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EMPIRICS OF LIQUIDITY AND PROFITABILITY IN THE NIGERIAN MANUFACTURING SECTOR

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Abstract

Liquidity management is perceived to be a very important factor to analyze the firms' performance. Against the backdrop that liquidity and profitability often depict an inverse relationship as posited by prior studies, the study seeks to examine the relationship between liquidity and profitability of manufacturing firms sector by sector in Nigeria. Data were sourced from the audited financial statement of the selected firms and analysed using OLS regression. It was observed that liquidity and profitability were inversely related in food and beverage, Healthcare and Breweries sub-sectors respectively while a positive relationship was observed between liquidity and profitability in the conglomerate, building material and chemical subsectors. Also, the pooled regression result showed a negative result between liquidity and profitability of manufacturing firms in Nigeria which is in agreement with prior studies. The result of the findings contradicts the general notion of an inverse relationship between liquidity and profitability in prior literatures. More appropriately the nature of the relationship differs across subsectors among the manufacturing firms.

Keywords: Liquidity; Performance, Profitability, Manufacturing Sector, Nigeria



INTRODUCTION

Over time it is of actual fact that literature has continually focused on the study of liquidity and profitability having an inverse relationship with each other. Most prior studies like the study of Oladipupo and Okafor (2013) and Sharma and Kumar (2011) on this topical issue examine the relationship that exists between the two variables holistically as manufacturing sector rather than looking at them subsector by subsector under manufacturing sector.

Liquidity management is perceived to be a very important factor to analyze the firms' performance while undertaken the day to day operations of the firm, by which balance are maintained between liquidity and profitability (Azam and Haider, 2011). Maintaining liquidity on day to day operations of the business and making sure it's running and meets its financial obligations is a crucial part required in managing working capital. It is a difficult task for mangers to ensure that the business functions in a well-organized and advantageous manner. The efficient management of working capital is a key part of the overall corporate strategy to create shareholders" value (Nazir and Afza, 2007). Deloof, (2003) further opined that firms should try to keep an optimal level of working capital that maximizes their value.

The performance of a firm largely depends on how well the firm is being able to manage its working capital. It is of utmost importance that a firm manages it working capital effectively and efficiently if not so, the firm may run into financial crisis and in most cases reduces the profitability of the firm. Therefore, it is germane for firms to know how they can effectively manage their working capital to be able to guarantee the financial health of the firm. Business generally, needs short-term financial resources to meet up with their short term financial obligations as they fall due. Working Capital could then be perceived as the amount of Capital that is available to a business to meet the day-to-day cash requirements of its operations. Working Capital is the difference between resources in cash or readily convertible into cash (Current Assets) and organizational commitments for which cash will soon be required (Current Liabilities).

Working Capital is the life blood of any business. Working Capital Management as it were, is a very important aspect of financial management because it has a direct bearing on a firm's liquidity and profitability. Working capital management is important because it is concerned with the problems that arise in attempting to manage the Current Assets, Current Liabilities and the inter-relationship that exists between them. It is very key to note that, Current asset accounts for half of firm's total asset so it is very important to manage them in such a way that leads to firm's profitability. Horne and Wachowicz (2000) opined that a firm with too short current asset can stand difficulties in maintaining its day to day business operations.



Working Capital Management depicts the utilization of current assets and current liabilities efficiently so as to maximize short-term liquidity of a firm. Working capital management further necessitate short term decisions of the firm/ business which are generally, skewed toward the next one year period which are "reversible". The objectives of Working Capital Management cannot be over emphasized as they include: deciding optimum level of investment in various Working Capital Asset (ii) deciding the optimal mix of short term and long term capital; and deciding on the appropriate means of short term financing.

Objective of the Study

The main objective of this study is to investigate the relationship that exists between liquidity and profitability in the Nigerian manufacturing sectors.

Specific Objectives

In achieving the general objective, the following specific objectives were employed:

- 1. To investigate the relationship that exists between liquidity and profitability in the Nigerian food and beverage sector
- 2. To examine the relationship that exists between liquidity and profitability in the Nigerian conglomerate sector
- 3. To find out the relationship that exists between liquidity and profitability in the Nigerian healthcare sector
- 4. To investigate the relationship that exists between liquidity and profitability in the Nigerian building material sector
- 5. To examine the relationship that exists between liquidity and profitability in the Nigerian breweries sector
- 6. To investigate the relationship that exists between liquidity and profitability in the Nigerian chemical sector
- 7. To investigate the relationship that exists between liquidity and profitability in the Nigerian manufacturing sector

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Profitability can be seen as the main form of measuring the economic health of a firm in terms of the capital invested in the firm. The economic health is ascertained by the degree of the net accounting profit. Profitability can be measured through the ROA (Return on Assets = Net Income / Total Assets) and ROE (Return on Equity = Net Income / Equity), which are the key measures of economic well being.



According to Shim and Siegel (2000) accounting liquidity is the company's capacity to liquidate maturing short-term debt (within one year). Maintaining adequate liquidity goes beyond mere corporate goal is an objective that must be met or else the possibility of the business continuing till perpetuity will be in doubt. Two concepts that are closely related are solvency and liquidity and they reflect upon the actions of company's working capital policy. A low liquidity level may result in increasing financial costs and lead to the company's incapacity to pay its obligations as they fall due.

According to the study conducted by Chandra in (2001) the author believed that normally a high liquidity is perceived as a signal of financial strength. However, some authors like Assaf (2003) believe that a high liquidity can be as unattractive as a low one. This would be a consequence of the fact that current assets are usually less profitable than non-current ones. Money invested in assets generates less revenue than that of non-current assets, thus representing an opportunity cost.

Empirical Studies

Numerous studies in the past decades have x-rayed and analyzed the relationship of firm's liquidity and firm profitability in various markets across the globe. The results are either negative or positive, but a larger percentage of these studies conclude a negative relationship between liquidity and firm profitability. In ascertaining empirically the relationship that exist between liquidity and firm profitability, these prior studies have adopted various variables to analyze this relationship with diverse methodology such as multiple regression, Pearson product moment correlation technique and panel data regression. This section seeks to adequately examine prior studies related to this study so as to be able to succinctly identify the gaps in research.

Oladipupo and Okafor (2013) examined the implications of a firm's working capital management practice on its profitability and dividend payout ratio. The study focused on the extent of the effects of working capital management on the Profitability and Dividend Payout Ratio. Data were sourced from 12 manufacturing companies listed on the Nigeria Stock Exchange over a period of 5 years ranging from 2002 to 2006. In analyzing their data, ordinary least square (OLS) regression technique and Pearson product moment correlation was used, they noted that shorter net trade cycle and debt ratio enhances high corporate profitability. Their findings further revealed that, the level of leverage has negative significant impact on firms profitability, the impact of working capital management on corporate profitability seemed to be statistically insignificant at 5% confidence level.

Lazaridis and Tryfonidis (2006) sampled 131 firms listed in the Athens Stock Exchange (ASE) for the period of 2001-2004. Their empirical result shows that there is a significant



negative relationship between cash conversion cycle and gross operating profit. Their findings further showed that managers can generate profits for their companies by keeping in check the cash conversion cycle and holding each component (inventory, accounts payable and account receivables) optimally.

Sharma and Kumar (2011) investigated the effect of working capital on profitability of Indian firms. They gathered data related to a sample of 263 non-financial firms listed on the floor of Bombay stock exchange between the periods of 2000-2008 and OLS multiple regression was used to analyze the data. Stemming from their findings, the results revealed that there is a positive correlation between working capital management and profitability in India companies. Their empirical result further reveals that numbers of day's account payable and number of days of inventory are negatively correlated with a firm's profitability, furtherance to this, number of days accounts receivables and cash conversion period shows a positive relationship with corporate profitability.

Rehman and Nasr (2007) examined the relationship of cash conversion cycle, Average payment period, Average collection period, Inventory turnover in days, on profitability and liquidity of Pakistani firms. In achieving the foregoing, they sampled and gathered data of 94 Pakistani firms listed on Karachi stock exchange for a period of 6 years ranging from 1999 to2004. In analyzing their data, the following data estimation techniques Pearson's correlation and regression analysis were adopted. Their result revealed that there exist significantly negative relationship between firm's operating profit and inventory turnover in days, cash conversion cycle and average payment period.

Gill, Biger and Mathur (2010) examined the relationship that exist between working capital management and profitability using a sample size of 88 America firms listed on New York Stock Exchange for a period of 3 years ranging from 2005-2007. In estimating their data, series of technique like the (WLS) weighted Least Squares regression and Pearson Bivariate Correlation was adopted for their data analysis. Their study revealed a statistically significant relationship between the cash conversion cycle (CCC) and profitability, measured through gross operating profit. They further opined that managers can create profits for their companies by handling correctly the cash conversion cycle (CCC).

Danuletiu (2010) investigated the relationship that exists between working capital management and profitability of Alba County Companies. They sampled 20 companies and data were sourced from the sampled company's financial statement for a period of 4years 2004-2008. Different variables were used to proxy for working capital and the firms were also segregated on the basis of offensive and defensive policy and data were estimated using



Pearson Correlation. Their findings revealed that there is a negative relationship between working capital and profitability.

Shin and Soenen (1998) investigated the relationship between working capital management and profitability of firms. Shin and Soenen used Net Trade Cycle (NTC) as a proxy for working capital management instead of Cash Conversion Cycle (CCC). It was observed that the components of CCC are expressed as a percentage of sales in NTC. Their study revealed a strong negative relationship between NTC and profitability using a large sample of listed American firms for the periods between 1975 - 1994.

Research Hypotheses

- H01 there is no significant relationship between liquidity and profitability in the Nigerian food and beverage sector
- H02 there is no significant relationship between liquidity and profitability in the Nigerian conglomerate sector
- H03 there is no significant relationship between liquidity and profitability in the Nigerian healthcare sector
- H04 there is no significant relationship between liquidity and profitability in the Nigerian building material sector
- H05 there is no significant relationship between liquidity and profitability in the Nigerian breweries sector
- H06 there is no significant relationship between liquidity and profitability in the Nigerian chemical sector
- H07 there is no significant relationship between liquidity and profitability in the Nigerian manufacturing sector

METHODOLOGY

The study adopted the quantitative research design. Secondary source of data was used for this study and data were sourced from the audited annual report of the selected firms listed in Nigeria. Data gathered were analyzed using OLS regression analysis.

Samples were drawn from six sectors based on the NSE classification using stratified random sampling technique and they are given as follows; Food/beverage & tobacco, Conglomerates, Healthcare, Building materials, Breweries and Chemicals and paints. The proxy for liquidity which is the explanatory variable is Current ratio and the proxy for the response variable of this study is Gross profit.



Model Specification

Gp= f (current ratio)		
Model 1 Gp= β_0 + β_1 CR + et	Food and beverage subsector	(1)
Model 2 Gp = α_0 + α_1 CR + et	Conglomerate subsector	(2)
Model 3 Gp = λ_0 + λ_1 CR + et	Healthcare subsector	(3)
Model 4 Gp = μ_0 + μ_1 CR + et	Building Material subsector	(4)
Model 5 Gp = β_0 + β_1 CR + et	Breweries subsector	(5)
Model 6 Gp = β_0 + β_1 CR + et	Chemical Sector subsector	(6)
Model 7 Gp = β_0 + β_1 CR + et	Pooled regression subsector	(7)
Where:		
GP is gross profit		
CR is current ratio		

et is error term

ANALYSIS

Ordinary least Square (OLS) Regression result

Table 1: Model 1: OLS, using observations 1-30

Dependent variable: GP [Food and beverage]

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	fficient Std. Erro		t-ratio	p-value	
Const	1.845e+07	3.26559	9e+06	5.6498	<0.00001	***
CRATIO	-7.03279e+0	6 2.6714	e+06	-2.6326	0.01363	**
Mean dependent	var 1	0495474	S.D.	dependent var	6402	2525
Sum squared res	sid 9	.14e+14	S.E.	of regression	5712	2986
R-squared	0	.231252	Adju	sted R-squared	0.20	3797
F(1, 28)	6	.930734	P-va	llue(F)	0.01	3633
Log-likelihood	-5	508.2808	Akai	ke criterion	1020).562
Schwarz criterior	n 1	023.364	p-va	lue of ANOVA	0.0	071

From table 1, Model 1 tests the hypothesis that there is no significant relationship between current ratio and profitability of food and beverage sector. The co efficient of β_0 is significant at 5%. The regression result indicates that the coefficient of CRATIO is negative with -7.0329e, which denotes that there is a negative relationship between liquidity and profitability in the food and beverage sector. Thus, Ho1 hypothesis is not rejected and is concluded that CRATIO is statistically significant at 1% significance level (p>0.01). However, the model is statistically significant, as it is indicated by the P-value of ANOVA 0.007 (p<0.01). The model's R2 implies



that the CRATIO which is the independent variable predicts 23.1% of the changes in the profitability of the firms in the sector.

Table 2: Model 2: OLS, using observations 1-20 Dependent variable: GP [conglomerate]

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient Std. Erro		r t-ratio	p-value		
Const	1.45734e+06	1.55333e+	06 0.9382	0.36056		
CRATIO	1.88698e+06	942969	2.0011	0.06069	*	
Mean dependent var	48619	43 8	S.D. dependent var	3255	3255681	
Sum squared resid	1.35e+14		S.E. of regression	2735	2735683	
R-squared	0.331092		Adjusted R-squared	0.29	3930	
F(1, 18)	4.0044	431 F	P-value(F)	0.06	0692	
Log-likelihood	-323.7630		Akaike criterion	651.	5260	
Schwarz criterion	653.51	175 A	ANOVA p-value	0.0	079	

From table 2, Model 2 tests the hypothesis that there is no significant relationship between current ratio and profitability of Conglomerate sector. The co efficient of β_0 is significant at 10% (p<0.10). The regression results show that the coefficient of CRATIO is positive with 1.886e, which denotes that there is a Positive relationship between liquidity and profitability in the Conglomerate sector. Thus, Ho₂ hypothesis is rejected and is concluded that CRATIO is statistically significant at 10% significance level (p<0.10). However, the model is statistically significant, as it is indicated by the P-value of ANOVA 0.007 (p<0.01). The model's R2 implies that the CRATIO which is the independent variable predicts 33.1% of the changes in the profitability of the firms in the sector.

Table 3: Model 3: OLS, using observations 1-15 Dependent variable: GP [Healthcare]

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	Std. Error	t-ratio	p-value	
Const	4.64236e+06	1.42615e+06	3.2552	0.00627	***
CRATIO	-1.34892e+06	788256	-1.7113	0.11077	
Mean dependent v	ar 2308	428 S.I	D. dependent var	1384	523
Sum squared resid	2.10e	+13 S.E	E. of regression	1270)121
R-squared	0.218	543 Ad	justed R-squared	0.158	3431
F(1, 13)	2.928	470 P-v	/alue(F)	0.110	0769
Log-likelihood	-231.0)302 Ak	aike criterion	466.0	0603
Schwarz criterion	467.4	764 AN	IOVA p-value	0.07	789



From table 3, Model 3 tests the hypothesis that there is no significant relationship between current ratio and profitability of healthcare sector. The co efficient of β_0 is significant at 1% (p<0.01). The regression results show that the coefficient of CRATIO is negative with -1.34892e, which denotes that there is a negative relationship between liquidity and profitability in the healthcare sector.

Thus, Ho₃ hypothesis is not rejected and is concluded that CRATIO is statistically significant at 5% significance level (p<0.05). However, the model is statistically significant, as it is indicated by the P-value of ANOVA 0.078 (p<0.10). The model's R2 implies that the CRATIO which is the independent variable predicts 21.8% of the changes in the profitability of the firms in the sector.

Table 4: Model 4: OLS, using observations 1-15 Dependent variable: GP [Building materials] Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	Std. Erro	or t-ı	ratio	p-value	
Const	8.4384e+06	2.56949e+	06 3.2	2841	0.00593	***
CRATIO	1.15098e+06	1.65353e+	06 0.6	6961	0.49864	
Mean dependent va	ır 9471	800	S.D. depe	ndent var	58	89795
Sum squared resid	4.756	e+14	S.E. of reg	gression	60	47159
R-squared	0.02	1147	Adjusted F	R-squared	-0.0)54150
F(1, 13)	0.484	4514	P-value(F))	0.4	98641
Log-likelihood	-254.	4373	Akaike crit	terion	512	2.8746
Schwarz criterion	514.2	2907	ANOVA p	-value	0.	6051

From table 4, Model 4 tests the hypothesis that there is no significant relationship between current ratio and profitability of Building material sector. The co efficient of β_0 is not significant at 1% (p>0.01). The regression results depict that the coefficient of CRATIO is positive with 1.15098e, which denotes that there is a positive relationship between liquidity and profitability in the Building material sector.

Thus, Ho₄ hypothesis is rejected and is concluded that CRATIO is statistically significant at 5% significance level (p<0.05). However, the model is not statistically significant, as it is indicated by the P-value of ANOVA 0.605 (p>0.01). The model's R2 implies that the CRATIO which is the independent variable predicts 2.1% of the changes in the profitability of the firms in the sector.



Table 5: Model 5: OLS, using observations 1-10

Dependent variable: GP [Breweries]

	Coefficie	nt St	d. Error	t-ratio	p-value	1
Const	6.94172e+	07 1.94	565e+07	3.5678	0.00732	- ***
CRATIO	-2.91071e+	-07 1.53	454e+07	-1.8968	0.09443	} *
Mean dependent	t var	35792135	S.C). dependent va	ı r 1	8042007
Sum squared res	sid	2.02e+15	S.E	. of regression	1	5884877
R-squared		0.310958	Adj	usted R-square	ed C	.224828
F(1, 8)		3.597859	P-v	alue(F)	C	.094432
Log-likelihood		-178.8824	Aka	aike criterion	3	61.7649
Schwarz criterior	l	362.3701	AN	OVA p-value		0.0940

Heteroskedasticity-robust standard errors, variant HC1

From table 5 above, Model 5 tests the hypothesis that there is no significant relationship between current ratio and profitability of Building material sector. The coefficient of β_0 is significant at 10% (p<0.10). The regression results reveal that the coefficient of CRATIO is negative with -2.91071e, which means that there is a negative relationship between liquidity and profitability in the Breweries sector. Thus, Ho₅ hypothesis is not rejected and is concluded that CR is statistically significant at 5% significance level (p<0.05). However, the model is statistically significant, as it is indicated by the P-value of ANOVA 0.09 (p<0.10). The model's R2 implies that the CRATIO which is the independent variable predicts 31.0% of the changes in the profitability of the firms in the sector.

Table 6: Model 6: OLS, using observations 1-10 Dependent variable: GP [Chemical sector] Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	Std. Error	t-ratio	p-value	
Const	-215439	204659	-1.0527	0.32325	
CRATIO	1.06108e+06	128855	8.2347	0.00004	***
Mean dependent v	ar 12489	908	S.D. dependent var	516	765.9
Sum squared resid	4.26e	+11	S.E. of regression	230	889.8
R-squared	0.822	553	Adjusted R-squared	0.80	00372
F(1, 8)	67.80	958	P-value(F)	0.0	00035
Log-likelihood	-136.5	706	Akaike criterion	277	.1413
Schwarz criterion	277.7	464	Hannan-Quinn	276	6.4774

From table 6 above, Model 6 tests the hypothesis that there is no significant relationship between current ratio and profitability of chemical sector. The coefficient of β_0 is not significant at 1% (p>0.01). The regression results show that the coefficient of CRATIO is positive with



1.06108e, which means that there is a positive relationship between liquidity and profitability in the Chemical sector. Thus, Ho₆ hypothesis is rejected and is concluded that CR is not statistically significant at 5% significance level (p<0.05). However, the model is statistically significant, as it is indicated by the P-value of ANOVA 0.09 (p<0.10). The model's R2 implies that the CRATIO which is the independent variable predicts 82.2% of the variation in the profitability of the firms in the sector.

Dependent variable: GP [Pooled regression]						
Heteroskedasticity-robust standard errors, variant HC1						
	Coefficient	Std.	Error	t-ratio	p-value	
Const	1.42909e+07	2.6039	3e+06	5.4882	<0.00001	***
CRATIO	-3.48598e+06	1.2974	3e+06	-2.6868	0.00847	***
Mean dependent v	ar 9592	169	S.D. d	lependent var	11747	840
Sum squared resid	l 1.31e	+16	S.E. o	f regression	11545	967
R-squared	0.043	829	Adjust	ted R-squared	0.034	072
F(1, 98)	7.219	109	P-valu	le(F)	0.008	474
Log-likelihood	-1767	.068	Akaike	e criterion	3538.	137
Schwarz criterion	3543.	347	ANOV	/A p-value	0.03	66

Table 7: Model 7: OLS, using observations 1-100

From table 7 above, Model 7 tests the hypothesis that there is no significant relationship between liquidity and profitability of manufacturing sector. The coefficient of β_0 is significant at 1% (p>0.01). The regression results show that the coefficient of CR is negative with -3.48598e, which means that there is a negative relationship between liquidity and profitability in the manufacturing sector which is consistent with the findings of prior researches on this topic. Thus, Ho₇ hypothesis is not rejected and is concluded that CRATIO is statistically significant at 1% significance level (p<0.01). However, the model is statistically significant, as it is indicated by the P-value of ANOVA 0.036 (p<0.05). The model's R2 implies that the CRATIO which is the independent variable predicts 4.3% of the variation in the profitability of the firms in the manufacturing sector.

SUMMARY OF FINDINGS

For the purpose of this paper, seven models were specified in order to empirically examine the relationship that exists between liquidity and firm's profitability. Current ratio was used to proxy for liquidity while gross profit was used to proxy for the dependent variable profitability using six manufacturing sectors that are listed in Nigeria. The result of the findings revealed that as against the findings that liquidity and profitability are inversely related, this study has been able



to empirically demonstrate that the general notion of an inverse relationship that exist between liquidity and profitability in prior literatures does not apply. More appropriately the nature of the relationship differs across sectors under the manufacturing firms or sectors in the manufacturing industry. This notwithstanding, the relationship between liquidity and profitability in the manufacturing sector on the whole is inverse and that is what was depicted by model 7 and this finding is in tandem with the findings of Oladipupo and Okafor, (2013).

CONCLUSION

The aim of this paper is to provide greater insight as to the relationship that exists between liquidity and profitability of selected manufacturing firms in Nigeria. As against the general findings of prior studies on this subject matter, this paper is been able to examine the relationship between the independent variable which was proxied using Current ratio and the dependent variable which was also proxied using Gross profit sector by sector rather than looking at the manufacturing sector holistically as other study have been doing in the past. The study revealed that for the Food and Beverage sector, Healthcare sector and Breweries sector respectively there exist a negative relationship between liquidity and profitability. For Conglomerate sector, Building material sector and Chemical sector there exists a positive relationship between Liquidity and profitability, as against the general notion as depicted by prior studies of inverse relationship between liquidity and profitability. This notwithstanding, the pooled regression result depicted a negative relationship between liquidity and profitability in the manufacturing sector as a whole which is in line with the findings of prior studies.

SCOPE FOR FURTHER RESEARCH

Studies can be further carried out on this topic by exploring other sectors like oil and gas, financial services etc. Also in furthering research on related topics sample size and variables used to proxy for the dependent and the independent variable can also be increased so as to give room for a more robust result and findings.

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APPENDIX

Company Name	Nigerian Stock Exchange (NSE) Sector classification
Seven-Up Bottling Company Plc.	Food/beverage & tobacco
Northern Nigeria flour mills Plc.	Food/beverage & tobacco
Nestle Foods Nigeria Plc.	Food/beverage & tobacco
UTC Nigeria Plc.	Conglomerates
Cadbury Nigeria Plc.	Food/beverage & tobacco
Nigeria Bottling Company Plc.	Food/beverage & tobacco
Unilever Nigeria Plc.	Food/beverage & tobacco
PZ Nigeria Plc.	Conglomerates
UAC of Nigeria Plc.	Conglomerates
AG Leventis Nigeria Plc.	Conglomerates
May and Baker Nigeria Plc.	Healthcare
Smithkline Beecham Nigeria Plc.	Healthcare
Ashaka Cement Plc.	Building materials
West Africa Portland Cement Plc.	Building materials
Nigerian breweries Plc.	Breweries
Guinness Nigeria Plc.	Breweries
Berger Paints Nigeria Plc.	Chemicals and paints
CAP Nigeria Plc.	Chemicals and paints
Benue Cement Company Plc.	Building materials
FIDSON Nigeria Plc.	Healthcare

Table 1: Sector Categorization of Sample Companies

Source: Constructed by Researchers based on SEC industry classification

