FIRMS EFFICIENCY AND FINANCIAL LEVERAGE OF THE LISTED CONSUMER GOODS COMPANIES IN NIGERIA, 2011-2021

[1]AYODEJI EMMANUEL .A, [2]AJALA ROSEMARY BUKOLA

[1] Professor, Executive Director, ABUAD Business School, Ibadan, Oyo-State
Lecturer at the Department of Banking Finance
Afe Babalola University (ABUAD), Ado-Ekiti, Ekiti State, Nigeria
[2]Ph.D, Senior Adjunct Lecturer @ the Department of Finance
ABUAD Business School, Ibadan, Oyo-State
E-mail: [1]dremmaniel.ayodeji@gmail.com, [2]rosebukky1981@gmail.com

Abstract - There is an ongoing discussion in academic parlance on whether efficiency firms use more leverage or not. While there have been limited studies in this area in Nigeria, attention has been given to it in other countries. In Nigeria, there is less use of debt in financing consumer goods firms, and at the same time, the efficiency of these firms has been low. Could this be due to a lack of long-term financing? It was against this background that this study was carried out to examine the effects of firm efficiency on the financing leverage of listed consumer goods companies in Nigeria within a temporal scope of – 2021.On the threshold of the efficiency-risk hypothesis, the study split firm efficiency into production efficiency (PRE), operating efficiency (OPE), and price earnings efficiency (PEE), which are respectively represented by the input-out ratio (IOR), operating profit margin (OPM), and price-earnings ratio (PER). It also used the debt-equity ratio (DER) as the main proxy for leverage, while taxation and corporate social responsibility were control variables. Cross-sectional data were extracted from the financial statements of all the 17 listed consumer goods companies in Nigeria. For endogeneity's sake, the main estimation techniques were the generalised method of moment (where firm efficiency served as the independent variable), while the supporting techniques were panel co-integration and the Granger causality test. The study found that firm efficiency exerted negative effects on leverage with coefficients of -0.0166 (PRE), -0.0124 (OPE), and -0.0097 (PEE), with significance for OPE and PEE (respective p-values of 0.9563, 0.0000, and 0.0000). It was concluded that the efficiency of industrial firms in Nigeria is low enough to accommodate debt financing the operation of the firms. The study recommends, among others, that the management of these firms employ intensive growth strategies (product development, market penetration, and market development) to improve their efficiency levels. This would increase their capacity to accommodate more debt for the growth of the firm in the long run.

Keywords - Firm Efficiency, Financial Leverage, Efficiency Risk Hypothesis, Industrial Firms

I. INTRODUCTION

Firms often face the economic reality of having funds as a limiting factor; hence, financial leverage (the extent of the use of debt) offers a bail out. However, the detrimental effects of this financial strategy create the fear-of-debt syndrome, making risk-averse management to shy away from its use. These include the risk of being wound up if the firm defaults in capital repayments and interest payments. In the recent time, there is a paradigm shift from the fear-of –debt to debt-is- good. This was brought about by the development of efficiency-risk theory, which expects high-efficient firms to employ more of debts in their capital structure, and low-efficient firms to employ less of debts (Brigham&Gapenski, 1990; Van Hone 2002; Pandey, 2010). This notion is justified on the ground that efficiency firms have high profit and growth potentials, and therefore generate higher earnings to repay the long-term creditors. Also, they do have higher reserves that could be used to counteract possible adverse effects of financial leverage in the firm's capital structure. Thus, high efficiency reduces the possibility of financial distress and bankruptcy cost (Berger &Mester, 1997; Van Hone 2002; Berger &Bonaccorsi, 2006; Dahiru, 2015; Ayodeji et al, 2020). Following this paradigm shift, other arguments in favour of financial leverage include the provision of tax shield to the firm, as interest payments are allowable deductions (i.e. allowable expenses from the computation of assessable profits of a company). As such, debt finance appears to be very cheap source of finance (Olowe, 1997; Oloyede, 2000; Pandey, 2010; Ayodeji, 2011; Ayodeji et al, 2020). Also, if debt finance is optimally used, it may increase profit potentials, and may facilitate growth in net profit to sales, return on equity, return on capital employed, return on net assets, earnings per share, and dividend per share (Pandey, 2010; Ayodeji, 2011). Furthermore, it is in the best interest of the existing shareholders to go for financial leverage instead of public offer of shares so as to avoid dilution in ownership, control and earnings (Pandey, 2010; Ayodeji, 2011).

Despite all these that efficient firms stand to gain, the use of debts is still being vehemently criticized by some recent scholars who are in support of the franchise-value theory from the standpoint of agency cost. They argue that, if leverage is not kept at a zero or low level, management would be wasteful and inefficient in the utilization of capital resource at their disposal. Conversely, if leverage is kept at a zero or low level, management would be forced to make optimal use of available capital resource by

concentrating their effort, resources and attention on what is available in order to achieve optimality from capital utilization (Jensen & Meckling, 1976; Brigham &Gapenski, 1990; Ayodeji, 2011).

In the light of all these, the extent to which firm efficiency can accommodate financial leverage for the enhancement of the firm to contribute to sustainable development calls for more empirical scrutiny. This is with the assumption that profitability, stakeholders' satisfaction, corporation tax, and corporate social responsibility rest on the growth, which is the net output of the firm.

However, the literature review revealed a gap in our understanding of the relationship between firm efficiency and, financial leverage. Existing studies focused solely on production efficiency and did not consider operating and market efficiency in their efficiency-debt model. Studies in this category include those of Al-Farisi and Hendrawan (2011), Margaritis and Psillaki (2007), Rastogi (2011), and Legesse and Guo (2019). This study therefore addresses this gap by examining the interactions between firm efficiency and financial leverage of the Nigerian consumer goods companies, between 2011 and 2021

II. LITERATURE REVIEW

Firm Efficiency

The term efficiency has been defined by many scholars. Farell (1957) defined it as the firm's success in producing as large output as possible from a given input set, provided that all inputs and outputs have been correctly measured. An example of this is the situation in which a company uses three inputs, such as labour, capital and technology (factors of production) to produce a product on a constant return to scale. It is expected that the outputs produced would be sufficiently efficient to increase the profit potentials of the company.

In the same vein, Onipede and Ayodeji (2005) defined efficiency as the utilization of available resources in such a way as to reduce wastages, but yield maximum satisfaction in respect of the need. It can be categorized as, technical (or productive), operating (or allocative) efficiency. A firm is said to be productively or technically efficient if the optimal combination of input factors results in the maximum amount of outputs. Also, it is said to be operating or allocatively efficient if it can allocate productive resources at the least possible costs in order to minimize costs and expenses, and maximize profits.

From the view of Ayiku (2015), it is the use of resources to generate outputs, or when the firm reduces inputs while maintaining the same output levels. This means that a company is efficient if it uses the available resources, which are inputs, such as labour, capital and technology, to generate sufficient outputs. It was considered by Ouattara (2020) as the production unit that is technically efficient and effective if it produces the maximum possible outputs from the available inputs, or produces outputs using the smallest possible quantity of inputs. The implication of this is that efficient firms make use of few inputs to produce a normal quantity of outputs. Such firms are free from resource wastages, and their processes are optimal.

Inextricably, efficiency has been discussed from two perspectives. The first is when explaining the analysis of production, and the other is when explaining the cost of combination of factor inputs. To Debreu (1951), the first perspective is advanced when introducing the coefficient of utilization of resources, that is, the input-output ratio. This was called technical efficiency by Farell (1957), and referred to as productive efficiency by Onipede and Ayodeji (2005) and Ayodeji (2012). From this perspective, Koopmans (1951) asserted that a feasible input-output vector would be said to be efficient if it is technologically impossible to increase any output and reduce any input without simultaneously reducing other outputs and/or increasing other inputs.

Financial Leverage

Financial leverage is the practice of financing a portion of the firm's assets with securities bearing a fixed rate of return such as debentures and preference shares, loans and bonds to the common stockholders. The import of this note is that financial leverage is a practice, demanding a specific performance(Oloyede, 2000; Omolehinwa (2006). Hence, this has positive and negative effects on the company

According to Ayodeji (2011), financial leverage has several advantageous effects on a company. These include providing a tax shield, the potential for increased profitability through a higher Return on Capital Employed (ROCE), and growth in key financial metrics such as Earnings Per Share (EPS), Price-Earnings Ratio (P/E ratio), and Dividend Per Share (DPS). This is because interest payments on debt are deductible from a firm's taxable profits, reducing its tax liability and increasing its post-tax profit. This higher net income translates to increased earnings per share, leading to a higher market capitalization due to favourable EPS, which in turn drives up the market price per share, resulting in a higher price-earnings ratio. Additionally, the increased earnings per share may prompt the board of directors to consider raising dividends, further benefiting equity shareholders.

On the negative side of financial leverage, Olowe (1997) pointed out that the higher the level of debts in the capital structure of a firm, the higher the financial leverage. Financial leverage creates financial risk in

the following order. First, a highly levered firm that cannot pay its debts as it falls due might be forced into liquidation. Second, if a highly levered firm goes into liquidation, creditors might not be able to recover their money in full. Third, if a firm is financially levered, it needs to make sufficient profit before interest and tax to pay its interest charges before its shareholders can be paid any dividend. The higher the interest charges or the lower the profits, the lesser the chance there will be any dividend for the ordinary shareholders. Preference dividends must also be paid before ordinary shareholders' dividends. Invariably, a high financial leverage (i.e. a high level of debt) is risky not only to the company, but also to creditors and ordinary shareholders.

Theoretical and Empirical Review

The study adopted as its theoretical framework, efficiency risk-hypothesis credited to David Duran in 1952, states that, a firm's efficiency in the utilization of assets or capital employed, at its disposal in generating sales and profits over and over again, would determine its ability to carry debts (or financial risk) in its capital structure. By this, the higher the firm's efficiency level, the higher its ability to take financial risk, and vice versa. Higher efficiency in the utilization of assets and/ or capital, in generating returns, reduces the possibility of financial distress and bankruptcy costs. This is due to the fact that, while higher efficiency firms generate enough earnings from which to pay debt holders to the extent of not being susceptible to financial distress, low efficiency firms might not be able to pay their debt holders, and are, therefore, prone to financial distress (Berger &Bonaccorsi, 2006).

The empirical review on firm efficiency and financial leverage is divided into two parts, the positive side and the negative side. The following studies are of the view that firm efficiency has positive relationship with financial leverage. These studies include; Margaritis and Psillaki (2007); Rastogi (2011); Abbaszadeh, et al., (2013); Ayiku (2015). However, the following studies were of the view that firm efficiency and financial leverage have negative relationship. These studies includes; BasseyArene and Okpukara (2014); Legesse and Guo (2019)

Model Specification

The study adapted the specification of Legesse and Guo (2020), whose functional form was stated as:

$$\text{Debt} = \text{f}\,(\,\text{Eff, Roa, Cashflow, Cash ratio, size, Tang, Investment})$$

This study replaced debt with debt-equity ratio (DER), which is a relative measure of financial leverage. It also split efficiency into three major specifics- operating efficiency, production efficiency and market efficiency (i.e. price-earning efficiency). It further employed firm-specific variables such as taxation and corporate social responsibility as control variables.

Therefore, the model was specified in a functional form as:

$$\text{DER} = \text{f}\,(\,\text{OPE, PRE, MKT, TAX, CSR}) - -1$$

In a linearized form, the model was re-stated as:

$$\text{DER}_{\text{I,t}-1} = \alpha_{\text{o}} + \alpha_1\text{OPE} + \alpha_2\text{PRE} + \alpha_3\text{MKT} + \alpha_4\text{TAX} + \alpha_5\text{CSR} + \text{U} - -2$$

The model, therefore, specifies that financial leverage is a function of firm efficiency and firm-specific socio-economic variables. In other words, debt equity ratio is a function of operating efficiency, production efficiency and market efficiency as well as company tax and corporate social responsibility.

Sources and Method of Data Collection

The study employed cross sectional data of all the seventeen listed consumer goods companies in Nigeria, and it was extracted from annualized financial statement of these firms, covering the period of 2011 - 2021

Estimation Techniques

The study employed Kao Residual co-integration test, Generalized Method of Moments (GMM), and Granger Causality test.

III. ANALYSIS AND INTERPRETATION

Descriptive Statistics

Table 1 categorically presents the summary of the descriptive statistics involved. To this extent, it presents the average mean, standard deviation, skewness, Kurtosis and Jarque-Bera normality test for the variables in the model. The mean value, which is the average value of the variables in the series, revealed that operating efficiency (OPE) of 30.7976 had the highest mean value. It was then followed by log of corporate social responsibility (LCSR) of 16.3133, while the least average mean was recorded by debt-equity ratio (DER) of 2.7990. Also, from the standard deviation results, which measure the degree of dispersion from the mean values, it was found that OPE of 73.6161 had the highest volatility value. This was followed by market efficiency (MKE) with a value of 61.9874, while production efficiency (PRE) had the least volatility with a value of 1.2591. These standard deviation values are very large, and the reason adducible to these is that the mean and median values of each of the variables are very far from each other (i.e. they are not very close in value). Further findings showed that all the variables examined in the model are both positively and negatively skewed. This indicates that the distribution has both long left and long right tail. The kurtosis statistics, which

measures the difference of the skewness and kurtosis of the series with those of the normal distribution, revealed that, most of the variables have kurtosis value that is greater than 3.0, except for log of company tax (LTAX) of 2.1035. This indicates that the variables in the series are both peaked and flattened. That is, the distribution is both leptokurtic and platykurtic relative to normal distribution. The reason adducible to this is that, the data in the series are more dispersed as the mean and median are not very close. Similarly, the Jarque-Bera statistics showed that the p-values of all the variables are below 0.05, that is, 5% level of significance. Specifically, these are: DER (0.0000), OPE (0.0000), PRE (0.0000), MKE (0.0000), LTAX (0.0054), and LCSR (0.0000). Since the p-values of all the variables in the series are below 0.05, the study rejected the null hypothesis of the Jarque-Bera statistics, which states that the series is normally distributed, and accepted the alternate hypothesis, which states that the series is not normally distributed. However, in all, the total number of observations was 170.

	DER	OPE	PRE	MKE	LTAX	LCSR
Mean	2.799058	30.79762	1.535453	12.64519	9.933570	16.31336
Median	0.108147	0.220000	1.119969	8.171622	8.690896	16.77415
Std. Dev.	13.42013	73.61618	1.259101	61.98741	3.614094	2.399783
Skewness	5.789821	0.491614	2.985366	-2.77831	0.414209	-1.01851
Kurtosis	36.65038	6.157400	16.61546	50.20896	2.103544	4.496376
Jarque-Bera	8917.820	76.55136	1565.632	16005.23	10.42936	33.53995
Probability	0.000000	0.000000	0.000000	0.000000	0.005436	0.000000
Sum	473.0408	5174.000	261.0270	2149.682	1668.840	2055.484
Sum Sq. Dev.	30256.78	905030.0	267.9218	649372.2	2181.300	719.8696
Observations	169	168	170	170	168	126

Table 1: Descriptive Statistics Results
Source: Author's computations from e-views 10, 2023

Correlation Matrix

The results of the correlation between firm efficiency and financial leverage of listed consumer goods companies in Nigeria are presented in Table 2. The results (correlation coefficients) from the correlation matrix showed that operating efficiency (OPE) of 0.1106, market efficiency (MKE) of 0.0407 and log of corporate social responsibility (LCSR) of 0.0712 exhibited weak positive correlations with financial leverage, represented by debt-equity ratio (DER). On the other hand, production efficiency (PRE) of -0.0410 and log of company tax (LTAX) of -0.0200 exhibited weak negative correlations with DER. This is an indication of weak correlation between firm efficiency and financial leverage of listed consumer goods companies in Nigeria.

	DER	OPE	PRE	MKE	LTAX	LCSR
DER	1					
OPE	0.110679803	1				
PRE	-0.04104927	-0.24189349	1			
MKE	0.040788793	0.012191535	0.36133753	1		
LTAX	-0.02005166	-0.04347315	0.28510764	0.15841477	1	
LCSR	0.071278812	0.047595357	-0.08476653	0.00192461	0.1244508	1

Table 2: Correlation Matrix Results
Source:Author's computations from e-views 10, 2023

Generalized Method of Moments

The effects of firm efficiency on financial leverage of listed consumer goods companies in Nigeria was estimated using generalized method of moments (GMM). This method is particularly useful where there is endogeneity problem, such that the independent variable is correlated with error term. The study separated the GMM into the difference GMM and the system GMM.The results of the difference GMM are presented in Table 3

Dependent Variable: DER

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER(-1)	0.946040	0.008115	116.5765	0.0000
OPE	-0.012473	0.000626	-19.91121	0.0000
PRE	-0.016634	0.302576	-0.054976	0.9563
MKE	-0.009781	0.001813	-5.394516	0.0000
LTAX	0.200007	0.021465	9.317902	0.0000
LCSR	0.432082	0.111155	3.887201	0.0002
J-Stat=6.9900	Prob=0.6381			

Table 3: Difference GMM Results
Source: Author's computations from e-views 10, 2023

The results of the difference GMM showed that debt-equity ratio (DER) of 0.9460 exerted significant positive effects on itself. This indicates that, holding other variables constant, debt-equity ratio (DER) would always add value to its own innovation to the tune of 94.6%. Also, all the efficiency variables exhibited negative effects on financial leverage. This was indicated by the coefficients of operating efficiency (OPE) of -0.0124, production efficiency (PRE) of -0.0166 and market efficiency (MKE) of -0.0097. However, log of company tax (LTAX) of 0.2000 and log of corporate social responsibility (LCSR) of 0.4320 exerted positive effects on financial leverage.

The implication of this is that, a unit increase in OPE, PRE and MKE would respectively bring about 1.24%, 1.66% and 0.97% reduction in financial leverage. Also, a unit increase in LTAX and LCSR would respectively bring about 20% and 43.20% increase in financial leverage. Checking on the significance level of each of the variables, the study revealed that, the variables, with the exception of production efficiency, significantly influenced financial leverage. This implies that, OPE, MKE, LTAX, and LCSR had highly significant effects on financial leverage.

This result can also be viewed from contributions of each explanatory variable to the dependent variable. The implication of this is that, out of all the efficiency and firm-specific socio-economic variables, it was one lagged value of corporate social responsibility (LCSR) that positively and significantly influenced financial leverage, and this was followed by LTAX. In addition, the J-Statistics (also known as F-statistics) of 6.990, which explains the significance of the whole model, with a p-value of 0.6381, which is greater than 0.05, that is, 5% level of significance, was suggestive that the overall model was insignificant.

Similarly, the results of the system GMM or Orthogonal GMM, is presented in Table 4.

Dependent Variable: DER

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DER(-1)	0.942165	0.003543	265.8934	0.0000
OPE	-0.011045	0.000671	-16.47089	0.0000
PRE	0.057714	0.087129	0.662394	0.5095
MKE	-0.009354	0.001084	-8.631992	0.0000
LTAX	0.157644	0.00652	24.17798	0.0000
LCSR	0.482782	0.068075	7.091909	0.0000
J-Stat=0.4544	Prob=0.9999			

Table 4: Orthogonal/ System GMM Results
Source: Author's computations from e-views 10, 2023

Just as in the Difference GMM, the results of the system GMM or Orthogonal GMM showed that, debt-equity ratio (DER) of 0.9421 exerted significant positive effects on itself. This indicates that, holding other variables constant, DER would always add value to its own innovation to the tune of 94.21%. Likewise, the study found that operating efficiency (OPE) of -0.0110 and market efficiency (MKE) of -0.0093 exhibited negative effects on financial leverage while production efficiency (PRE) of 0.0577, log of company tax (LTAX) of 0.1576 and log of corporate social responsibility (LCSR) of 0.4827 exerted positive effects on it.

The implication of this result is that, a unit increase in OPE and MKE would respectively bring about 1.10%

and 0.93% reduction in financial leverage while a unit increase in PRE, LTAX and LCSR would respectively bring about 5.77%, 15.76% and 48.27% increase in financial leverage. Checking on the significance level of each of the variables, the study revealed that, these variables, with the exception of production efficiency, significantly influenced financial leverage. This implies that, OPE, MKE, LTAX, and LCSR exerted significant effects on financial leverage.

This result can also be viewed from the contributions of each explanatory variable to the dependent variable. The implication of this is that, out of all these variables, one lagged value of corporate social responsibility (LCSR) positively and significantly influenced financial leverage, and this was followed by LTAX and PRE. In addition, the J-Statistics (also known as F-statistics) of 0.4544, which explains the significance of the whole model, with a p-value of 0.9999, which is greater than 0.05, that is 5% level of significance, was suggestive that the overall model was insignificant.

Since the difference GMM and system GMM have been used to estimate the effects of firm efficiency on financial leverage, the better estimate must be chosen. As provided by Arellano and Bond (2001), when the lag value of the dependent variable from either one-step or two-step GMM is greater than fixed effects and very close to pooled OLS, difference GMM will be more beneficial. But, when the difference GMM coefficients from the lagged value of dependent variable is lower, system GMM will be better for the estimation.

As shown in Table 4.2.5, both the one-step and two-step Difference GMM were found to be greater than the fixed effects and very close to pooled OLS. As a result, using a difference GMM for the analysis was preferable.

Estimators	Coefficients
Pooled OLS	0.8870
Fixed Effects	0.8299
One-Step Diff GMM	0.9421
2nd Step Diff GMM	0.9460

Table 5: Decision on GMM Estimation Results
Source: Author's computations from e-views 10, 2023

Arellano and Bond Serial Correlation Test

Table 5 presents Arellano and Bond serial correlation (ARB serial correlation) test results.The null hypothesis of this parameter states that, at 5%, a probability value that is greater than 5% has no problem of serial correlation, hence, the model is significant and free from serial correlation problem, On the other hand, a value that is below 5% shows that the model has serial correlation problem, and hence, it is insignificant. Since the value of probability of AR2 is above 5% level of significance, the test shows that the model is free from serial correlation problem.

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	NA	-39.341966	NA	NA
AR(2)	-0.000474	-704.527266	1485403.459	0.9996

Table 6: ARB Serial Correlation Test Results
Source: Author's computations from e-views 10, 2023

Test of causality between firm efficiency and financial leverage of consumer goods companies Nigeria was carried out using Granger causality test. The results of this test are presented in Table 6. The results revealed that causality, at lag 1, only occurred between MKE and DER. The causality therefore moves from market efficiency (MKE) to debt-equity ratio (DER).

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
MKE does not Granger Cause DER	152	0.70731	0.4017	No Causality
DER does not Granger Cause MKE		3.69958	0.0509	Uni-Directional

Table 6: Granger Causality Test
Source: Author's Computations from e-views 10, 2023

IV. SUMMARY AND DISCUSSION OF FINDINGS

The study examined the effect of firm's efficiency on the financial leverage of the listed consumer goods companies in Nigeria spanning 2011 to 2021. Operating efficiency, production efficiency and market efficiency were measurements of firm efficiency, ratio of debt to equity was the measurement for financial leverage while taxation and corporate social responsibility were the control variables. Data were sourced from 14 listed consumer goods companies and the data sourced were estimated using generalized method of moment (GMM). The study revealed a weak correlation between firm efficiency measures and financial leverage variables of listed consumer goods companies in Nigeria. Further findings revealed that all the firm efficiency variables exhibited negative effects on financial leverage but corporate social responsibility positively and significantly influenced it. On the causality, it was also found that causality only runs from market efficiency to debt-equity ratio.

These findings are far from the theoretical expectations of the study, which is an expectation of a strong positive and long-run relationship between firm efficiency measures and financial leverage variables. The reasons adducible to these are: First, listed consumer goods companies in Nigeria had the fear-of-debt; and as such, despite their efficiency levels, their financial leverage (i.e. the use of debt) is pretty low. Also, the non-existence of a long-run relationship between firm efficiency and financial leverage of these listed consumer goods companies is a direct confirmation of their fear of debt. Moreover, the negative effects exhibited by all the firm efficiency variables on financial leverage are a strong indication of the fear-of-debt and its avoidance. As such, the more the efficiency levels of these firms, the farther away they are from the use of debt instead of taking the benefits thereof. Ultimately, the causality that runs from only market efficiency to debt-equity ratio is a confirmation of the possibility of the firm's market efficiency to accommodate debt (financial leverage) in its capital structure (i.e. debt-equity mix), which was one of the expectations of the study.

Essentially, the findings of this study are in line with those of Tiberti, Stefani and Lombardi (2016), who found a negative link between debt and technical efficiency (i.e. production efficiency). It is also at tune with those of Rastogi (2011), Al-Farisi and Hendrawan (2011), Abbaszadeh, et al (2013), Mugera and Nyambane (2014) and Harelimana (2017), who found negative relationships between financial leverage or capital structure and firm efficiency. However, the findings of this study are not consistent with those of Margaritis and Psillaki (2007), Ayinku (2015) and Legesse and Guo (2019), who found a positive link between firm efficiency and financial leverage.

V. CONCLUSION AND RECOMMENDATIONS

It was therefore concluded that, firm efficiency negatively influenced financial leverage in listed consumer goods companies in Nigeria. Arising from the findings emanating from this study and the conclusions drawn therefrom, the following recommendations were made;

i. The management of these firms should employ intensive growth strategies (product development, market penetration, and market development) to improve on their efficiency levels. This would increase their capacity to accommodate more debts for growth of the firm in the long run.
ii. The boards of directors of Nigerian industrial companies should consider transitioning from a fear of debt to a belief that debt can be beneficial. They can do this by expanding their firms' borrowing capabilities, which would facilitate increased utilization of debt for company growth. Simultaneously, regulators in the capital market should priorities policies that foster the development of Nigeria's debt market. This would enable companies to access long-term funding options for financing their operations effectively.

REFERENCES

[1] Abbaszadeh, M., Amiri, R., Azimi, J., Yazdanifar, N., &Shurokey, M.R. (2013). The relationship between capital structure and efficiency in both state and private banks by the use of the DEA Technique International Journal of Academic Research in Accounting, Finance, and Management Sciences, 2(4), 51–60.

[2] Al-Farisi, A.S., &Hendrawan, R. (2011). Effect of capital structure on bank performance: A profit efficiency approach for Islamic and conventional banks in Indonesia Available at SSRN: https://ssrn.com/abstract=1895211 or http://dx.doi.org/10.2139/ssrn.1895211

[3] Ayiku, S.N. (2015) Profit efficiency and capital structure of banks in Ghana: A DEA Approach Master of Philosophy in Finance Degree, University of Ghana

[4] Ayodeji, E.A., Ajala, R.B., Okafor, F.I. (2020). Capital Structure and Earnings Performance of Deposit Money Banks in Nigeria, 2010-2018. African Journal of Commerce and Economics, 4 (1), 111-124

[5] Ayodeji, E.A. (2011) Introduction to Financial Management (First Edition) No. 2 CAC Street, off Demurin, Ketu, Lagos State

[6] Bassey, N.E., Arene, C.J., &Okpukara, B.C. (2014). Analysis of the capital structure and efficiency of capital employed in agro-allied firms in Nigeria Review of Agricultural and Applied Economics, 17(2), 113–117.

[7] Berger, A.N., &Bonaccorsi, E. (2006). Capital structure and firm performance: a new approach to testing agency theory and an application to the banking industry Journal of Banking and Finance, 30 (4), 1065–1102.

[8] Berger, A.N., &Mester, L.J. (1997) Efficiency and productivity change in the U.S. commercial banking

industry: a comparison of the 1980s and 1990s working papers No. 97-5
[9] Brigham, E.F., &Gapenski,L.C. (1990). Intermediate financial management University of Illinois at Urbana-Champaign, Dryden Press, 1990
[10] Dahiru, S. (2014) The role of banks in Kaduna State and their impact on SMEs PhD thesis submitted to SMC University
[11] Duran, D.C., Artene, A., Gogan, L.M., & Duran, V. (2015). The objectives of sustainable development—ways to achieve welfare Procedia Economics and Finance 26, 812–817
[12] Farell, M.J. (1957). The measurement of productive efficiency Journal of the Royal Statistical Society, 130 (3), 253-290.
[13] Jensen, M.C., & Meckling, W.H. (1976), Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure. Journal of Financial Economics, 3, 305–360
[14] Koopmans, T.C. (1951) Analysis of production as an efficient combination of activities activity analysis of production and allocation. Cowies Commission for Research in Economics Monograph No. 13, Ed. by T.C. Koopmans New York, 1951.
[15] Legesse, T.K.S., &Guo, H. (2019). Does firm efficiency matter for debt financing decisions? Evidence from the biggest manufacturing countries Journal of Applied Economics, 23(1), 106–128,
[16] Margaritis, D., &Psillaki, M. (2007). Capital structure, equity ownership, and firm performance Journal of Banking & Finance, 34, 621–632.
[17] Olowe, R.A. (1997) Financial Accounting for Students and Managers Mindex Publishing Co. Ltd., Nigeria
[18] Oloyede, B. (2000), Principles of Financial Management, Forthright Educational Publishers, Lagos. Onipede, D., & Ayodeji, E.A. (2005). Economics (A Complete Text on 'O' and 'A' Level Economics), Ibadan: Kins Publishers Limited
[19] Ouattara, W. (2020). Economic Efficiency Analysis in Côte d'Ivoire. American Journal of Economics, 2 (1), 37–46.
[20] Pandey, I. M. (2010). Financial Management, New Delhi, India, Vikas Publishing House, PVT. Ltd.
[21] Rastogi, S. (2011). Efficiency and Capital Structure of Companies in India.
[22] Debreu, G. (1951). The coefficient of resource utilisation. Econometrica 19 (1951), 273–292.
[23] Van Horne, J. C., &Wachowicz, J. M. (2008). Fundamentals of financial management Harlow: Pearson Education.

★★★