expected to run down within a foreseeable future (Harward & Upton 2007; Otekunrin, Iyoha, Uwuigbe & Uwuigbe, 2017). No unprofitable firm or investment that can continue to survive within a considerable period of time in business. Profitability indicates how efficiently the management can make profit by utilizing the resources available in the business environment. Ratios of profitability are useful tools in financial ratio analysis (Jamali & Asad, 2012; Otekunrin, Nwanji, Egbide, Fakile, Lawal, Ajayi, Falaye & Eluyela, 2018). These ratios measure how well the company is effectively and efficiently managing its resources to make profits. Profitability ratios commonly used to measure firm’ overall efficiency in generating returns for its shareholders include return on assets (ROA), return on equity (ROE) and return on capital employed (ROCE). ROA is a measure of profitability is used to examine whether the total available assets has being effectively and efficiently utilized to generate a level of income that is at least proportional to the level of total asset used if not more. Hence level of profitability that is less in proportion to the level of total available assets used is less favourable to level of profitability that is equal in proportion to total available asset used or more than it. It for this reason that only ROA is selected from the three profitability ratios commonly used to measure firm’ overall efficiency in generating returns for the firm as the only dependent variable for this study. ROA is given as Profit before Interest and Tax divided by Total Assets.

## **2.2. Concept of Liquidity**

**Liquidity Ratio**

Liquidity is the measure of a firm capacity to satisfy the short-term financial obligation of the firm as they fall due. It is a short-term financial stability measure of a firm and it includes current ratio and quick ratio. Current ratio is calculated by dividing the firm current assets by it current liabilities and quick ratio is calculated by dividing the firm current assets minus inventory by it current liabilities (Sandhar, 2013). According to Omar, Abdul Aziz, Syed and Nour (2016) where current asset is equal to current liabilities current ratio is known to be 1. If current assets or current asset minus inventories is less than current liabilities, this means the company has insufficient liquidity to meet short term obligation.

Current assets is a portion of firms total assets that include cash in hand, cash at bank, inventory, trade receivables, prepayment and other assets which are not non-current assets (Uwuigbe, Uwuigbe, Olugbenga, Ebeguki & Adegbola, 2017). Current liabilities is a portion of firms total liabilities that include bank overdraft, unpaid interest on debts, trade payables, unpaid trade expenses and other liabilities which are not in form of long-term liabilities. Liquidity is an important factor that affects business operation on a day-to-day basis. It is fundamental that every business must hold sufficient liquidity at every point in time, but businesses should also be careful not to hold excess liquidity as this can lead to loss of benefits to be gained if the excess liquidity is invested in another profitable business. These benefits can be in form of profit, dividend or interest to be gained from such investment or business (Owolabi & Obida, 2012).

#### Cash Ratio

The cash ratio is a firm total cash and cash equivalents dividing by firm current liabilities. What is considered has cash and cash equivalent are Marketable securities and money market holdings since they are liquid and their value cannot significantly fluctuate (Gibson, 2009). As in current ratio and quick ratio, cash ratio also measure firm capacity to satisfy the short-term financial obligation of the firm as they fall due but cash and cash equivalents does not include some other current assets such as inventory, trade receivables and prepayment. Cash and cash equivalent consist of only the most liquid assets.

#### Cash Conversion Cycle

There is no unified definition of cash conversion cycle (hereafter referred as CCC).CCC was first introduced by Richards and Laughlin (1980) as a very powerful measure of performance for helping a company on how to manage its working capital and liquidity. It is the summation of trade payables in days plus receivables in days plus inventory in days. It is the period of time taken from purchase of raw material for production to the period of time it takes to convert the trade receivables from sales of item produced to cash and the period it takes to pay the trade payables. Quick collection of trade receivables and slow payment of trade payable will guarantee short CCC and by implication, it means the firm is using more of outsider fund to manage its short term liability without interest. In this manner it means high net present value of cash flow and high firm value.

## **2.3 Theoretical Framework**

**Liquidity-Profitability Trade off Theory**

Niresh (2012) suggested that adequate liquidity may be a signal that excess funds are invested to liquid assets and this can make fund unavailable for any other profitable investment with higher returns. Thus, the overall profitability of the firm might be affected by the cost forgone associated with maintaining the liquid assets. In other words, the increment in liquidity of firms may lead to the reduction of firm’s profitability while increment in the profitability of the firm can lead to reduction in firm’s liquidity (Otekunrin, Nwanji, Egbide, Fakile, Ajayi, Falaye & Eluyela, 2018). Therefore, firms should always try to achieve a balance between the attainment of liquidity and profitability. The firm’s liquidity should not be in excess or insufficient. Accumulation of unnecessary funds indicates that there is excessive liquidity which does not profit the firm in any. Meanwhile, insufficient liquidity might deteriorate the firm’s goodwill, reduce firm’s credit standings and that might cause force liquidation of firm’s assets.

Hirigoyen (1985) as cited by Vieira (2010) argues the relationship between liquidity and profitability could be positive in the mid and long run, which meaning that a low liquidity will lead to low profitability as a result of the need to borrow more to run the business and low profitability will not be able to generate enough fund needed in the expansion of the business and also running it. In a situation whereby a company has low liquidity and high profitability the company will have to lend more and this will lead to increase in financial cost as a result of increase in interest rate. Also, increasing the level of the debt will have a direct impact on company’s credit risk by increasing it, leading to external financier increasing interest rates. Moreover, a firm that has low profitability and high liquidity does not generate sufficient resources to finance expansion in acquiring new assets and finally the liquidity turns out to become lower. Trade off theory states that “firms to identify their optimal level of cash holdings by weighting the marginal costs and benefits of holding cash (Vieira 2010).”

## **2.4 Empirical Framework**

Anas and Mohammad (2015) examined “the relationship between the investment in current assets and profitability and liquidity for industrial companies listed in Amman Stock Exchange, the researchers measured the investment in current assets through the ratio of current assets divided by total assets (C.A\T.A), profitability measured by return on assets ratio (ROA), and liquidity measured through the Current Ratio (C.R) (2015:11)” Anas and Mohammad (2015) concluded that ROA and CR are related. Eljelly (2004) studied whether liquidity and profitability and concluded that CCC and CUR are related to profitability but CCC is more important than CUR as a measure of liquidity. Sial and Chaudhry (2012) “measure the relationship between working capital management and firm profitability in the manufacturing sector of Pakistan. We have selected the sample of 100 Pakistani manufacturing listed companies on Karachi Stock Exchange for the time period of 10 year from 1999-2008. The data used in this study was acquired from Karachi Stock Exchange (K.S.E) and from the Balance Sheet Analysis of Joint Stock Companies by State Bank of Pakistan (Anas and Mohammad, 2015:16)” Sial and Chaudhry (2012) conclusion aligned with the conclusions of Narware (2004). Contrary to Anas and Mohammad (2015) as well as Eljelly (2004), Sial and Chaudhry (2012) concluded that CCC and profitability are negatively related. Sial and Chaudhry (2012) conclusion aligned with conclusion of Shin and Soenen (1998) as well as Raheman (2007). It is very much clear from the above empirical evidence that we are getting mix results about the liquidity and profitability relationship. The evidences of extant studies make the subject matter wide open for further studies. Also since adoption of IFRS in Nigeria it is not clear yet the relation between profitability and liquidity after the adoption of IFRS. This study used selected quoted firms in the Agriculture and Agro-allied sector to examine the liquidity and profitability relationship due to Nigeria government in this sector.

**Methodology**

The sample size that was used is the simple random sampling. Some basis for selecting these agricultural and agro-allied companies include that they must be listed on the Nigeria stock exchange and it must have complete information for the selected period of 5 years (2012-2016).Also, the company’s financial statement must be prepared in line with IFRS and this 15 companies chosen meets this requirement. Secondary data were obtained from company’s financial statement of selected quoted firms in the Agriculture and Agro-allied sector. The relationship between liquidity ratios (proxied by QR, CUR, CAR and CCC) was examined research with use of regression analysis in line with the existing literature (Otekunrin, Nwanji, Ajayi, Awonusi & Eluyela, 2018).

3.1 Population of the Study, Sample Size and Sampling Technique

The twenty two (22) agriculture and agro-allied firms quoted on the Nigerian Stock Exchange (hereafter referred as NSE) from 2012 to 2016 is the population of this study:

**Table 1: Number of population and the sample size**

|  |  |  |  |
| --- | --- | --- | --- |
| **SN** | **Description**  | **Total Number** | **Sample size** |
| **1** | Quoted agriculture and agro-allied firms | **22 (100%)** | **15 (82.4%)** |

*Source: computed by researcher based on the criteria given above*

In line with the modern online sample size calculator by Raosoft, Inc which required that at least 50% of the population of the study must be selected (Uwuigbe, Uwuigbe, Olugbenga, Ebeguki & Adegbola, 2017). This study selected 82.4% of the quoted agriculture and agro-allied firms were selected.

**3.2 Model Specification**

In line with Bala, Garba and Ibrahim (2016), this study used one empirical model as given below:

**Model 1:**

**ROA = β0 + β1QR + β2CUR + β3CAR +β4CCC + β5AOF +β6SOF+ µ (1)**

Where:

**ROA=** return on assets ratio **(**Profit before Interest and Tax divided by Total Assets)

β0, β1, β2, β3, β4, β5 and β6 are regression coefficients with unknown values.

**QR** = quick ratio (Current Assets less Inventory divided by Current Liabilities)

**CUR** = current ratio (Current Assets divided by Current Liabilities)

**CAR** = cash ratio (Cash and cash equivalent divided by Current Liabilities)

**CCC**= cash conversion cycle (Days Inventory Outstanding +Days Sales Outstanding-Days Payable Outstanding)

**SOF**=size of firm

**AOF** = Age of the firm (Logarithm of Total Asset)

**µ** = Residual.

**Expected Apriori:**

**β1, β2, β3, β4, β5 and β6**> 0

**β1** > 0: there is a significant negative relationship between QR and ROA

**β2** >0: there is a significant negative relationship between CUR and ROA

**β3** >0: there is a significant positive relationship between CAR and ROA

**β4** >0: there is a significant negative relationship between CCC and ROA

**β5** >0: there is a significant positive relationship between AOF and ROA

**β6** >0: there is a significant positive relationship between SOF and ROA

##

## **4 Results and Discussion**

**4.1 Results**

**Model 1: ROA = β0 + β1QR + β2CUR + β3CAR +β4CCC + β5AOF +β6SOF+ µ (1)**

**Table 4.1 Descriptive Statistics of Variables (2012-2016)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | ROA | QR | CUR | CAR | CCC | SOF | AOF |
|  Mean | -0.683039 |  0.078192 | -0.214669 | -0.556260 | -24.31865 |  0.880752 |  0.163165 |
|  Median | -0.721246 |  0.037426 | -0.193820 | -0.468521 |  1.343212 |  0.886344 |  0.192094 |
|  Maximum | -0.010000 |  1.190612 |  0.729974 |  0.693727 |  2.772740 |  0.957968 |  0.294132 |
|  Minimum | -1.698970 | -0.568636 | -1.397940 | -2.000000 | -147.9300 |  0.795219 | -0.108936 |
|  Std. Dev. |  0.421479 |  0.329754 |  0.379058 |  0.569974 |  43.22645 |  0.040372 |  0.096586 |
|  Skewness |  0.112816 |  1.240232 | -0.362156 | -0.508214 | -1.495668 | -0.176836 | -1.150828 |
|  Kurtosis |  2.381146 |  5.470894 |  3.539331 |  2.839636 |  3.903260 |  2.561554 |  3.492208 |
|  Jarque-Bera |  1.355904 |  38.30629 |  2.548456 |  3.308880 |  30.51241 |  0.991624 |  17.31216 |
|  Probability |  0.507656 |  0.000000 |  0.279647 |  0.191199 |  0.000000 |  0.609076 |  0.000174 |
|  Sum | -51.22796 |  5.864391 | -16.10014 | -41.71948 | -1823.898 |  66.05639 |  12.23737 |
|  Sum Sq. Dev. |  13.14572 |  8.046600 |  10.63270 |  24.04043 |  138271.0 |  0.120615 |  0.690340 |
|  Observations |  75 |  75 |  75 |  75 |  75 |  75 |  75 |

**Source: Researchers compilation using E-views 9.0**

**Interpretation**

The results above shown in fig 4.2.1 shows the variables are skewed to the right positively as a result of all the variables ROA, ROCE, QR, CUR, CAR, CCC, AOF and SOF showing positive kurtosis. Also, based on the relatively small values of standard deviation we can see that the regression quality is good. The variables are seen to be normally distributed, as supported by the Jarque-Bera value which are shown in fig 4.2.1 are seen to be large and their corresponding probabilities reveal that the variables are normally distributed because of it closeness to zero (0).

##  **Regression Analysis**

In this section regression analysis was used to examine the relationship between liquidity and profitability of listed manufacturing companies in Nigeria from 2012 to 2016.

**Model 1:**

**TABLE 4.2 Regression Results of the Variables (2012 – 2016)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **Co-Efficient** | **Std. Error** | **T-Statistics** | **Prob.** |
| **CONSTANT** | **-1.006** | **1.201** | **-0.837** | **0.405** |
| **QR** | **0.186** | **0.195** | **0.951** | **0.344** |
| **CUR** | **0.033** | **0.170** | **0.195** | **0.845** |
| **CAR** | **0.097** | **0.092** | **1.048** | **0.298** |
| **CCC** | **0.003** | **0.001** | **2.208** | **0.0306** |
| **SOF** | **0.568** | **1.341** | **0.424** | **0.672** |
| **AOF** | **-0.363** | **0.609** | **-0.596** | **0.553** |

**R-squared = 0.192288 Source: Researchers compilation using E-views 9.0**

**Predictors: QR, CUR, CAR, CCC, SOF, AOF**

**Dependent Variable:** ROA

**Comment:** ROA stands for return on asset, QR stand for quick ratio, CUR stands for current ratio, and CAR stands for cash ratio, CCC stands for cash conversion cycle, SOF stands for size of firm and AOF stand for age of firm.

**Interpretation**

Table 4.3.1 above indicates that the regression coefficient of the Quick Ratio (QR) is positive (0.186) with positive t-statistic (0.951) and a p-value of 0.344 is not significant. Hence Quick Ratio (QR) and ROA (proxy for profitability) are not related. Also Table 4.3.1 above indicates that the regression coefficient of the Current Ratio (CUR) is positive (0.033) with positive t-statistic (0.195) and a p-value of 0.845 is not significant. Hence Current Ratio (CUR) and ROA (proxy for profitability) are not related. Table 4.3.1 above indicates that the regression coefficient of the Cash Ratio (CAR) is positive (0.097) with positive t-statistic (1.048) and a p-value of 0.298 is not significant. Hence Cash Ratio (CAR) and ROA (proxy for profitability) are not related. Table 4.3.1 above indicates that the regression coefficient of the Cash Conversion Cycle, (CCC) is positive (0.003) with positive t-statistic (2.208) and a p-value of 0.0306 is significant at 1%. Hence Cash Conversion Cycle, (CCC) and ROA (proxy for profitability) are positively and significantly related.

## **4.2 Discussion**

**Discussion of findings on hypothesis 1:**

The null hypothesis here states that there is no significant relationship between QR and ROA. The results from fig 4.2 indicate that Quick ratio is positively insignificant to ROA for the regression analysis. Hence the null hypothesis is accepted and the alternative hypothesis is rejected. This result aligned with Ikpefan & Owolabi (2014).

**Discussion of Findings on Hypothesis 2:**

The null hypothesis here states that there is no significant relationship CUR and ROA. Table 4.2, the results shows that current ratio is positively but insignificantly related to ROA. Hence the null hypothesis is accepted and the alternative hypothesis is rejected.

**Discussion of Findings on Hypothesis 3:**

The null hypothesis here states that there is no significant relationship between CAR and ROA. Table 4.2 shows a positive but insignificant relationship between cash ratio and ROA for the regression analysis. Here, the null hypothesis is accepted and the alternative hypothesis is rejected.

**Discussion of Findings on Hypothesis 4:**

The null hypothesis here states that there is no significant relationship between CCC and the ROA. The results indicate that Cash Conversion Cycle positively and significantly related to ROA for the regression analysis. Here, the null hypothesis is rejected and the alternative is accepted. Hence there is significant relationship between Cash Conversion Cycle and the profitability proxied by ROA. Significant positive relationship found between Cash Conversion Cycle (CCC) and Profitability (proxied by ROA). This conclusion aligned with conclusion of Padachi (2006), Gill, Biger and Mathur (2010) as well as Lyroudi and Lazaridis (2000).

## **CONCLUSION**

The study examined the relationship between liquidity and profitability in the quoted agriculture and agro-allied firms in the Nigeria stock exchange. The study covered 15 companies listed in the Nigeria stock exchange over the period 2012 to 2016. The study revealed only Cash conversion cycle (CCC) (proxy for liquidity) and Return on Assets (ROA) (proxy for profitability) are significantly related in agriculture and agro-allied sector in the Nigeria stock exchange. It was also revealed that there is a positive but insignificant relationship between return on asset (ROA) and quick ratio (QR), cash ratio (CAR) and current ratio (CUR). The study is in line with the findings of Padachi (2006), which exhibits that cash conversion cycle has positive relationship on performance measured by return on assets. Cash conversion cycle (CCC) measure the overall liquidity for combining days inventory outstanding plus days sales outstanding minus days payable Outstanding, hence we conclude that there is a significant relationship between liquidity and profitability in the agriculture and agro-allied sector on Nigeria Stock Exchange (NSE) over a period of 5 years (i.e. 2012-2016). We recommend Cash conversion cycle (CCC) to be managed properly in order to obtain optimal liquidity management that can give maximum profitability.

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