



FINANCIAL LEVERAGE AND PROFITABILITY OF QUOTED FOOD AND BEVERAGE COMPANIES IN NIGERIA

Joseph I. Onyema

Department of Banking and Finance,
Rivers State University, Port Harcourt

Joy U. Oji,

Department of Banking and Finance,
Rivers State University, Port Harcourt

Abstract

This study examined financial leverage and profitability of quoted food and beverage firms in Nigeria. It is aimed at studying the relationship between measures of financial leverage and profitability. Time series data were sourced from the financial statements of the selected food and beverage firms and were subjected to rigorous statistical analysis such as the Augmented Dickey Fuller test, co-integration test, granger causality test and vector error correction models. They were used to examine the dynamic relationship that exists between the dependent and the independent variables. The level series result in model one found that total liability ratio relates negatively with return on equity (ROE) and return on assets (ROA) which were used as the dependent variables in the models while long term debt, equity ratio, debt ratio and debt equity ratio relate positively with the dependent variables. Model two found that total liability ratio, long term debt ratio, debt equity ratio and debt ratio have a negative relationship while equity ratio has a positive with return on equity. The Augmented Dickey Fuller test found that the variables are stationary at first difference; the co-integration test found the presence of long run relationship while the Granger causality test found a bi-directional relationship to exist between the independent and independent variables.

The study concludes and recommends that firms going for debt financing should adopt debt financing mix of debt ratio, equity ratio and total liability ratio. Of these, debt ratio should be more vigorously pursued for its profound salutary effect on the profitability of quoted food and beverage firms in Nigeria.

Keywords: *Financial Leverage, Profitability, Food and Beverage Firms, Debt Equity Ratio, Total Debt Ratio.*

Introduction

Financial leverage is traditionally viewed as the use of debt component of capital structure, through the use of fixed income securities, such as loans and bonds. It has a significant influence on the company's ability to achieve its ultimate goal, such as maximizing the shareholders wealth (Taani, 2012). Increased leverage results in increased return and risk (Tally, 2014). However, the use of leverage is associated with two different possible

outcomes either positive such as maximizing the profit or negative such as minimizing the losses. Financing leverage is determined by profitability, corporate size, liquidity, cash flows, tax and dividend policy (Rajin, 2012). It is measured in terms of debt equity ratio, long term debt to total debt, total debt as percentage of total asset and short term debt to total debt (Rehman, 2013). Financial leverage is intended to earn more on the fixed charges funds than their costs (Tally, 2014). The effect of financial leverage in maximizing the return of the shareholders is based on the assumptions that the fixed- charges funds such as the loan and debentures can be obtained at a cost lower than the firm's rate of return on net assets (Damouri, Khanagha, & Kaffash, 2013).

The finance management functions of determining the capital structure of the firm is very important to the short and the long run sustainable growth of corporate entities. The separation of ownership from management means that owners' investment must generate return which depends on corporate policies such as the financing policy, the dividend policy, the investment policy and the capital structure policy. How well a firm achieves its operational objective has a lot to do with these policies. Financial leverage is an important component in capital structure along with equity and retained earnings. One of the main debates in corporate finance is the impact of financial leverage on a firm's investment.

Determining the capital structure mix that will improve a firm's value is a contentious topic in financial literature. The literature shows that what might be suitable for one firm in one region might not be suitable for firms in other industries or regions. Thus, studying the effect of the capital structure mix in a specific environment helps determine the mix that will improve firms' performance in that environment (Graham & Harvey, 2001). In Nigeria, there are limited studies of citable significance which have dealt on the problem of financing leverage on profitability of quoted firms. Existing studies such as Ujah and Brusa (2012) Akinmulegun, (2012) failed to capture measures of financing leverage such as debt equity ratio and also failed to capture measures of corporate profitability such as return on investment, return on assets, and return on capital employed. This creates a knowledge gap on the relationship between financing leverage and profitability of quoted firms. Therefore, this study intends to examine the relationship between measures of financing leverage and profitability of food and beverage companies in Nigeria.

Literature Review

Conceptual Framework

Financial Leverage

Leverage refers to the extent to which firms make use of their financial indebtedness such as debts financing to increase profitability and is measured by total liabilities to equity. Leverage is a major component of the financial structure of firms, and unlike other causes of risk, the management has complete control over the risk resulting from leverage. It exists whenever a company has fixed costs whether in the firm's operational or financial activities, meaning, having operational leverage or financial leverage (Graham, 2000). Both types of leverage affect the profitability of the firms. However, in this research we will be examining the effect of financial leverage on the profitability of firms. It is concerned with the structuring of the funds obtained through the capital structuring of the firm, including both equity & short/long term liabilities.

Measurements of Financial Performance

Return on Equity (ROE)

Debt is an important component of the capital structure of a firm. Debt provides needed resources to take advantage of profit opportunities. When used productively, debt can leverage equity capital in a way that is very beneficial financially. But financial leverage is impartial and unforgiving. Debt works just as well to the detriment of a business when it is used unproductively, as it works to benefit a firm that is managed wisely. A firm needs to know whether and to what extent financial leverage is working either for or against their business. The rate of return on equity (ROE) provides useful information about the performance of debt in the capital structure. ROE is calculated by dividing net income by shareholder's equity. ROE should exceed ROA for firms that borrow money. If ROE doesn't exceed ROA, it means that borrowed capital isn't earning enough to pay its cost. Alternatively, ROE may be way higher than ROA and may indicate potential to benefit from additional investments in the firm.

Return on Assets (ROA)

Capital employed must be used productively. Capital is mobile and if not used productively, will eventually move to where it can generate a competitive return. ROA provides a measure for assessing the overall efficiency with which the assets are used to produce net income from operations. It is also indicative of management's effectiveness in deploying capital, because it is certainly possible to be efficient and yet poorly positioned in terms of how capital is utilized. Return on assets is calculated by dividing profit after tax (PAT) and interest returns by total assets. Return on assets is probably the single best overall measure of operating performance. It ties together the results of operations with the resources used to produce those results. It is also relatively easy to interpret

Theoretical Framework

2.2.1 Irrelevance and Relevance Theory

These theories as propounded by Modigliani and Miller (1963) state that under perfect capital market conditions, a firm's value depends on its operating profitability rather than its capital structure, that is, value irrelevant (Modigliani and Miller, 1963). But, in their tax-corrected paper, Modigliani and Miller (1963) showed that when corporate tax laws permit the deductibility of interest payments, the market value of a firm is an increasing function of leverage. With corporate income tax rate t_c , and ρ on an after tax basis, the equilibrium market value of levered firm is given by:

$$VL = \bar{X} (1-t_c) / \rho + t_c D_L \quad 2.1$$

(4) Where, \bar{X} equals expected earnings before interest and taxes,

$\bar{X} (1-t_c) / \rho = V_u$, value of the firm of all-equity-financed, and $t_c D_L$ is the present value of the interest tax-shield, the tax advantage of debt. Given \bar{X} , VL increases with the leverage, because interest is a tax-exempt expense. But while this theory successfully introduced the potential effects of corporate taxes into the capital structure theory, it only leads to an extreme corner effect as the firm's value is maximised when 100 percent debt finance is used.

The Pecking Order Theory

In the theory of firm's capital structure and financing decisions, the pecking order was first suggested by Donaldson in 1961 and it was modified by Myers and Majluf (1984). It states that companies prioritize their sources of financing (from internal financing to equity) according to the principle of least effort, or of least resistance, preferring to raise equity as a financing means of last resort. Hence, internal funds are used first, and when that is depleted, debt is issued, and when it is not sensible to issue any more debt, equity is issued. Pecking Order theory tries to capture the costs of asymmetric information. It states that companies prioritize their sources of financing (from internal financing to equity) according to the law of least effort, or of least resistance, preferring to raise equity as a financing means "of last resort. Hence: internal financing is used first; when that is depleted, then debt is issued; and when it is no longer sensible to issue any more debt, equity is issued. This theory maintains that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required (equity would mean issuing shares which meant 'bringing external ownership' into the company). Thus, the form of debt a firm chooses can act as a signal of its need for external finance. The pecking order theory is popularized by Myers (2001) when he argues that equity is a less preferred means to raise capital because when managers (who are assumed to know better about true condition of the firm than investors) issue new equity, investors believe that managers think that the firm is overvalued and managers are taking advantage of this over-valuation. As a result, investors will place a lower value to the new equity issuance.

The Agency Cost Theory

This is a theory concerning the relationship between the principal (shareholders) and the agent of the principal (company's managers). This suggests that the firm can be viewed as a nexus of contracts (loosely defined) between resource holders. An agency relationship arises whenever one or more individuals, called principals, hire one or more other individuals, called agents, to perform some service and then delegate decision-making authority to the agents. The agency theory concept was initially developed by Berle and Means (1932), who argued that due to a continuous dilution of equity ownership of large corporations, ownership and control become more separated. This situation gives professional managers an opportunity to pursue their interest instead of that of shareholders (Jensen and Runback, 1986). In theory, shareholders are the only owners of a company, and the task of its directors is merely to ensure that shareholders' interests are maximized. More specifically, the duty of directors is to run the company in a way which maximizes the long term return to the shareholders, and thus maximizes the company's profit and cash flow.

Cash Flow and Free Cash Flow Theory

The free cash flow (FCF) theory considers the internal source of a firm's funds. However, FCF has costs associated with the way firms' managers' deal with FCF. The focus of the FCF theory is how to balance cash flow and the costs of FCF. Scott (1981) stated that if a firm has enough cash flow to pay for their expenses, particularly debt, it will be able to survive. He argued that firms' managers will be able to use the firm's history of cash flows to predict the firm's health and future performance. He linked this with the ability of current cash flows to predict future financing status.

Empirical Review

Akhtar, et al (2012) examines the relationship between financial leverage and financial performance, evidence from fuel and energy sector of Pakistan. The result shows that there is a general perception that a mixed relationship exists between the financial leverage and the performance of the companies. Most of the financial performance indicators have positive relationship among leverage and the financial performance when compared with debt to equity ratio while the gearing ratio indicates negative relationships with the leverage indicators. The gearing ratio also takes into account the effect of capital with return numerator which not only accommodates the debt but also the outstanding shares of preferred stock. The result adds that gearing ratio may differ from that of debt to equity ratio while debt equity ratio takes into account the long term debt.

Rehman (2013) studies the relationship between financial leverage and financial performance in listed sugar companies of Pakistan. The result shows positive relationship of debt equity ratio with return on asset and sales growth, and negative relationship of debt equity ratio with earning per share, net profit margin and return on equity. This negative relationship between debt equity ratio and earnings per share (EPS) support the fact that as debt increases, the interest payment will also rises, so EPS will decrease.

Akinmulegun (2012) examines the effect of financial leverage on selected indicators of corporate performance in Nigeria. This shows that financial leverage significantly affects corporate performance in Nigeria. Rajin (2012) investigates the influence of financial leverage on shareholders return and market capitalization, evidence of telecommunication sector companies in India. He found out that the nature of relationship and the state of influence of the financial leverage on shareholder's return and market capitalization individually indicates positive relationship between financial leverage and shareholder return but negative relationship between financial leverage and market capitalization. Ujah and Brusa (2013) suggest that financial leverage and cash flow impact the degrees to which firms manage their earnings. They continue that it depends on economic group or industry a firm belongs to their degree and extent of managed earnings varies.

Obradovich and Gill (2013) indicates that larger board size negatively impacts the value of American firms and CEO duality, audit committee, financial leverage, firm size, return on assets and insider holdings positively impact the value of American firms. Pandey (2010) says that the variance and covariance and therefore beta depend on three fundamental factors such as; the nature of business, the operating leverage and financial leverage. Nasrollah et al (2013) studies effect of financial leverage and investment diversification on income-increasing earning management. The results show that financial leverage coefficient is meaningful at level of 95% of confidence, consequently, it can be concluded that financial leverage has an influence on income-increasing earnings management.

Enuju and Soocheong (2005) examine the effect of financial leverage on profitability and risk of Restaurant firms. They find that financial leverage does not influence the restaurant firms' profitability. It is noteworthy that the sign of financial leverage is positive meaning that more leveraged firms had more profits on average even though it was not statistically significant. Nazir and Saita (2013) studies financial leverage and agency cost, an empirical evidence of Pakistan. The study found out that general and admin expense into to sales ratio is negatively

related to all four leverage ratio. Taani (2012) investigates impact of working capital management policy and financial leverage on financial performance. The study shows that firm's working capital management policy, financial leverage and firm size have significant relation to net income and also no significant impact on return on equity (ROE) and return on Assets (ROA).

Akbarian (2013) examines the investigation effect of financial leverage and environment risk on performance of firms of listed companies in Tehran stock exchange. The result shows that there is a negative relation between financial leverage and dividend per share and between market risk and economic risk with free cash flow per share positive significant. It also indicates that financial leverage, market risk and economic risk with return of equity have positive significant relationship. Huang and Song (2006) studies on Chinese companies found a negative relationship between long-term debt and return on assets, as well as between all the liability and return of assets.

Methodology

Since there are so many types of research design, the one that was used in this study is the ex-post factor research design. This is because, it involves events that have already taken place in the past. The records that was observed are from 1990-2016 a period of twenty six years. The population of this study is all the firms producing food and beverages on the Nigeria Stock Exchange (NSE). However, because of unavailability of data, the study used only 10 firms' selected using random sampling technique. The study used only secondary data that were extracted from the Annual Reports and statements of Account of the selected manufacturing companies. The data from the Annual Report are assumed to be reliable, because according to section 11, chapter one of the companies and Allied Matters Act 1990, companies are required to keep accounts and to produce accounts that give true and fair view of the company.

The method of data analysis used in this study is the multiple linear regressions using ordinary least square method. This approach, which is a quantitative technique, includes statistical test of hypotheses formulated by using ordinary least square with Econometric View regression analysis at 5% level of significance. Moreover, in order to undertake a statistical evaluation of our model, so as to determine the reliability of the result obtained and the coefficient of correlation (r) of the regression, the coefficient of determination (r^2), the student T-test and F-test where employed.

3.5 Model Specification

$$CP = f(\text{FL}) \dots\dots\dots (1)$$

Where CP = Corporate Profitability

FL = Financial Leverage

Disaggregating equation (1) to achieve the objective of the study, we have the following regression models

$$ROE = f(\text{DER, DR, ER, TLR, LTDR})$$

$$ROA = f(\text{DER, DR, ER, TLR, LTDR})$$

Transforming the equations above, to a testable form, we have the following equation

$$ROE = \beta_0 + \beta_1 \text{DER} + \beta_2 \text{DR} + \beta_3 \text{ER} + \beta_4 \text{TLR} + \beta_5 \text{LTDR} + \mu$$

$$ROA = \beta_0 + \beta_1 DER + \beta_2 DR + \beta_3 ER + \beta_4 TLR + \beta_5 LTDR + \mu$$

Where

ROE = Return on equity

ROA=Return on assets

DER = Debt equity ratio

DR = Debt ratio

ER = Equity ratio

TLR = Total liability ratio

LTDR = Long term debt ratio

β_0 = Regression intercept

μ = Error term

Estimation Method

Unit Root

It is possible that many series that you would have thought were stationary based on OLS regression were in fact generated by random walks (Cochrane, 2005) we shall therefore subject all the variables to unit root test using the augmented Dickey Fuller (ADF) test specified in Gujarati (2004) as follows.

$$\Delta y_t = \beta_1 + \beta_2 + \delta y_{t-1} + \alpha \sum_{i=1}^m \Delta y_{t-i} + Et$$

Where:

Δy_t = change time t

Δy_{t-1} = the lagged value of the dependent variables

Σ_t = White noise error term

If in the above $\delta = 0$, then we conclude that there is a unit root. Otherwise there is no unit root, meaning that it is stationary. The choice of lag will be determined by Akaike information criteria.

Co-integration Test

In order to avoid spurious estimates, we intend to establish long-run relationship between the variable included in the model and Engle-Granger Approach to co-integration will be adopted. This approach is based on conducting unit root test on residual obtained from the estimated regression equation. If the residual is found to be stationary at level, we conclude that the variables are co-integrated and as such long-run relationship exists among them.

Granger Causality Test

The main objective of this study is to investigate the causality between financial leverage and profitability of quoted food and beverage firms. Granger (1996) proposed the concept of causality and exogeneity: a variable Y_t is said to cause X_t , if the predicted value of X_t is ameliorated when information related to Y_t is incorporated in the analysis.

Error Correction Model (ECM)

Co-integration is a prerequisite for the error correction mechanism. Since co-integration has been established, it is pertinent to proceed to the error correction model. The VECM is of this form:

$$\Delta y_t = \alpha \beta y_{t-1} + \sum_{i=1}^{j-1} \Gamma_j \Delta y_{t-1} + \pi + \zeta_t, t = 1, \dots, T$$

Where Y_t is a vector of indigenous variables in the model. α is the parameter which measures the speed of adjustment through which the variables adjust to the long run values and the β is the vectors which estimates the long run cointegrating relationship among the variables in the model. π is the draft parameter and is the matrix of the parameters associated with the exogenous variables and the stochastic error term.

Testing for Unit Root (Stationarity Test)

The Augmented Dickey Fuller (ADF) unit root test was used to test whether the variables are stationary and their order of integration. The ADF was preferable as it corrects for possible autocorrelation in the model. The result of the ADF unit root test is shown in table 4.3 below:

Table 2: Unit Root Test Summary Results at Level

VARIABLE	ADF STATISTICS	MACKINNON			PROB.	ORDER OF INTR.
		1%	5%	10%		
ROE	-4.434979	-3.724070	-2.986225	-2.632604	0.0019	1(1)
ROA	-5.250419	-3.724070	-2.986225	-2.632604	0.0003	1(1)
TLR	-1.429812	-3.724070	-2.986225	-2.632604	0.5515	1(0)
LTDR	-7.242512	-3.752946	-2.998064	-2.638752	0.0000	1(1)
ER	-4.883301	-3.808546	-3.020686	-2.650413	0.0010	1(1)
DR	-8.335527	-3.752946	-2.998064	-2.638752	0.0000	1(1)
DER	-4.883301	-3.808546	-3.020686	-2.650413	0.0010	1(1)
Unit Root Test Summary Results at First Difference						
ROE	-6.525659	-3.752946	-2.998064	-2.638752	0.0000	1(1)
ROA	-6.633322	-3.752946	-2.998064	-2.638752	0.0000	1(1)
TLR	-5.694478	-3.737853	-2.991878	-2.635542	0.0001	1(1)
LTDR	-4.885579	-3.724070	-2.986225	-2.632604	0.0006	1(1)
ER	-5.137565	-3.857386	-3.040391	-2.660551	0.0007	1(1)
DR	-5.740597	-3.737853	-2.991878	-2.635542	0.0001	1(1)
DER	-5.137565	-3.857386	-3.040391	-2.660551	0.0007	1(1)

Source: Extracts from E-view

The ADF unit root test indicates that all the variables except total liability ratio were stationary, at level and first difference. However, following Harris (1995) and Gujarrati (2003), both I(1) and I(0) variables could be carried forward to test for co-integration which forms the basis of the next section. The Johansen co-integration test was used to test for the existence or not of a long run relationship among the variables. The Johansen methodology was preferable for the study because it has the advantage amongst others of allowing for more than one co-integration vector. The result of the Johansen co-integration test is shown in the table below:

Table 3: Johansen Co-Integration Test Results: Maximum Eigen

Hypothesized No. of CE(s)	Eigen value	Maximum- Eigen	0.05 Critical Value	Prob.**	Decision
None *	0.888894	136.8820	95.75366	0.0000	Reject H ₀
At most 1 *	0.696700	84.14747	69.81889	0.0024	reject H ₀
At most 2 *	0.646632	55.51471	47.85613	0.0081	reject H ₀
At most 3 *	0.565107	30.54880	29.79707	0.0409	Accept H ₀
At most 4	0.339389	10.56508	15.49471	0.2397	Accept H ₀
At most 5	0.025296	0.614905	3.841466	0.4329	Accept H ₀
Trace Statistics					
None *	0.888894	52.73452	40.07757	0.0012	Reject H ₀
At most 1	0.696700	28.63275	33.87687	0.1858	reject H ₀
At most 2	0.646632	24.96591	27.58434	0.1044	reject H ₀
At most 3	0.565107	19.98372	21.13162	0.0717	Accept H ₀
At most 4	0.339389	9.950174	14.26460	0.2152	Accept H ₀
At most 5	0.025296	0.614905	3.841466	0.4329	Accept H ₀
Model II					
Hypothesized No. of CE(s)	Eigen value	Maximum- Eigen	0.05 Critical Value	Prob.**	Decision
None *	0.857480	134.6115	95.75366	0.0000	Reject H ₀
At most 1 *	0.725779	87.85291	69.81889	0.0010	reject H ₀
At most 2 *	0.679500	56.80122	47.85613	0.0058	reject H ₀
At most 3	0.588311	29.49225	29.79707	0.0542	Accept H ₀
At most 4	0.272476	8.192537	15.49471	0.4450	Accept H ₀
At most 5	0.022979	0.557939	3.841466	0.4551	Accept H ₀
Trace Statistics					
None *	0.857480	46.75863	40.07757	0.0077	Reject H ₀
At most 1	0.725779	31.05168	33.87687	0.1048	reject H ₀
At most 2	0.679500	27.30898	27.58434	0.0542	reject H ₀
At most 3 *	0.588311	21.29971	21.13162	0.0474	Accept H ₀
At most 4	0.272476	7.634598	14.26460	0.4171	Accept H ₀
At most 5	0.022979	0.557939	3.841466	0.4551	Accept H ₀

Source: Extracts from E-view

The trace statistics from model I indicate no co-integrating equation while the maximum Eigen from the model one indicates at list 3 co-integrating equation. The maximum Eigen in model 2 proved 2 co-integrating equations while the trace statistics prove 1 co-integrating equation. In conclusion, there is the presence of long run relationship between financial leverage indicators and profitability of the selected food and beverage manufacturing firms. However, the above result failed to indicate the direction of long run relationship that exists between the dependent and the independent variables, this enable us to test for normalized co-integrating equation in the table below.

Table 4 Normalized Co-integrating Equation

Model I					
ROA	TLR	LTDR	ER	DR	DER
1.000000	2.029858 (1.49957)	2.164663 (1.36371)	-1.827818 (0.61710)	-18.24363 (3.93908)	-3.655920 (0.36065)
Model II					
ROE	TLR	LTDR	ER	DR	DER
1.000000	3.450163 (2.63086)	11.35920 (2.38827)	-0.349133 (1.08244)	-25.16481 (6.94474)	-3.058048 (0.62769)

Source: Extracts from E-view

From model I, the study found that total liability ratio and long term debt ratio has positive long run relationship with return on assets while equity ratio, debt ratio and debt equity ratio has negative long run relationship with the dependent variable. Model II also found that total liability ratio and long term debt ratio has positive impact while equity ratio, debt ratio and debt equity ratio has negative impact on return on equity. The existence of a least one co-integrating equation permits the estimation of the parsimonious (preferred) Error Correction mechanism (ECM) which forms the next section.

Table 5 Parsimonious Error Correction Results

VARIABLE	COEFFICIENT	STD ERR.	T-STATISTICS	PROB.
C	-1.752106	7.112959	-0.246326	0.8104
D(ROA(-1))	-0.247365	0.320317	-0.772251	0.4578
D(ROA(-3))	0.195531	0.225709	0.866296	0.4066
D(TLR(-1))	1.186950	12.11612	0.097965	0.9239
D(TLR(-2))	-11.00729	9.575840	-1.149486	0.2771
D(TLR(-3))	-7.496930	9.944184	-0.753901	0.4683
D(LTDR(-1))	1.555029	3.462005	0.449170	0.6629
D(LTDR(-2))	-1.646124	3.374336	-0.487836	0.6362
D(LTDR(-3))	-1.544766	2.846272	-0.542733	0.5992
D(DER(-3))	0.177672	0.768943	0.231060	0.8219
D(DR(-1))	8.747593	6.293686	1.389900	0.1947
ECM(-1)	-0.803511	0.533448	-1.506260	0.1629
C	-1.752106	7.112959	-0.246326	0.8104
R2	0.763639			
ADJ. R2	0.503641			
F-STATISTICS	2.937100			
F-PROB.	0.050300			
Durbin-Watson	1.829373			

Model II

VARIABLE	COEFFICIENT	STD ERR.	T-STATISTICS	PROB.
C	36.65052	65.08917	0.563082	0.5830
D(ROE(-1))	-0.221317	0.580465	-0.381275	0.7092
D(ROE(-2))	-0.417148	0.371179	-1.123848	0.2814
D(ROE(-3))	-0.171188	0.363566	-0.470859	0.6455
D(TLR(-1))	7.231347	14.34097	0.504244	0.6225
D(TLR(-2))	-20.86438	15.91257	-1.311188	0.2125
D(TLR(-3))	-11.20444	12.55134	-0.892689	0.3883
DER	-0.875238	1.366586	-0.640456	0.5330
ECM(-1)	-0.653594	0.627691	-1.041268	0.3167
R2	0.592309			
ADJ. R2	0.341422			
F-STATISTICS	2.360861			
F-PROB.	0.041369			
Durbin-Watson	1.892795			

Source: Extracts from E-view

The Parsimonious ECM result highlighted the significance of the effect of financial leverage on the profitability of the selected food and beverage firms. The result indicates that the relationship between financial leverage and profitability has mixed result, while some of the variables have positive impact at lag I it will record a negative impact at lag II. For instance, total liability ratio has positive but insignificant effect on return on assets in lag I but have negative and insignificant effect on return on assets at lag II. However, the none of the variable is statistically significant in model I. The insignificant impact of the variables could be traced to internal and external factors that affect the operational efficiency of the selected firms. Model II found that long term debt, debt ratio and equity ratio was drawn from the model due to the insignificant impact of the variables within the period covered in this study. The mixed result enables us to test for causality between the dependent and the independent variables as contained in the table below.

Table 6 Pair Wise Causality Test

TLR does not Granger Cause ROA	24	0.30579	0.7401
ROA does not Granger Cause TLR		0.48857	0.6210
LTDR does not Granger Cause ROA	24	0.95500	0.4025
ROA does not Granger Cause LTDR		0.01219	0.9879
ER does not Granger Cause ROA	24	6.05143	0.0093
ROA does not Granger Cause ER		0.08970	0.9146
DR does not Granger Cause ROA	24	5.05280	0.0174
ROA does not Granger Cause DR		2.31631	0.1258
DER does not Granger Cause ROA	24	1.02594	0.3775
ROA does not Granger Cause DER		0.68275	0.5172

Model II

TLR does not Granger Cause ROE	24	0.49362	0.6180
ROE does not Granger Cause TLR		0.35995	0.7024
LTDR does not Granger Cause ROE	24	0.81989	0.4555
ROE does not Granger Cause LTDR		0.50324	0.6124
ER does not Granger Cause ROE	24	1.28596	0.2994
ROE does not Granger Cause ER		1.38180	0.2752
DR does not Granger Cause ROE	24	0.36944	0.6960
ROE does not Granger Cause DR		1.84804	0.1848
DER does not Granger Cause ROE	24	0.37199	0.6943
ROE does not Granger Cause DER		2.02582	0.1594

In the granger causality test, model I shows no causality between total liability ratio and return on assets and no causality between return on assets and total liability ratio, therefore we accept the null hypothesis. No causality between long term debt and return on assets and no causality between return on assets and long term debt, therefore we accept the null hypothesis. There is causality between equity ratio and return on assets we reject the null hypothesis but no causality between return on assets and equity ratio, we accept the null hypothesis. There is causality between debt ratio and return on assets we reject the null hypothesis but no causality between return on assets and debt ratio. Debt equity ratio have no causality on return on assets we accept the null hypothesis. The results found no causality among the variables in model II; we therefore accept the null hypothesis.

Descriptive Analysis

The descriptive analysis involves the use of trends and graphs in analyzing the data within the time frame of the study. For the purpose of this study, the annual time series data was trend using the excel model.

Prior Expectation of the Result

The a-priori expectation of the variables proposes that an increase in a unit of each of the explanatory variables leads to increase in the dependent variables (profitability). Therefore it can be mathematical stated as follows: $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 > 0$.

Data Presentation, Analysis and Discussions of Findings

The results of the multiple regression are presented in Table 1 where the analysis of ROE and ROA are shown in models I and II respectively. The interpretation of both results is presented after the Table.

Table 1**Model I: Financial Leverage and Return on Equity (ROE)**

VARIABLE	COEFFICIEN T	STD ERRS.	T-STATISTICS	PROB.
TLR	-3.258475	5.334941	-0.610780	0.0082
LTDR	0.245602	2.905691	0.084524	0.9335
ER	0.213678	2.161991	0.098834	0.9223
DR	4.419539	8.915582	0.495710	0.0055
DER	0.555764	0.799324	0.695293	0.0449
C	242.0315	146.4079	1.653132	0.1139
R ²	0.777896			
ADJ. R ²	0.552630			
F-STATISTICS	4.337907			
F-PROB	0.000890			
Durbin-Watson stat	2.401563			

Model II: Financial Leverage and Return on Assets (ROA)

VARIABLE	COEFFICIEN T	STD ERRS.	T-STATISTICS	PROB.
TLR	-2.863955	6.262371	-0.457328	0.0024
LTDR	-5.373764	3.410818	-1.575506	0.0000
ER	1.673838	2.537833	0.659554	0.5171
DR	-2.661039	10.46547	-0.254268	0.0019
DER	-0.061226	0.938279	-0.065253	0.9486
C	568.9057	171.8595	3.310295	0.0035
R ²	0.838681			
ADJ. R ²	0.676648			
F-STATISTICS	6.644043			
F-PROB	0.000047			
Durbin-Watson stat	1.991373			

Source: Extracts from E-view**Discussion of Findings**

Model I on ROE above shows the adjusted R² of 0.552 which suggests that 55.2% of the variation in return on equity is attributable to the variations in the identified components of financial leverage. This is a fairly good fit. Also, the calculated F- value of 4.337 has probability value of 0.000890 which points to the overall reliability of the model utility. All the explanatory variables such as LTDR, ER, DR and DER are positively signed and conform to theoretic expectations except TLR that is differently signed and runs contrary to a priori expectation. None of them however, is statistically significant.

Model II has an adjusted coefficient of determination (r²) value of 0.677 which shows that the model has a good fit. Also, the calculated F- value of 6.644 and probability value of 0.000047 implies a good reliability of the entire model. All the independent variables except ER are all negatively signed and do not correspond to a priori expectation. Again, none of them is statistically significant.

From the t-values in the regression summary, it is evident that financial leverage in selected food and beverage firms has no significant effect on return on equity (ROE) and return on assets (ROA). Of all the explanatory variables in model I, namely, total liability ratio (TLR), long term debt ratio (LTDR), equity ratio (ER), debt ratio (DR) and debt equity ratio (DER), only TLR is negative with a coefficient of 3.258 such that its unit increase drops return on equity (ROE) by 3.258 units. Firms should rather be encouraged to increasingly adopt DER as a policy since if this increases by one unit, ROE increases by as much as four times the increase in DR. LTDR, ER, and DER have minimal increases on ROE of 0.245, 0.213 and 0.556 respectively with a unit increase in each of them. The negative relationship between ROE and TLR could be traced to the high cost of debt in the financial market.

The positive relationship between ROE and the rest of the independent variables conforms to a-priori expectations and validates the theories reviewed above.

Model II found that total liability ratio (LTR) has a negative coefficient of 2.86, long term debt ratio (LTDR) has a negative coefficient of 5.37 while equity ratio (ER) has a negative coefficient of 2.66 and debt equity ratio (DER) has a negative coefficient of 0.06. From these results, firms should be wary of using TLR, DR and especially LTDR to finance their operations since they act to reduce the profitability of firms. As far as ROA is concerned, firms should rather opt for ER since it contributes positively to firms' profitability.

Conclusions

In accordance with the research findings, the study concludes that firms going for debt financing should adopt debt financing mix of debt ratio, equity ratio and total liability ratio. Of these, debt ratio should be more vigorously pursued for its profound salutary effect on the profitability of quoted food and beverage firms in Nigeria.

Recommendations

In line with the findings of this study, firms going for debt financing should adopt debt financing mix of debt ratio, equity ratio and total liability ratio. Of these three, debt equity is the most preferable of them all.

References

- Akhtar, S; Javed, B; Maryam, A., & Sadia, H., (2012). Relationship between financial leverage and financial performance: Evidence from fuel and energy sector of Pakistan *European Journal of Business and Management* 4(11), 7 – 17.
- Akinmulegun, S.O., (2012). The effect of financial leverage on corporate performance of some selected companies in Nigeria *Canadian Social Science*. 8(1), 85 – 91.
- Akbarian, S., (2013). The investigation effect of financial leverage and Environment Risk on Performance firms of listed companies in Tehran Stock Exchange. 8(3), 249 – 255.
- Damouri, D; Khanagha, J.B., & Kaffash, M., (2013). *The relationship between changes in the financial leverage and the values of the Tehran listed firms*. 5(3), 56-89.
- Enuju, Y., & Soocheong, J., (2005). The effect of financial leverage on profitability and Risk of Restaurant firms *Journal of Hospitality Financial Management* 13(1), 1 – 18.
- Graham, J. R., (2000). How big are the tax benefits of debt. *The Journal of Finance*, 55(5), 1901–1941.
- Graham, J., R., & Harvey, C., R., (2001). The theory and practice of corporate finance: evidence from the field', *Journal of Financial Economics*, 6(2), 187–243.

-
- Houang, G., & Song, F.S., (2006). The Determinants of Capital structure: *Evidence from China Economic Review* 1(4), 14 – 36.
- Jensen, M. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review*. 7(6), 2, 323-329.
- Modigliani, F. and Miller, M.H., (1963). Corporation income taxes and the cost of capital; A correction. *American Economic Review*, 5(3), 433-443.
- Modigliani, F., & Miller, M., H., (1958). The Cost of Capital, Corporate Finance and the Theory of Investment. *American Economic Review* 4(8), 261-297.
- Myers, S., (2001). The Capital Structure Puzzle. *The Journal of Finance*, 3(9), 575-592.
- Nazir, M.S & Saita, H.K., (2013). Financial leverage and Agency Cost: *An Empirical evidence of Pakistan International Journal of Innovative and Applied Finance* 1(9), 1 – 16.
- Nasrollah, T, Mohammad, A.O, & Seyed, H.S.E., (2013). Effect of financial leverage and investment diversification on income – increasing Earnings management Middle-East *Journal of Scientific Research* 16(6), 836 – 844.
- Pandey, I.M. (2010). *Financial Management*. 10th ed; New Delhi: Vikas publishing House PVT Ltd.
- Rajin, S., (2012). Impact of Financial Leverage on Shareholders returns and market Capitalization: Empirical evidence of telecommunication sector Companies India. *International Journal of Research in IT, Management and Engineering* 2(12).
- Rehman, S.S., (2013). Relationship between financial leverage and financial performance: Empirical Evidence of listed sugar companies of Pakistan. *Global Journal of management and Business Research finance* 13(8), 33 – 40.
- Taani, K., (2012). Impact of working capital management policy and financial leverage on financial performance: Evidence from Amman Stock Exchange listed companies. *International Journal of management sciences and Business Research* 1(8), 10 – 17.
- Tally, H., (2014). An Investigation of affect of financial leverage on firm financial performance in Saudi Arabia's Listed Companies, Victoria Graduate School of Business, Melbourne, Australia. 30
- Ujah, U & Brusa, O. (2012). The effect of financial leverage and cash flow volatility on Earnings management Texas A & M International University.