EFFECT OF LIQUIDITY AND LEVERAGE ON FINANCIAL PERFORMANCE OF NIGERIAN LISTED CONSUMER GOODS FIRMS

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Abstract: *The study examined effect of leverage and liquidity on financial performance of Nigerian firms using data of seventeen consumer goods firms listed on the Nigerian Stock Exchange during the financial years, 2012 to 2017. The study adopted multiple regression method, with pooled Ordinary Least Squares as estimation technique. The finding revealed that leverage proxies- degree of operating leverage and degree of combined leverage have significant effect on financial performance. The study could not however provide empirical evidence in support of liquidity proxies- current ratio and quick asset ratio having significant effect on performance of the companies. The study recommended that in order to improve profitability level, corporate managers and top decision makers should take advantage of debts' tax shield from the interest in companies' financial structure and develop robust strategies that will monitor and efficiently manage liquidity requirements.*

Keywords: *Current ratio, Quick ratio, Leverage, Liquidity, Profitability.*
JEL Classification: *G32, M41.*

1. Introduction

One of the difficult and demanding corporate decisions that organisations face is the preference of mixture of capital structure while taking into consideration the nexus between profitability and risks (Titman and Wessel, 1988). Leverage is the proportion of fixed interest capital (that is, debt and preference share capital) in financing the operations of organisations. Hence, it is expected that when the degree of leverage is high, the risk associated with meeting fixed payment outstanding of a firm will also increase (Akinsulire, 2011).

Liquidity management is the management of firms' investment in current assets, current liabilities, short-term borrowings and the management of surplus or deficit cash for short term periods (Pandey, 2010). On the other hand, financial performance or profitability is ability of organisations' management to use resources efficiently in the main operation of business in order to generate sufficient revenue and be able to give returns to the diverse stakeholders.

Leverage and liquidity are interrelated as levered company employs liquid assets as a precaution in order to absorb the economic shocks in the market and also to service debt and the consequential future fixed charges (Oduol, 2011). It can therefore be argued that

leverage and liquidity management are major factors that are likely to influence firms' profitability.

There is no doubt to the fact that the literature is replete in terms of studies on leverage and liquidity, however, findings from these various studies have remained tenuous. This may be as a result of different measurements used to proxy the variables involved. A review of extant literature shows that some studies such as Bei and Wijewardana (2012) Enekwe, Agu and Eziedo (2014), Kaya (2014), Ahmad, Salman and Shamsi (2015), Adenugba, Ige and Kesinro (2016) and Nwanna and Ivie (2017), focused only on the relationship between leverage and profitability while on the other hand, others like Ibe (2013), Lartey, Antwi and Boadi (2013), Alzorqan (2014), Ahmad (2016), Nabeel and Hussain (2017) and Edem (2017) focused on the nexus between liquidity management and profitability.

Furthermore, majority of empirical studies reviewed (Bei and Wijewardana, 2012; Lartey et al., 2013; Acheampong, Agalega and Shibu, 2014; Raheel and Shah, 2015; Ghasemi and Ab Razak, 2016; Moghaddam and Abbaspour, 2017; Mulyana, Zuraida and Saputra, 2018) are not carried out in Nigeria. Some works (Moghaddam and Abbaspour, 2017; Mulyana et al., 2018) considered the effect of liquidity and leverage on profitability of firms but none on consumer goods firms in Nigeria.

The present study tried to mitigate the aforementioned gaps by having a primary objective of examining the effect of liquidity and leverage on performance of 17 quoted consumer goods firms in Nigeria. The secondary objectives of the study are divided into two. These are (1) to explore the effect of liquidity on profitability; and (2) to ascertain the effect of leverage on profitability.

The remaining part of this study is as follows: section two involves the review of relevant literature, section three is on the methodology adopted, section four considers the results and discussion while section five concludes the study.

2. Literature Review

Conceptual Framework

The main concepts in this study are leverage, liquidity management and profitability. Leverage is the proportion of fixed interest capital in the financial structure of organisations while liquidity measures the nexus between current assets and current liabilities. Profitability is the ability of organisations' management to use resources efficiently in order to generate sufficient revenue.

For the purpose of this study, leverage is measured via three constructs – Degree of Operating Leverage (DOL), Degree of Financial Leverage (DFL) and Degree of Combined Leverage (DCL) while liquidity is measured via two constructs – Current Ratio (CR) and Quick Ratio (QR). Profitability is measured via the firms' Earnings per Share (EPS).

Theoretical Framework

Discussions on leverage and liquidity have been based on various propositions by different scholars in the past. Three major theories underpin this study and are briefly discussed in turn.

Pecking order theory of Myers and Majluf (1084) posits that firms prefer internal financing if it proves to be sufficient but resort to external source where the internal financing is insufficient. For the external source, the order of preference based on the cost of each source is as follows: long-term borrowing, short-term borrowing and equity as a last option. However, for developing countries, a new Pecking order theory (Reverse Pecking Order) has been considered and it is characterised by a reassessment of the financing preference thus; retained earnings, equity, long- term debt and lastly short-term borrowing.

Trade-off theory suggests that firms determine their optimal financial structure by maintaining a balance between the costs of taking additional debt (bankruptcy) and the benefits derivable (tax deductibility of interest).

Agency theory describes the relationship between principals (shareholders) and agents (managers) where the agents are expected to act in the interest of the principals. However, due to personal interest, the agents decide to work against the interest of the owners of the business. Monitoring costs are expected to be incurred by owners of the business so as to keep watch over the behaviour of the agents (Jensen & Meckling, 1976).

Related Empirical Studies

Oduol (2011) explored the influence of liquidity on leverage of listed companies in Kenya. The study focused on thirty quoted firms from 2006 to 2010. Secondary data were sourced and analysed via multivariate regression analysis. The finding revealed that there is an indirect and insignificant association between liquidity and leverage. It was suggested that organisations should put in place good working capital management practice as well as short cash conversion cycles.

Bei and Wijewardana (2012) made an attempt to investigate whether financial leverage influences the firm's growth. The study considered sixty-two Sri Lankan companies from 2000 to 2009. Finding revealed that financial leverage is directly related to firms' growth and financial strength in Sri Lanka's firms.

Akinlo and Asaolu (2012) investigated the profit profile of Nigerian firms and also analysed the effect of leverage on profitability of sixty-six Nigerian listed non-financial firms from 1999 to 2007. The data were analysed via chi-square and pooled Ordinary Least Squares (OLS). The findings suggested that leverage was indirectly related to profitability.

Enekwe, Agu and Eziedo (2014) examined the effect of financial leverage on financial performance of three listed Nigeria pharmaceutical companies from 2001 to 2012. The study reported that financial leverage has indirect relationship with financial performance.

Kaya (2014) studied the influence of leverage on U.S companies' profitability and liquidity variables from 2000 to 2005. The study revealed that highly levered retail and wholesale trade firms have a tendency to suffer from liquidity problem while highly levered retail firms have a tendency to suffer from profitability problem. However, the results for highly levered wholesale firms are mixed. Above all, it was reported that higher return on equity for highly levered wholesale firms was as a result of severely depressed equity values.

Onofrei, Tudose, Durdureanu and Anton (2015) examined the determinant factors of firms' leverage among three hundred and eight-five micro and small enterprises in Romania from 2008 to 2010. It was reported that leverage is negatively related to liquidity.

Gombola, Ho and Huang (2016) examined the effect of leverage and liquidity on earnings and capital management of U.S. commercial banks from 1999 to 2003. The result of the study indicated an inverse association between earnings management and liquidity measures if all other things being equal, aggressive earnings management behaviour metamorphosed into aggressive leverage and liquidity policies.

Hiadlovsky, Rybovicova and Vinczeova (2016) studied the link between liquidity and profitability of one hundred and eighty-eight tourism-based companies operating in Slovakia from 2011 to 2014. The results revealed a weak association between liquidity management and profitability.

Nabeel and Hussain (2017) studied the effect of liquidity management (current, quick, cash, interest coverage and capital adequacy ratios) on banks' profitability in 10 Pakistani banks. from 2006 to 2015. The study adopted both the correlation and regression techniques in testing the hypotheses. The study reported that interest coverage, capital

adequacy and quick ratios have direct while cash and current ratios have an indirect association with banks' profitability proxies (ROA, ROE and EPS).

Edem (2017) investigated the impact of liquidity management on performance (Return on Equity) of twenty-four Nigerian commercial banks for the period, 1986 to 2011. The regression results revealed a significant relationship existed between liquidity management measures and return on equity of (DMBs) in Nigeria.

Oyedokun, Job-Olatunji and Sanyaolu (2018) explored the effect of capital structure on financial performance of 10 Nigerian listed manufacturing companies during 2007-2016. Results revealed statistically insignificant association between capital structure and performance.

3. Methodology

Research Design and Source of Data

The study adopted ex-post facto research design as the data used were readily available and extracted from the published annual reports of the sampled companies and the various editions of the Nigerian Stock Exchange Fact Book.

Population, Sample and Sampling Technique

Consumer goods firms listed on the floor of the Nigerian Stock Exchange as at December 31, 2018 is 28 and this constitutes the population of the study. Using purposive sampling technique, 17 firms were selected as sample for the study for the period 2012-2017. The list of the firms is provided in Appendix 1.

Data Analytical Technique

The multiple regression method was adopted with pooled Ordinary Least Square (OLS) as estimation technique. This is consistent with some prior works (Akinlo and Asaolu, 2012; Ibe, 2013; Adenugba et al., 2016; Ghasemi and Ab Razak, 2016).

Variable Description and Development of Hypotheses

Dependent variable

Earnings per Share (EPS): This is the only dependent variable adopted by the study. It is one of the variant for measuring the efficiency of the management in using the shareholders ordinary share capital to create and maximise their wealth. It has been used in prior literature as a proxy for profitability (Patel, 2014; Raheel and Shah, 2015; Kwarbai, Olayinka, Ajibade, Ogundajo and Omeka, 2016; Nabeel and Hussain, 2017).

Independent variables

In this study, two surrogates have been used to capture liquidity and three for leverage as proxies for the independent variable. The two variables considered for liquidity are current ratio and quick ratio while leverage is proxy by DOL, DFL and DCL (Patel, 2014; Raheel and Shah, 2015).

Control variable

In order to make the result of the model robust, firm size has been introduced as control variable. It is suggested that larger firms may attract more profits than smaller firms (Titman and Wessels, 1988; Bevan and Danbolt, 2002; Lipunga, 2014; Kajola, 2015; Djalilov and Piesse, 2016).

Hypotheses

The following hypotheses are formulated and tested:

Ho1: Degree of operating leverage has no significant effect on profitability of firms.
Ho2: Degree of financial leverage has no significant effect on profitability of firms.
Ho3: Degree of combined leverage has no significant effect on profitability of firms.
Ho4: Current ratio has no significant effect on profitability of firms.
Ho5: Quick asset ratio has no significant effect on profitability of firms.

Model specification

The specific model used for the study was a modified form of Patel (2014) and Raheel and Shah (2015) models and is provided in equation 3.1.

$EPS_{it} = \beta_0+\beta_1 DOL_{it} + \beta_2 DFL_{it+} \beta_3 DCL_{it} + \beta_4 CR_{it} + \beta_5 QR_{it}+ \beta_6 SZE_{it} + e_{it} \ldots$ (3.1)

Where;

EPS_{it} = Earnings per share of firm in period t
DOL_{it} = Degree of operating leverage of firm in period t
DFL_{it} = Degree of financial leverage of firm in period t
DCL_{it} = Degree of combined leverage of firm in period t
CR_{it} = Current ratio of firm i in period t
QR_{it} = Quick ratio of firm i in period t
SZE_{it} = Size of firm i in period t
e_{it} = Stochastic error term

Measurement

The way the study variables are computed is shown in Table 1.

Table 1. Measurement of the Study's Variables

Variable	Acronym	Measure	Expected signal
Dependent variables			
Earnings per share	EPS	Profit before interest and tax (PBIT) / Number of equity shares	
Independent variables			
Degree of operating leverage	DOL	Percentage change in PBIT / Percentage change in Turnover	+
Degree of financial leverage	DFL	Percentage change in EPS / Percentage change in PBIT	+
Degree of combined leverage	DOL	DOL x DFL	+
Current ratio	CR	Current assets / Current liabilities	-
Quick ratio	QR	Current assets - inventory / Current liabilities	+
Firm size	SZE	Natural log of firms' total assets	+

Source: Authors' compilation, 2019.

4. Results and Discussion

Descriptive Statistics

Table 2 presents the descriptive statistics. It shows that the average EPS is 3.7% with corresponding minimum values of -2.51% and maximum value of 42.5%. The average degree of operating leverage (DOL) is 20% with minimum of -109.2% and maximum 1293.1%. Degree of financial leverage (DFL) is averaged 65.9% and ranges between -147.8% and 3886.4%. Also, degree of combined leverage shows an average value of 37.9% and ranges from -109% to 770%. Current ratio is averaged 1.16:1 with minimum of 0.07:1 and maximum of 2.88:1 Quick ratio has a mean value of 0.82:1 with a minimum of 0.05:1 and corresponding maximum of 2.20:1. Finally, log of firm size has a

mean of 17.6 and ranges between 14.27 and 22.40. The variable with the greatest variability from mean is DFL with standard deviation of 407.15 and the one with the least variability is QR with standard deviation of 0.474.

Table 2. Summary of Descriptive Statistics

	EPS	DOL	DFL	DCL	CR	QR	SZE
Mean	3.7098	20.0358	65.8699	37.9352	1.1571	0.8194	17.6009
Maximum	42.5000	1293.1010	3886.3710	769.9610	2.8808	2.2017	22.3965
Minimum	-2.5100	-109.2188	-147.7980	-109.0000	0.0740	0.0517	14.2666
Std. Dev.	6.9613	138.1748	407.1527	117.5940	0.5640	0.4737	1.5758
Skewness	3.2339	8.1914	8.4014	4.1441	0.7971	0.8021	-0.1930
Kurtosis	14.9482	73.5214	77.9106	22.1193	3.54162	3.4023	2.7768
Observations	102	102	102	102	102	102	102

Source: Authors' computation, 2019

Correlation

The correlation matrix of the variables is shown in Table 3. The degree of operating leverage, current ratio and quick ratio are negatively associated with EPS while the degree of financial leverage, combined leverage and firm size are positively signed with EPS. This implies that increase in DFL, DCL and firm size translate to higher earning while increase in degree of operating leverage and the two surrogates for liquidity lead to firms' profit reduction.

Table 3. Correlation Matrix

Variables	EPS	DOL	DFL	DCL	CR	QR	SZE
EPS	1.000						
DOL	-0.100	1.000					
DFL	0.154	-0.024	1.000				
DCL	0.378	0.212	0.014	1.000			
CR	-0.167	0.057	0.036	-0.215	1.000		
QR	-0.026	0.062	0.089	-0.185	0.830	1.000	
LSIZE	0.396	0.009	0.111	0.152	-0.203	0.007	1.000

Source: Authors computation, 2019.

Firm size was also found to be positively related to earnings per share, implying that larger firms are attracting higher profits.

Multicollinearity Test

Variance Inflation Factor (VIF) method was adopted in testing for the existence of multicollinearity between independent variables. The major advantage of VIF, according to Gujarati and Sangeetha (2008) is that it has the ability to filter from the model the variable(s) that may distort the regression result. Table 4 presents the multicollinearity test result. The acceptable maximum VIF value of any explanatory variable according to Gujarati (2003), Rumsey (2007), Gujarati and Porter (2009) and Wooldridge (2009) is 10 as any figure above this means the existence of multicollineraity which can distort the inferences to be made from the analysis.

As shown in Table 4, none of the independent variables has VIF of 10 and above. This confirms abscence of multicollinearity issue among explanatory variables.

Table 4. Collinearity Test Result

Variable	VIF	1/VIF
DOL	1.048	.954
DFL	1.001	.999
DCL	1.048	.954
CR	1.243	.945
QR	1.056	.934
Average	**1.079**	**.959**

Source: Authors' computation, 2019

Regression Results

Regression results using pooled Ordinary Least Squares (OLS) technique for the model is presented in Table 5.

The F-statistic for the model is 7.1109 and is significant at 1% level (prob value = 0.000). It depicts that the fitness of the model. Durbin-Watson value is 1.104, and is within the acceptable threshold of 1 to 3 (Gujarati, 2003, Asaeed, 2005 and Gujarati and Porter, 2009), indicates that the model does not suffer from problem of serial autocorrelation. Adjusted R^2 is 0.2683, suggesting that 26.8% of the variation in profitability (EPS) can only be explained by the liquidity and leverage proxies used in the study, while 73.2% is due to other factors that are exogenous to the model.

Table 5. Pooled OLS Results

Variables	Coefficient	t-stat	Prob
C	-19.5577	-2.5641**	0.0119
DOL	-0.0090	-2.0181**	0.0464
DFL	0.0017	1.1758	0.2427
DCL	0.0217	4.0347***	0.0001
CR	-2.2529	-1.0890	0.2789
QR	2.7852	1.1665	0.2464
SZE	1.2973	3.1325***	0.0023
Adj. R^2	0.2683		
F – statistic	7.1109***		
Prob. (F – statistic)	0.0000		
Durbin – Watson	1.1043		
Observations	102		

*, **, *** indicate significant at 10%, 5% and 1% level, respectively

Source: Researchers' computation, 2019

Discussions of Findings

From the analysis in Table 5, the OLS regression result indicates that DOL has an inverse effect on profitability (EPS) at 5% level. Thus, the higher the degree of operating leverage the lower the profit. This finding is in line with a priori expectation of the study. The implication of the finding is that as companies incur more fixed cost, profitability is negatively affected. Null hypothesis 1 is therefore rejected. The degree of operating leverage has significant influence on profitability. The result of the finding is in support of earlier studies of Raheel and Shah (2015) and Onofrei, *et al*., (2015). However, in contrary to the study's findings, Patel (2014) reported that leverage has a direct but insignificant effect on EPS.

Degree of financial leverage exhibits a direct and insignificant association on EPS. This suggests that high debt in the overall capital structure of a company exerts positive influence on profitability which may be attributed to the tax shield, low cost of issuing debt capital and convenience of raising debt as opposed to equity. Although the positive

coefficient is in alignment with *a priori* expectation but it is insignificant. This finding is consistent with prior studies, including Raheel and Shah (2015), Moghaddam and Abbaspour (2017) and Nwanna and Ivie (2017). However, Ahmad et al., (2015) reported that financial leverage has a statistically significant inverse impact on profitability. Null hypothesis 2 is hereby failed to be rejected.

The finding regarding degree of combined leverage as one of the surrogates for leverage reveals that DCL exerts significant direct effect on profitability (EPS). This outcome is in conformity with *a priori* signal of the study. The outcome suggests that the degree of financial leverage is an important driver of profitability in Nigerian consumer goods firms. However, Raheel and Shah (2015) in their study reported that DCL has no significant relationship with EPS. Although, this might be a manifestation of the sector and / or economy involved. Null hypothesis 3 is hereby rejected.

Contrary to the study's expectation, current ratio as one of the proxies for liquidity, was found to exert indirect and insignificant effect on EPS. Arising from this, the null hypothesis 4 is failed to be rejected. Perhaps, this might be an indication of the fact that as firms become liquid, it may take a toll on their profitability especially where such is not judiciously allocated and prioritised. This finding can be justified on the ground that most Nigerian consumer goods companies sampled by this study are overstocked which increases their current assets and so also current ratio. Thus, as more inventories are stocked, profitability is negatively affected because unsold inventories do not earn returns. Furthermore, as companies over invest on inventory, it may affect their cash position thereby making it difficult for them to finance daily operations and meet up with short term obligations. This eventually alters operations and drastically reduces profitability. Nabeel and Hussain (2017) and Ahmad (2016) have confirmed the result of our findings.

Quick ratio shows positive but no significant effect on profitability. This is incomsistent with the study's *a priori* signal. This finding can be justified on the ground that inventory which is consider to earn no return if not sold is deducted from current ratio before being divided by current liability and as such, companies are expected to keep more of receivables, income received in arrears, prepaid expenses and cash. These are considered more liquid than inventory and as such they can easily be released to improve liquidity position performance and ultimately contribute to successful operation with attendant effect on increased profitability. The result of this finding is in conformity with earlier studies of Nabeel and Hussain (2017) and Ahmad (2016) carried out in the banking industry but produce the same results with ours. Arising from this, the null hypothesis 5 is hereby failed to be rejected.

For the control variable, the effect of size was found to be positive but insignificant. The outcome is supported by Bjarni (2007), Kolapo, Ayeni and Oke (2012), Samad (2015) and Kajola, Adedeji, Olabisi and Babatolu (2018). This finding suggests that most Nigerian consumer goods firms do not take judicious use of their assets (in totality) which ordinarily have the tendency of boosting the profitability if put into proper use.

5. Conclusion and recommendations

The study investigated the effect of leverage and liquidity on profitability in 17 consumer goods companies in Nigeria from 2012 to 2017. Using pooled Ordinary Least Squares (OLS) technique as analytical tool the study's findings revealed that leverage has significant effect on profitability while liquidity did not. Specifically, it was discovered that degree of operating leverage has an indirect and significant effect on profitability; degree of financial leverage exerted an insignificant direct effect on profitability; while degree of combined leverage produced significant and positive effect on profitability. Current ratio indicated a negative and insignificant effect on profitability while quick ratio

showed an insignificant positive effect on profitability. The attributed low cost of issuing debt as against equity is one of the issues which can make debt financing to exert a significant positive effect on profitability.

Consistent with the findings of this study, it is recommended that for companies to achieve profitability it will require taking advantage of debts' tax shield from the interest in their financial structure and adoption of robust liquidity management framework such as effective monitoring and controlling inventory level and investment in short-term securities (treasury bills and certificates) whenever excess liquidity arises.

In an attempt to improve on the robustness of this study, future researches can be conducted using more sample size and higher study time frame. Similar studies can also be replicated in other sectors of the economy.

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APPENDIX
List of Sample Firms

S/N	Name of firm
1	Nigerian Breweries Plc
2	Guiness Nigeria Plc
3	7up Bottling Company Plc
4	Nigeria Enamelware Plc
5	Flour Mills of Nigeria Plc
6	Vitafoam Nigeria Plc
7	PZ Cussons Nigeria Plc
8	NASCON Plc
9	Honeywell Flour Mills Plc
10	Dangote Sugar Plc
11	Dangote Flour Mills
12	Cadbury Nigeria Plc
13	Unilver Nigeria Plc
14	Nestle Nigeria Plc
15	Northern Nigeria Flour Mills Plc
16	Champion Brewery Plc
17	MC Nicos Nigeria Plc

Source: Nigerian Stock Exchange Fact Book.