

## Effects of Credit Management on Liquidity Position of Brewery Industry in Nigeria

Innocent Ikechukwu Okpe, Anastesia Nwakaego Duru and Josephine Chukwu

Department of Accountancy, Enugu State University of Science and Technology, Enugu State, Nigeria.

---

### Abstract

The aim of this research project is to appraise the “Effects of Credit Management on Liquidity Position of Selected Brewery Firms in Nigeria.”The objectives of the study include: to examine the effect of debt ratio on the liquidity of brewery industry in Nigeria, to examine the effect of account payable ratio on the liquidity of brewery industry in Nigeria and to determine the effect of account receivable ratio on the liquidity of brewery industry in Nigeria. The study used secondary sources of data from the annual reports of the selected brewery firms in Nigeria. The Analytical tool used for the test of Hypotheses was ordinary least square regression. The study found out that debt ratio does not have significant effect on the liquidity of brewery industry in Nigeria; account payable ratio has significant effect on the liquidity of brewery industry in Nigeria, and account receivable ratio has significant effect on the liquidity of brewery industry in Nigeria. The study recommended that there is need for companies to maintain adequate liquid assets and eliminate bad debt losses and other associated costs of credit, companies should intensify efforts to engage the services of factoring agents. This will reduce the incidence of bad debts losses and other associated costs of credit, companies should increases the rate of credit sales to trustworthy customers only despite the fact that credit sales is a marketing tool to maintain expired sales.

**Keywords:** Credit Management, Liquidity, Ordinary Least Square Regressions.

---

### Introduction

According to [1], a firm grants credit to protect its sales from the competitors and attract the potential customers to buy its products at favourable terms. Credit creates accounts receivable or trade debtors that the firm is expected to collect in the near future.

Business organizations in attempts to make profit adopt several strategies and one of which is allowing credit to customers. [2], submitted that credit is a marketing tool for expanding sales. Credit sales to customers however must be well monitored because

regardless of an organizations share of the market and demand for its products, if there are no measures put in place to regulate sales made to customers on credit, there could be problems especially those related to liquidity and cash flow.

Credit arises when a firm sells its products or services on credit and does not receive cash immediately [3]. It is an essential marketing tool, acting as a bridge for the movement of goods through production and distribution stages to customers.

A firm's investment in accounts receivable depends on volume of credit sales and collection period. The customers from whom receivable have to be collected in the future are called trade debtors or simply as debtors and represent the firm's claim or asset.

Trade debtors form a major portion of the current assets of any company next to stock. It arises when customers are allowed to buy goods or services on credit and payment deferred till later date. Thus, the working capital management presumes the effective use of trade debtors (accounts receivables) to ensure increased profitability and liquidity in the firm [4].

The issue of management of credit has every cause to be given reasonable attention considering the incessant liquidation (Winding -up) of some manufacturing firms in recent times due to the effect of credit sales.

Granting of credit indeed increases sales volume and consequently profit level. In a competitive environment such as Nigeria, increasing ones level of profit is one of the ways to ensure survival or continuity in business.

The important of credit policy therefore to any business organization cannot be over emphasized because it is a factor that has a strong influence on the cash inflow of an organization from its sales activities which is very critical to an any business organization.

Every credit policy set by an organization seeks to achieve adequate profitability and flow of cash (liquidity) which are the two basic factors that sustain a business in the present and determines its position in the long run.

A company's credit policy refers to the actions taken by a business to grant, monitor, and collect the cash for outstanding accounts receivable [5]. The credit policy of a typical organization contains the following variables: collection policy, cash discount, credit period and credit standard, while [6], classified it as credit limits, credit term, deposits, customer information and documentation. And each of the components of a company's credit policy is used as a tool for monitoring account receivables which is the outcome of credit sales; it covers from the kind of customers that credit may be extended to when actual collections would be made.

There is however no particular universal credit policy that should be adopted by every organization.

The credit policy of an organization should therefore be based on its particular business and cash flow circumstances, industry standards, current economic conditions, and the degree of risk involved. For a manufacturing business organization to achieve its critical objectives of liquidity as it allows credit to customers, concern should be given to its credit policy, it should be adequately planned and its adherence must be strictly emphasized.

However, it has not been an easy task for firms that grant credit to deserving customers because of the costs associated with credit sales. Also, many firms in Nigeria that do not grant credit have bitter experiences.

In the same vein granting of credit amounts to temporary deprivation of the use of the company's or firm's fund thereby locking up that amount of the capital which might be profitably for other purposes, thereby affecting the company's liquidity position [7]. This implies investing in the debtors concerned and probably looking for other sources of finance in the day to day operations of the firm. It is not certain whether the credit will be paid on terms agreed upon.

It is a bitter experience to note that most companies in Nigeria do not grant credit and a few that do merely allow a small portion of their total sales as credit sales. This is a problem arising from inefficient management of credit sales or trade debtors. The reasons sometimes given by firms for not granting credit include insufficient

information about the customers, the level of trust in our business environment today due to the activities of fraudsters.

Granting of credit no doubt leads to bad debts.

In the words of [7], a credit sale has three characteristics:

- i. It involves an element of risk that should be carefully analyzed.
- ii. It is based on economic value. To the buyer, the economic value in goods or services passes immediately at the time of sale, which the seller expects on equivalent value to be received later on.
- iii. It implies futurity. The buyer will make the cash payment for goods or services received by him in a future period.

The customers from whom receivables have to be collected in future are called trade debtors and they represent a company's claim on assets.

#### **Statement of the Problem**

The growth in economic activities as currently witnessed in Nigeria; in our present democratic government with its attendant limited financial resources available to the operators of the market has no doubt brought about increase in credit transaction. The impact depends on the skill and prowess with which the companies manage their credit. [7], have seen that most companies after granting credit sales rely on them as assets without providing adequately for possible bad and doubtful debts. With this situation, the financial statements of such companies obviously will lack true and fair view because of the fact that the amount of trade receivables cannot be fully realized.

In the same vein liquidity problem is not left out when granting credit sales. This arises from over investment in receivables especially when the debtors are of high risk class. A company suffering from liquidity problem implies that the cost of obtaining funds from other sources may be high and a credit sale beyond the optimal level of credit is dangerous. On the other hand, sales level and profitability are reduced as a result of high or tight credit policy or not granting credit at all.

There are many problems companies encounter as a result of poor credit management. Thus, the problems inherent in this research study as investigated are as follows:

There is a high rate of bad debts because some corporations take advantage of the credit that is extended to them and find themselves, not able to pay debt later.

The poor level of trade credit management is reflected in the liquidity and profitability position of the firm.

### **Objectives of the Study**

The general objective of this project is to appraise the effect of credit management on liquidity position of brewery industry in Nigeria.

The specific objectives include the following:

- To examine the effect of Net profit Margin (NPM) on the Debtors Collection period (DCP) of brewery industry in Nigeria.
- To examine the effect of the Return on Capital Employed (ROCE) on the Credit Payment Period (CPP) of brewery industry in Nigeria.
- To determine the effect of account receivable ratio on the Debtors Collection Period (DCP) of brewery industry in Nigeria.
- To examine the effect of account payable ratio on the Debtors Collection Period (DCP) of brewery industry in Nigeria.

### **Research Questions**

The following research questions are formulated for the purpose of this project work:

- What are the effects of Net Profit Margin (NPM) on Debtors Collection Period (DCP) of brewery industry in Nigeria?
- What are the effects of the Return on Capital Employed (ROCE) on the Credit Payment Period (CPP) of brewery industry in Nigeria?
- What is the impact of account receivable ratio on the Debtors Collection Period (DCP) of brewery industry in Nigeria?
- What are the effects of account payable ratio on the Debtors Collection Period (DCP) of brewery industry in Nigeria?

### **Statement of Hypotheses**

The researcher formulates the following hypotheses:

- A significant effect does not exist between Net Profit Margin (NPM) and the Debtors Collection Period (DCP) of brewery industry in Nigeria.
- The Return on Capital Employed (ROCE) does not have significant effect on the Credit Payment Period (CPP) of brewery industry in Nigeria.
- Account receivable ratio does not have a significant impact on the Debtors Collection Period (DCP) of brewery industry in Nigeria.
- Account payable ratio does not have a significant effect on the Debtors Collection Period (DCP) of brewery industry in Nigeria.

### **Significance of the Study**

The study will firstly benefit the management and staff of brewery industry in Nigeria that it will go to a great extent in enlightening them on the concepts of credit management as well as how it affects the liquidity position of a firm.

The recommendations from this study will suggest for other firms on the best credit management strategies as well as debt recovering processes.

The study will serve as a source of information of companies granting credit with respect to the policies and procedures to be adopted.

It will also be relevant to students of accounting and other related courses for research purposes. The general public will equally benefit because it will serve as a reference material when adopting any credit policy. Also management practitioners will find the data and views expressed in this research work relevant to their day to day business decisions especially in the manufacturing industries.

### **Scope of the Study**

This study covers selected brewery firms in the brewery industry in Nigeria and duration of 2006 to 2015.

### **Methodology**

#### **Research Design**

The researcher adopted *ex-post facto*. The choice of the *ex-post facto* design is because the research relied on already recorded events.

**Sources of Data**

This study adopted secondary sources of data from financial statements of Nigerian brewery Plc as well as periodicals, journals and Guinness Nigeria Plc and Champion Brewery Nigeria Plc.

**Population of the Study**

The population of study covers all the quoted companies in the brewery industry in Nigeria.

**Sample Size**

The sample size of the study consists of three selected brewery firms which include Nigerian Brewery Plc, Guinness Nigeria Plc and Champion Nigeria Plc.

**Model Specification**

The following model was used to evaluate the study:

$$DCP = F (NPM, ROCE, ARR, APR) \dots\dots\dots (1)$$

Where:

DCP = Debtors Collection Period (it is used as a proxy for liquidity position)

NPM = Net Profit Margin (it is used as a proxy for Financial performance)

ROCE = Return on Capital Employed.

ARR = Account receivable ratio (it is used as a proxy for credit management)

APR = Account payable ratio (it is used as a proxy for credit management)

In a linear regression form, it will become:

$$RDCP = \beta_0 + \beta_1 NPM + \beta_2 ROCE + \beta_3 ARR + \beta_4 APR + \mu \dots\dots\dots (2)$$

$\beta_0$  = Constant Term

$\beta_1$  = Coefficient of NPM

$\beta_2$  = Coefficient of ROCE

$\beta_3$  = Coefficient of ARR

$\beta_4$  = Coefficient of APR

$\mu$  = Error Term

## Description of Variables

### Net Profit Margin:

Net profit margin is the percentage of revenue remaining after all operating expenses, interest, taxes and preferred stock dividends (but not common stock dividends) have been deducted from a company's total revenue.

### Return on capital employed (ROCE):

Return on capital employed (ROCE) is a financial ratio that measures a company's profitability and the efficiency with which its capital is employed.

**Account receivable ratio:** The accounts **receivables ratio** is an activity **ratio** measuring how efficiently a firm uses its assets. **Receivables turnover ratio** can be calculated by dividing the net value of credit sales during a given period by the average **accounts receivable** during the same period.

### Accounts payable turnover

Accounts payable ratio is a ratio that measures the speed with which a company pays its suppliers. If the turnover ratio declines from one period to the next, this indicates that the company is paying its suppliers more slowly, and may be an indicator of worsening financial condition

## Method of Evaluation

The researcher will apply the following statistical and econometric technique to evaluate the hypothesis.

1. Coefficient of Multiple Determinations ( $R^2$ )
2. Test of Stationarity
3. Co-integration test

### First Order Test

#### Coefficient of Multiple Determinations ( $R^2$ ).

Coefficient of Multiple Determinations ( $R^2$ ) was used to measure the percentage of changes in the dependent variable that was attributed to the fit. The value or the coefficient ranges from 0 to 1. It is non negative quantity. The closer it is to 1, the better the fit, otherwise, the worse the fit.

**Test of stationarity**

**Unit Root Test:** Test of stationarity was done using the Augmented Dickey - Fuller (ADF) unit root test and P. Person tests. The essence of this test was check for the stationarity of time series to see if it has the reliability of being used in predicting long term relationship between the independent variables and the dependent variable under study. If it becomes established that the series are stationary, we then go forward to perform co-integration analysis.

**Co-integration test:** This was also used to check the long run relationship between the independent variables and the dependent variable. This test of performed after Unit Root Test must have been carried out.

**Data Presentation**

This chapter is a presentation of results and findings obtained from field data, both descriptive and inferential statistics have been employed specifically using regression to establish the significance of the model and also to establish the link between credit management and liquidity position of manufacturing firms.

**Table 1: Raw data Nigerian Breweries PLC**

YEARS	PAT (N'000)	TA (N'000)	TL (N'000)	CA (N'000)	CL (N'000)	NCS (N'000)	AAR (N'000)
2007	18,942	90,126	40,170	10,517	15,745	2,837	4,865
2008	25,701	104,412	12,475	40,625	17,156	2,901	4,916
2009	27,910	106,987	42,344	37,629	42,318	1,200	3,094
2010	30,332	114,389	48,359	40,284	44,879	3,150	5,146
2011	38,409	196,936	51,944	63,235	72,208	3,779	5,841
2012	38,043	253,634	67,398	56,866	86,834	4,120	6,094
2013	43,080	252,760	75,021	32,238	51,275	4,570	6,741
2014	42,520	349,677	87,266	40,840	44,248	3,220	5,048
2015	38,056	356,219	183,897,	33,511	46,100	2,380	4,831
2016	28,417	367,146	201,232	47,869	67,109	6,551	8,831

**SOURCE: FINANCIAL STATEMENT OF NIGERIAN BREWERIES PLC**

**Table 2: Raw Data of Guinness Nigeria PLC**

YEARS	PAT (N'000)	TA (N'000)	TL (N'000)	CA (N'000)	CL (N'000)	NCS (N'000)	AAR (N'000)
2007	10691	71809	47365	10517	17946	1,517	3,125
2008	11860	73191	72183	40625	54775	2,246	3,669
2009	13541	73868	60417	37629	42318	4,885	6,885
2010	13736	82558	64217	40284	44879	3,992	5,997
2011	17927	82558	75070	63235	72208	1,863	2,778
2012	14214	92227	160185	56866	86834	2,685	4,554
2013	11863	106009	140400	45285	100295	2,785	4,887
2014	9573	121060	177794	56931	144556	3,541	5,568
2015	7794	122246	73905	57418	140079	4,214	6,325
2016	2015	136992	95331	74559	144255	5,866	7,889

SOURCE: FINANCIAL STATEMENT OF GUINNESS NIGERIA PLC

**Table 3 Raw Data of Champion Breweries Nigeria PLC**

YEARS	PAT (N'000)	TA (N'000)	TL (N'000)	CA (N'000)	CL (N'000)	NCS (N'000)	AAR (N'000)
2007	188	71089	13100	7504	13946	1,454	3656
2008	201	739191	13656	21629	23711	1,809	3,868
2009	285	73868	12704	37629	38300	2,706	4,060
2010	2800	82558	9999	21285	22854	3,241	5,514
2011	2172	92227	5374	32267	41208	1,663	2,374
2012	2897	106009	4274	14967	17834	4,285	6,300
2013	2327	121060	999	22385	29289	5,112	6,868
2014	2105	132328	706	31931	50514	1,551	3,558
2015	3222	122246	424	31454	42079	6,223	8,258
2016	4105	136992	5389	24589	33241	7,232	9,125

SOURCE: FINANCIAL STATEMENT OF CHAMPION BREWERIES NIGERIA PLC

**Table 4: Nigerian Brewery Plc**

	DCP	NPM	ROCE	ARR	APR
Mean	16.50000	67.75714	22.10000	45.61429	3.885714
Median	17.10000	69.90000	21.20000	47.10000	3.600000
Maximum	18.20000	80.20000	40.10000	52.60000	7.000000
Minimum	13.50000	53.10000	13.00000	35.00000	1.200000
Std. Dev.	1.582193	11.76773	8.868859	7.420114	1.890704
Skewness	-0.904022	-0.130176	1.196057	-0.628554	0.246433
Kurtosis	2.877150	1.282017	3.620348	1.737390	2.329156
Jarque-Bera Probability	0.957867 0.619444	0.880614 0.643839	1.781219 0.410406	0.925898 0.629425	0.202110 0.903883
Sum	115.5000	474.3000	154.7000	319.3000	27.20000
Sum Sq. Dev.	15.02000	830.8771	471.9400	330.3486	21.44857
Observations	7	7	7	7	7

Source: Author's Compilation from E-views 9, 2017

The study conducted the descriptive statistics of the relevant variables involved. Table above illustrates vividly these statistics. It showed the total number of observations,

mean, median, maximum, minimum, standard deviation, skewness, kurtosis and Jarque-Bera of debtors' collection period, net profit margin, return on capital employed, account receivable ratio and account payable ratio. The statistics have maximum values of 18.20000, 80.20000, 40.10000, 52.60000 and 7.000000 respectively. They have minimum values of 13.50000, 53.10000, 13.00000, 35.00000 and 1.200000 respectively and standard deviation values of 1.582193, 11.76773, 8.868859, 7.420114 and 1.890704 respectively.

**Table 5: GUINNESS NIGERIA PLC**

	DCP	NPM	ROCE	ARR	APR
Mean	12.51429	92.97143	13.74714	36.18571	3.638571
Median	13.40000	89.70000	-0.070000	36.60000	1.800000
Maximum	20.00000	112.0000	72.70000	52.90000	15.00000
Minimum	5.200000	73.10000	-8.700000	28.70000	-3.140000
Std. Dev.	5.983987	12.74908	28.52527	8.149730	5.882795
Skewness	-0.097683	0.003271	1.414190	1.297543	0.949663
Kurtosis	1.404063	2.243207	3.687757	3.666252	3.110479
Jarque-Bera	0.754012	0.167060	2.471218	2.093688	1.055731
Probability	0.685912	0.919863	0.290658	0.351044	0.589863
Sum	87.60000	650.8000	96.23000	253.3000	25.47000
Sum Sq. Dev.	214.8486	975.2343	4882.147	398.5086	207.6437
Observations	7	7	7	7	7

Source: Author's Compilation from Eviews 9, 2017

The study conducted the descriptive statistics of the relevant variables involved. Table above illustrates vividly these statistics. It showed the total number of observations, mean, median, maximum, minimum, standard deviation, skewness, kurtosis and Jarque-Bera of debtors' collection period, net profit margin, return on capital employed, account receivable ratio and account payable ratio. The statistics have maximum values of 20.0000, 112.0000, 72.7000, 52.9000 and 15.000000 respectively. They have minimum values of 5.200000, 73.1000, -8.7, 28.70000 and -3.14 respectively and standard deviation values of 5.983987, 12.74908, 28.52527, 8.149730 and 5.882795 respectively.

**Table 6: Champion Nigeria Plc**

	DCP	NPM	ROCE	ARR	APR
Mean	46.38571	103.8286	13.52857	45.48571	8.395714
Median	43.70000	94.50000	16.90000	45.00000	8.400000
Maximum	60.00000	127.0000	32.00000	52.60000	11.00000
Minimum	34.90000	88.00000	-7.500000	43.20000	5.100000
Std. Dev.	8.635861	15.98131	12.76384	3.311811	1.806874
Skewness	0.258081	0.662073	-0.277853	1.621300	-0.507571
Kurtosis	1.994328	1.733987	2.377576	4.258567	3.028068
Jarque-Bera	0.372691	0.978877	0.203065	3.528715	0.300796
Probability	0.829987	0.612970	0.903452	0.171297	0.860366
Sum	324.7000	726.8000	94.70000	318.4000	58.77000
Sum Sq. Dev.	447.4686	1532.414	977.4943	65.80857	19.58877
Observations	7	7	7	7	7

Source: Author's Compilation from E-views 9, 2017

The study conducted the descriptive statistics of the relevant variables involved. Table above illustrates vividly these statistics. It showed the total number of observations, mean, median, maximum, minimum, standard deviation, skewness, kurtosis and Jarque-Bera of debtors' collection period, net profit margin, return on capital employed, account receivable ratio and account payable ratio. The statistics have maximum values of 60.0000, 127.0000, 32.0000, 52.6000 and 11.00000 respectively. They have minimum values of 34.900000, 88.00000, -7.50000, 43.20000 and 5.100000 respectively and standard deviation values of 8.635861, 15.98131, 12.76384, 3.311811 and 1.806874 respectively.

#### UNIT ROOT TEST

**Table 7: Stationary Properties of the Data Set Using Augmented Dickey Fuller Test of Unit Root for Nigerian Brewery Plc**

	ADF	CV@5%	PROBABILITY	INFERENCE
DCP	-2.283258	-2.043968	0.0346	I(1)
NPM	-2.468048	-2.157408	0.351	I(1)
ROCE	-2.363561	-2.082319	0.0339	I(1)
ARR	-2.427338	-2.657408	0.0368	I(2)
APR	-5.257068	-2.157408	0.0027	I(2)

The above indicated the unit root test of the variables. It was shown that debtors' collection period, net profit margin and return on capital employed were stationary at first difference while account receivable ratio and account payable ratio were stationary at the second difference respectively.

**Table 8: Stationary Properties of the Data Set Using Augmented Dickey Fuller Test of Unit Root For Guinness Nigeria Plc**

	ADF	CV@5%	PROBABILITY	INFERENCE
DCP	-2.509336	-3.694851	0.1613	I(0)
NPM	-8.769916	-5.338346	0.0080	I(0)
ROCE	-3.0907637	-2.082319	0.0124	I(1)
ARR	-4.043410	-3.984991	0.0479	I(1)
APR	-4.126819	-3.694851	0.0339	I(1)

Table above indicated the unit root test of the variables. It was shown that debtors' collection period and net profit margin became stationary at level while, return on capital employed, account receivable ratio and account payable ratio were stationary at the first difference respectively.

**Table 9: Stationary Properties of the Data Set using Augmented Dickey Fuller Test of Unit Root for Champion Brewery Plc**

	ADF	CV@5%	PROBABILITY	INFERENCE
DCP	-1.610134	-2.043968	0.0981	I(1)
NPM	-2.380948	-2.043968	0.0297	I(1)
ROCE	-3.161889	-2.082319	0.0115	I(1)
ARR	-5.217823	-2.157408	0.0028	I(2)
APR	-3.188532	-2.082319	0.0111	I(1)

The above indicated the unit root test of the variables. It was shown that debtors' collection period, net profit margin, return on capital employed and account payable ratio were stationary at first difference while account receivable ratio was stationary at the second difference.

### Descriptive Statistics

**Table 10: presents the descriptive statistics for the data set**

Variable	Mean	Median	Std.Dev.	Min	Max
Debtors collection period	0.2683333	0.35845	0.063078	0.21	0.4
Net profit margin	5.783333	7.2	4.647352	0.1	14.6
Return on capital employed	2.059167	1.6995	2.938081	0.09	11.08
Account receivable ratio	31.99167	13	9.279543	24.1	48.1
Account payable ratio	0.4825	0.50	0.084005	0.35	0.6

Debtors collection period had a mean of 0.2683 with standard deviation of 0.063078. This illustrates that for one shilling of total asset invested by the two firms generates a cash flow of 0.26833. Net profit margin reported a mean of 5.7833 with standard deviation of 4.6473. On average, the two selected firms' operating expenses recorded a mean of 2.0591 with standard deviation of 2.9380 which indicates that the two firms' account receivable ratio was higher than the revenue collected during the study period. Risk coverage ratio for the 2 firms had a mean of 0.4825 with standard deviation of 0.08400. The high risk coverage implies that the firms' sizes were able to meet their financial obligations. The higher the coverage ratio the more firms are able to fulfill their obligations to its customers.

### Correlation Analysis

The study sought to determine the effect of credit management on liquidity position of a manufacturing company. Pearson Correlation analysis was used to achieve this end at

99%, 95% and 90% confidence levels. The correlation analysis enabled the testing of study’s hypothesis that credit management has a significant effect on corporate liquidity. Table above shows the correlation matrix between the dependent and independent variables.

**Table 11: Correlation coefficients of credit management variables and liquidity position**

	<b>Debtors collection period</b>	<b>Net profit margin</b>	<b>Return on capital employed</b>	<b>Account receivable ratio</b>	<b>Account payable ratio</b>
<b>Debtors collection period</b>	1.0000				
<b>Net profit margin</b>	0.1373	1.0000			
<b>Return on capital employed</b>	-0.0926	0.5810	1.0000		
<b>Account receivable ratio</b>	-0.3877	-0.6791	-0.3696	1.0000	
<b>Account payable ratio</b>	0.7352	-0.2134	-0.4605	-0.3113	1.0000

The table above shows that net profit margin and account payable ratio has a positive relationship with Debtors collection period while Return on capital employed and Account receivable ratio are negatively associated with the corporate liquidity. Debt to equity ratio showed positive but weak relationship with Debtors collection period (R= 0.1373). Return on capital employed reported weak and negative correlation with Debtors collection period (R= -0.0926). Account receivable ratio is negatively associated with Debtors collection period (R = -0.3877). Risk management therefore has positive and strong relationship with corporate liquidity (R = 0.7352).

**Regression Analysis**

Determination coefficients ( $R^2$ ) were also carried out to determine the strength of the relationship between independent and dependent variables as shown below.

**Table 12: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson Sig. F Change
1	0.9012	0.9034	0.8738	1.27800	1.9354

The study established R of 0.9012 and  $R^2$  of 0.9034 indicating a strong relationship between corporate liquidity and the explanatory variables. This indicates that credit risks have strong effect on the corporate liquidity of the manufacturing sector. R square of 0.9034 showed that 90.34% of the total variation in corporate liquidity is attributed to the changes in explanatory variables. The Durbin-Watson test statistic tests that the residuals from an ordinary least-squares regression are not auto correlated. The Durbin-Watson statistic ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation; a value toward 0 indicates positive autocorrelation; a value toward 4 indicates negative autocorrelation. Since the DW value of 1.9354 was close to 2, then it can be concluded that there was no autocorrelation among the model residual.

**Analysis of Variance**

Table below gives an analysis of variance. This is established if there is significant difference between the means of the variable under study and also to examine the overall significance of the model. Overall significance of the model is important in establishing whether the model is fit to giving true estimate of the variables. Since the F value of (0.002) is below 0.05, it can be concluded that the regression model was significant in giving a true estimate of the variables. It also implies that the means of the variable are not significantly related.

**Table 13: ANOVA**

Model		Sum of square	DF	Mean square	F	Sig.
1	Regression	.250	.036	6.92307	.002	.036
	Residual	.0871	9	.0052		
	Total	.3371	14			

**Regression Coefficients**

Multiple linear regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together. The results are given in the model summary in table below.

**Table 14: Regression Coefficients**

	Coef.	Std.Err.	t	P> t
Debtors collection period				
Net profit margin	0.0214679	0.015948	4.241	0.007
Return on capital employed	0.0092458	0.007446	3.24	0.041
Account receivable ratio	0.0101919	0.008179	1.75	0.029
Account payable ratio	1.183708	0.456088	2.6	0.041
Cons	-0.8621699	0.650651	-2.33	0.013

**Test of hypotheses**

**Hypothesis one**

$H_0$ : A significant effect does not exist between Net Profit Margin (NPM) and the Debtors Collection Period (DCP) of Nigeria Brewery Plc, Enugu, Guinness Nigeria Plc, Enugu and Champion Brewery Nigeria Plc.

$H_1$ : A significant effect exists between Net Profit Margin (NPM) and the Debtors Collection Period (DCP) of Nigeria Brewery Plc, Enugu, Guinness Nigeria Plc, Enugu and Champion Brewery Nigeria Plc

**Table 15: ANOVA**

Model	Sum of squares	Df	Mean square	F	Sig.
Regression	<b>916.589</b>	<b>1</b>	<b>916.589</b>	<b>7.387</b>	<b>.224<sup>b</sup></b>
Residual	<b>124.078</b>	<b>1</b>	<b>124.078</b>		
Total	<b>1040.667</b>	<b>2</b>			

a. Dependent Variable: Debtors Collection Period

b. Predictors: (Constant), Credit management

Decision: If F-value is equal or greater than “Sig” value, we reject Null and accept alternate hypothesis. Since the F-value is greater than “Sig” value (7.387>.224) we reject null hypothesis and accept alternative hypothesis which stated that a significant effect exists between Net Profit Margin (NPM) and the Debtors Collection Period (DCP) of Nigeria Brewery Plc, Enugu, Guinness Nigeria Plc, Enugu and Champion Brewery Nigeria Plc.

**Hypothesis Two**

H<sub>0</sub>: The Return on Capital Employed (ROCE) does not have significant effect on the Credit Payment Period (CPP) of Nigerian Brewery Plc, Guinness Nigeria Plc, Enugu and Champion Brewery Nigeria Plc.

H<sub>1</sub>: The Return on Capital Employed (ROCE) has significant effects on the Credit Payment Period (CPP) of Nigerian Brewery Plc, Guinness Nigeria Plc, Enugu and Champion Brewery Nigeria Plc.

**Table 16: ANOVA**

Model	Sum of squares	Df	Mean square	F	Sig.
<b>Regression</b>	15112.042	1	15112.042	.692	.276 <sup>b</sup>
<b>Residual</b>	54847.822	1	54847.822		
<b>Total</b>	69959.864	2			

a. Dependent Variable: Debtors Collection Period (DCP)

b. Predictors: (Constant), Credit management

Decision: If F-value is equal or greater than “Sig” value, we reject Null and accept alternate hypothesis. Since the F-value is greater than “Sig” value (.692>.276) we reject null hypothesis and accept alternative hypothesis which stated that there is a significant correlation between liquidity position and Debtors Collection Period (DCP) of the company in Nigeria, which means that the higher the Debtors Collection Period (DCP), the higher the liquidity position.

**Hypotheses Three**

H<sub>0</sub>: Account receivable ratio does not have a significant effect on the Debtors Collection Period (DCP) of Nigeria Brewery Plc, Enugu, Guinness Nigeria Plc, Enugu and Champion Brewery Nigeria Plc.

H<sub>1</sub>: Account receivable ratio has a significant impact on the Debtors Collection Period (DCP) of Nigeria Brewery Plc, Enugu, Guinness Nigeria Plc, Enugu and Champion Brewery Nigeria Plc.

**Table 17: ANOVA**

Model	Sum of squares	Df	Mean square	F	Sig.
<b>Regression</b>	1803.681	1	1803.681	2.729	.347 <sup>0</sup>
<b>Residual</b>	660.986	1	660.986		
<b>Total</b>	2464.667	2			

a. Dependent Variable: Debtors Collection Period (DCP)

b. Predictors: (Constant), Liquidity management

Decision: If F-value is equal or greater than “Sig” value, we reject Null and accept alternate hypothesis. Since the F-value is greater than “Sig” value (2.729>.347) we reject null hypothesis and accept alternative hypothesis which stated that there is a relationship between liquidity management and corporate profitability. This means that when the liquidity is high, the profitability may be come low.

**Conclusion and Recommendations**

The main objective of the study was to establish the effect of credit management on liquidity position of manufacturing firms. The study established that corporate liquidity had a mean of 0.2683 with standard deviation of 0.063078. The required statutory liquidity for the manufacturing firms under study is 0.2. The firms are therefore meeting their expected liquidity levels. Debt to equity ratio reported a mean of 5.7833 with standard deviation of 4.6473. On average, the firms’ operating expenses recorded a mean of 2.0591 with standard deviation of 2.9380. Account payable ratio for the 2 firms had a mean of 0.4825 with standard deviation of 0.08400.

- Correlation relationship indicated that net profit margin had positive but weak relationship with corporate liquidity (R= 0.1373). Return on capital employed also reported weak and negative correlation with corporate liquidity (R= -0.0926).

Account receivable ratio is negatively associated with corporate liquidity ( $R = -0.3877$ ). Credit risk has a positive and strong relationship with corporate liquidity ( $R = 0.7352$ ). All the explanatory variables were statistically significant in explaining the variation in corporate liquidity. Account payable ratio was significant in explaining the variation in corporate liquidity. The study established a significant relationship between Return on capital employed with corporate liquidity. Account receivable ratio showed significant impact on corporate liquidity while Return on capital employed was significant but negatively causes changes in corporate liquidity.

- From the average Net profit margin of 5.7833, it shows that the firms rely more on equity than in debt. It is also clear that the account receivable ratio of the firms are high and therefore the level of their liquidity is affected. They should thus ensure that the operating expenses are controlled and regulated to ensure that their operating liquidity is adequate.

### **Conclusion**

This study has evaluated the impact of credit management liquidity on liquidity position of manufacturing Industries in Nigeria. Effective management of credit grant has a positive relationship with the operating profit of the companies in the corporate organizations. This implies that for companies to maximize their profit, they should grant credit to trustworthy customers with an appropriate credit control mechanism. It was also discovered that credit sales increase turnover and profitability in the domains of effective implementation of optimum credit policy in the firms.

There is significant relationship between liquidity position and Debtors Collection Period of the companies in the Brewery manufacturing companies in Nigeria. This implies that a favorable Debtors Collection Period would result to favorable liquidity position. The high Debtors Collection Period has a positive effect on the firm's ability to satisfy obligations to its own creditors. That is, tight debtor's collection policy and procedure would minimize the problem of cash flow and liquidity. Due to the effective credit policy in these firms, their financial ratios indicate adequate working capital and

liquid assets. The positive correlation between liquidity and debtor's turnover signifies that as the debtor's turnover rises, the liquidity position also rises.

### **Recommendations**

The following recommendations are made for this study:

- There is need for companies to maintain adequate liquid assets and eliminate bad debt losses and other associated costs of credit.
- Companies should intensify efforts to engage the services of factoring agents. This will reduce the incidence of bad debts losses and other associated costs of credit.
- Companies should increase the rate of credit sales to trustworthy customers only despite the fact that credit sales is a marketing tool to maintain or expired sales.
- Firms should monitor, review and adjust credit policy from time to time considering the nature of their business and mission.

### **References**

1. Atuche, J.C. (2009): Credit Management and its Impact on the Cash Flow of a Firm. An Unpublished B.Sc Project, Department of Accountancy, Faculty of Business Administration, Imo State University, Owerri.
2. Amihud, Y. (2016): Illiquidity and stock-returns: cross-section and time-series effects, Journal of Financial Markets, Vol. 5(1).
3. Anaga, W. (2007), Effects of working capital management on SME profitability, International Journal of Managerial Finance, Vol. 13 (9)
4. Beckan, T.N and Richard, E. B (2016): Credit and Collection Management and Theory, 8th Ed. New York: McGraw Hill Book Coy.
5. Muoneke, D. U (2009) Management Accounting. Enugu: Splash Media Organization.
6. Maysami R. C. (2010) "Understanding and Controlling Cash flow". London: Harper and Row Publishers.
7. Pandey, I.M. (2006): Financial Management, 9th Ed. New-Delhi: Vikas Publishing House Ltd.