Economics Ekonomika
Management Management
Innovation Inovace

EMI, Vol. 15, Issue 1, 202x
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

DO FIRM ATTRIBUTES AFFECT CAPITAL STRUCTURE ADJUSTMENTS OF LISTED MANUFACTURING FIRMS IN NIGERIA?

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Abstract

This paper examines the influence of firm attributes on capital structure adjustments of listed manufacturing firms in Nigeria from 2010 to 2019. Firm attributes namely, profitability, firm growth, managerial ownership, institutional ownership and macroeconomic variables such as inflation rate and GDP growth were presented in the study. The study used purposive sampling to select a sample size of 35 out of study's population of 56 listed manufacturing firms. Descriptive statistics, correlation analysis, and the Generalized Method of Moments (GMM) system were employed. The results revealed that all firm attributes and macroeconomic variables have a significant influence on capital structure adjustments. The adjustment speed is 59% per year, which indicates firms take nearly 0.8 years to reach half of the target. The study suggests that the management of the firms should take advantage of investing in assets, thereby leading to firms' growth opportunities and profitability (return on assets). This study was limited to sample of 35 listed manufacturing firms on the Nigerian Exchange Group (NGX) from 2010 to 2019 and ignored unlisted manufacturing companies. The study contributes to the existing literature to shed light on how firm attributes and macroeconomic factors influence the capital structure adjustments of firms. The combined result of the study showed that all the identified measurements of firm attributes and macroeconomic variables are part of major predictors of capital structure adjustments.

Keywords: Capital structure adjustments, Firm attributes, Managerial ownership, GMM

JEL Classification Codes: G32, G34, G41

1 INTRODUCTION

The existence of manufacturing firms in a country plays a vital role in her economy through several contributory activities. Manufacturing firm is one of sectors of the economy that provides the basic needs for citizen and contributes to Nigerian economic growth. Flannery and Hankins (2007) observed that the adjustment speed to optimum leverage structure depends on the adjustment costs and benefits of target debt. Comprehensive factors such as financial restriction, cost and distress, deficit or surplus, capital market access costs and ownership of the firm, macroeconomic variables, and governance system affect the adjustment costs of the firms (Buvanendra et al., 2017).

Mawitjere et al. (2016) argued that targeted leverage is specified and predicted. It also depends on the attributes of firms and also can change due to changes in external factor. A dynamic approach is performed by seeing the direction of change and the speed of the company in reaching its optimal leverage, which is known as adjustment speed. It also shows the speed at which firms close the gap between the prior year's leverage and the target leverage of the present period (Mawitjere et al., 2016). Firm attributes are factors that are endogenous to a firm that is capable of influencing its financing decision. Most of these factors are within the control of the management and are of financial (Abdulkarim et al., 2019).

Therefore, the choice of capital structure decision is a challenge to determining the total amount of each source of finance that will yield a satisfactory return with minimum risk (Akintoye, 2016). A result partly prevalence of political and socio-economic instabilities and institutional constraints contributes

Paper received: 5.1.2023 Paper revised:6.6.2023 Paper accepted:22.6.2023

additional complications to the capital structure dynamic in Nigeria. Elmagrhi et al. (2018) and Vu et al. (2018) argued that capital structure adjustment is meaningless without the collaboration of the ownership structure of firms. The firm attributes such as profitability, firm growth, firm size, and liquidity that are within the control of the management which are financial have been ignored and not well investigated. Though, empirical researches on capital structure adjustments in the context of developed countries are extensive while research in developing countries including Nigeria is still at the elementary level.

Several studies have focused on how firm attributes influence capital structure, financial performance, and or financial reporting quality among companies in developed and developing countries including Nigeria such as (Abdullahi & Suleiman, 2020; Abdulkarim et al.,2019; Ezechukwu & Amahalu, 2017; Okegbe et al., 2019; Uyar & Guzelyurt, 2015) for capital structure, (Afolabi et al., 2019; Alao & Sanyaolu, 2020; Alhassan et al., 2015; Efuntade & Akinola, 2020;) for financial performance (Adegboye et al., 2019; Farouk et al., 2019; Mahboub 2017; Soyemi & Olawale, 2019; Olowookere et al.,2021; Olowokure et al., 2016) for financial reporting quality. Some of the above-mentioned studies employed multiple regressions and panel data estimation to discover inconsistent results due to variations in scope, and types of firms. The aforementioned studies did not to take into account capital structure adjustments.

Only a few studies considered firm attributes factors concerning the capital structure adjustments, among are (Ezeani, 2019) used non-financial firms in Nigeria, Buvanendra et al. (2017) compared listed firms in Sri Lanka with India, Mawitjere et al. (2016) used manufacturing firms in Indonesia, Memona et al. (2020) used Pakistanian non-financial listed firms, Surwanti (2015) studied non-financial firms in Indonesian. Naveed et al. (2015) studied 147 textile sector listed Pakistanian companies, Tesfaye and Negash (2014) studied nine firms in African countries (including Egypt) and Danga et al. (2014) used US firms. Some of the stated above studies employed the GMM system estimation method while some used the partial adjustments model and they have inconclusive empirical findings on the factors that influence the capital structure adjustments.

Given these shortcomings, this study was to filled this vacuum by examining the financial nature of firm attributes that are within the control of the management concerning capital structure adjustments which have not been investigated well in addition to macroeconomic variables such as inflation rate and GDP growth. However, there are still some questions that need to be asked and answered, among them are: To what extent does profitability influence the capital structure adjustments? How does the firm growth affect the capital structure adjustments? To what extent does managerial ownership influence the capital structure adjustment? What is the influence of institutional ownership on capital structure adjustments? Answering these questions would be of importance to the management of the manufacturing firms to make relevant policies.

Therefore, the main objective of this study is to examine the influence of firm attributes on the capital structure adjustment among listed manufacturing firms in Nigeria, focusing on these objectives (i) to examine the influence of profitability on capital structure adjustments. (ii) to evaluate the influence of firm growth on capital structure adjustments. (iii) to ascertain the influence of managerial ownership on capital structure adjustments; and (iv) to assess how institutional ownership influence the capital structure adjustments.

This paper composes of five sections. Section one showed the introductory part of the study. Section two focused on the literature review. Section three presented the methodology adopted in the study. Section four discusses findings and results while section five concluded the study.

2 LITERATURE REVIEW

2.1 Conceptual Review

Capital structure describes as a mix of different sources of finance by a company which represented by equity capital and debt. It is also a financing structure, which involves a mixture of specific retained earnings, debt, and equity capital (Awais et al., 2016; Wu, 2019). Several prior studies such as (Abdullahi

Paper received: 5.1.2023 Paper revised:6.6.2023 Paper accepted:22.6.2023

EMI, Vol. 15, Issue 1, 202x
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

& Suleiman, 2020; Beli et al., 2019; Buvanendra et al., 2017; Eneh et al., 2020; Ezeani,2019;) proxied capital structure by leverage . The term leverage is used in finance to describe a firm's debt to total assets. Leverage is the extent to which a company employs debt capital to finance investment opportunities (Afolabi et al., 2019). Speed of adjustment is the speed of balancing leverage structure at the targeted leverage level (Surwanti, 2015). It reveals the speed at which firms close the gap between the prior year's leverage and the target leverage of the present period.

Firm-specific factors

Profitability is one metric used to shows ability of company to generate profits from their operational activities to ensure the going concern of the business. This study measured profitability as the percentage of profit after tax to total assets of book value. This is in line with previous empirical literature (Doorasamy, 2021).

Firm Growth: This represents changes in revenue growth of the firm over time. This study measured firm growth as the subtraction of revenue of the present year from revenue of the previous year divided by the previous year's revenue. This will enable us to understand how the firm has performed over these years in terms of its revenue. This is consistent with prior studies such as (Abdullahi & Suleiman, 2020; Ejike, 2020; Ezeani, 2019).

Managerial ownership is the type of manager that willingly to showcases professionalism in management and makes forces to work to enhance the shareholders' interest and mitigate agency conflicts (Chen & Chen, 2012). Elmagrhi et al. (2018) and Vu, et al (2018) argued that capital structure is meaningless without the approval of the ownership structure of firms. Institutional Ownerships are investors, which are outside organizations that own shares in the firm's equity with high volume.

Institutional ownership plays an important role in firms' financing decisions as a result of their active responsibility performs in the Nigerian capital market (Ozo & Arun, 2019). It is measured as the proportion of shares outstanding owned by institutional investors, as supported by (Affan et al.,2017; Lin & Lin., 2019).

Macroeconomic Variables

Macroeconomic variables such as inflation rate and GDP growth served as additional variables that influence capital structure adjustments. Increases in the inflation rate may lead firms to borrow rather than source funds from equity and increases in GDP growth make firms secure more equity (Aggarwal & Padhan,2017). Hanousek and Shyamshur (2011) discover that inflation does not negatively influence leverage. Chipeta and Mbululu (2013) and Muthama, et al. (2013) find out that companies operating in a country with rising real GDP, tend to a high level of economic wealth which invariably raises debt over equity. At the same time, Kayo and Kimura (2011) confirmed a negative relationship exists. The authors opined that firms tend to generate income and more revenues during the economic boom. Due to this, there are chances of continuing in finance investments internally without giving consideration to raising equity or debt (Kaloudis & Tsolis, 2018).

Theoretical Framework

This study is supported by the trade-off theory and the pecking order theory. Trade-off theory was introduced by Modigliani and Miller in 1963 to furnish an argument that there is a target debt level that maximizes firm value by weighting the benefits of debt against the costs of debt financing. Tax deductions of interest and reduction of free cash flows are benefits of debt thereby increasing the firm value that can be obtained from a high leverage ratio. However, financial distress and agency costs can arise due to high leverage. Trade-off theory upholds that a firm can afford to borrow up to the point where the tax savings from an extra amount of debt are equal to the costs that arises from the increased probability of financial distress. The Pecking order theory was introduced by Myers and Majluf in 1984. This theory is based on the assumption of asymmetric information that managers know more about their entity's

Paper received: 5.1.2023 Paper revised:6.6.2023 Paper accepted:22.6.2023

prospects, risk, and value of the firm than outside investors. The theory upholds that companies prefer to finance their projects from internal funds, followed by debt, and next, issue of equity. The theory also upholds that firm with high profitability may have lower debt.

Empirical Review

Danga et al. (2014) assessed the asymmetric adjustment toward the optimal capital structure of sampled US firms within the range of 2002 - 2012 using a partial adjustment model. The authors discover that the global financial crisis does not positively influence the level of speed adjustment to target leverage. Naveed et al. (2015) employ different GMM to analyze the factors affecting the level of speed of adjustment of 147 textile sectors listed in Pakistanian within the range 2003 - 2011 under different economic conditions. They concluded that a rapid speed of adjustment is (51%). Results also indicated an insignificant effect of tangibility on the speed of adjustment, and a positive influence on growth opportunities, while profitability, size, and liquidity do not have a positive influence.

Surwanti (2015) studied the adjustment speed of non-financial companies listed on the Indonesian Stock Exchange from 2001 to 2011. The result shows a 14.25% level of speed of adjustment to targeted leverage per year. The outcome also indicated that variables of distance, size, and under-leverage condition do not affect the speed of adjustment while variables of profitability and interest rate do not have a positive significant influence. Company growth, economic growth, and good macroeconomic condition had a positive effect on adjustment speed. Mawitjere et al. (2016) tested the speed of adjustment of 66 manufacturing companies listed on the Indonesia Stock Exchange from 2010 to 2014. The results from regression output show variables of profitability, company size, company growth, distance, and current liabilities influenced adjustment speed. The result of GMM indicated that the average adjustment leverage of manufacturing company was still very slow, at 4.5% per year.

Buvanendra et al. (2017) examined how firm characteristics and corporate governance influence capital structure adjustments. The authors compared 90 listed firms in Sri Lanka with India from 2004 to 2013 using panel data techniques and GMM to derive the results. Authors discover that there are international differences in determinants of capital structure adjustments between the two countries. However, the study was based on comparative analysis and was conducted outside Nigeria. Abdulkarim et al. (2019) studied how a firm-specific characteristic influences the financial leverage of six (6) quoted diversified Nigerian companies within the range (2008 to 2017). The authors show that the complexity of business and growth opportunities is positively and significantly related to the financial leverage of quoted diversified Nigerian companies.

Ezeani (2019) examined the determinants of capital structure and speed of adjustment among the Nigerian 127 non-financial firms within the range between 2001 and 2007 and from 2010 to 2015. Panel data estimation techniques and GMM were used for hypotheses. The results revealed that there was a positive link between asset tangibility, and firm growth with total leverage. Abdullahi and Suleiman (2020) assessed the effect of firm attributes on the capital structure of four cement firms in Nigeria within the range from 2010 to 2015 using OLS. The finding showed that profitability had a positive influence on leverage. However, the study was restricted to cement companies and the outcome may not be good enough to be generalized.

3 METHODOLOGY

This study employed a correlational research design. Population of this study comprised 56 listed manufacturing firms by Nigerian Exchange Group (NGX) as of November, 2021. The judgmental sampling technique was employed to determine the sample size of thirty-five (35) listed manufacturing firms with population criteria (1) manufacturing firms that have not been listed by NGX as of January 2010 are exempted (2) manufacturing firms with incomplete data for all variables for purpose of this study is eliminated to maintain homogeneity in the sample. Data were collected from the certified annual audited

Paper received: 5.1.2023 Paper revised:6.6.2023 Paper accepted:22.6.2023

EMI, Vol. 15, Issue 1, 202x
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

published financial report and accounts of 35 sampled manufacturing firms from the period of 10 years 2010-2019 and the CBN statistical Bulletin. This study employed descriptive, Correlation analysis, and the Generalized Method of Moments (GMM) system. Relevant diagnostics tests were conducted. Justification of employed GMM is because it is a panel data estimator that uses lags of the dependent variable as an instrument to correct the endogeneity bias associated with the static estimation techniques. As a result, the GMM system framework has been improved to address the first difference estimator's shortcomings

Table 1: Measurement of Variables

Variables	Type of Variable	Variable Labels	Measurement	Source	Expected sign
Firm-specific variables					
Leverage	Dependent	Lev	Total Liabilities/ Total assets	Annual Financial Reports	
Profitability	independent	Prof	Measure by ROA: Net profit before interest and tax/ Total asset x100	Annual Financial Reports	-
Firm Growth	Independent	Fgr	Total revenue of current year - total revenue of previous year/ previous year total revenue as expressed in percentage	Annual Financial Reports	-
Managerial ownership	Independent	Mow	measured by the ratio of shares held by the directors and management to an aggregate number of shares	Annual Financial Reports	+
Institutional Ownership	Independent	Iow	the average percentage of shares outstanding owned by institutional investors	Annual Financial Reports	+
Macroeconomic variables					
Inflation rate	Macro	Inf	Consumer Price index	CBN Bulletin	+
GDP growth	Macro	Gdp	Changes in GDP over time expressed in %	CBN Bulletin	+

Source: Authors Compilation (2022)

3.1 Model specification Development

To empirically ascertain the influence of firm attributes on capital structure adjustments, the models below are specified through an econometric model adopted from the work of (Buvanendra et al, 2017; Eneh et al, 2020). The model specification is as stated below:

$$Lev^{*}_{it} = \sum_{j=1}^{L} \alpha_{j} X_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Thus, this incorporates the nature of a firm's capital structure adjustment which implies that the optimum debt ratio may deviate from firms over a period. With the exemption of market conflict, the observed leverage ratio of firm *i* at time *t*, represented as Lev_{it}, leads to. $Lev_{it} = Lev^{*}_{it}$.

However, in practice, adjustment costs may rise as a result of market flaws, in turn, firms may not fully adjust their actual debt ratio from the previous time to the present target debt ratio. This can be given by a dynamic partial adjustment model as in Eq. 2.

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$$\boldsymbol{Lev_{it} - Lev_{it-1} = \lambda_{it}\,(Lev^{*}_{it} - Lev_{it-1}) + \varepsilon_{it} \ldots\ldots\ldots\ldots 2}$$

Where; $\boldsymbol{Lev_{it}}$ and $\boldsymbol{Lev_1}$, t-1 denotes leverage for firm i in times *t* and *t-1,*

$\boldsymbol{\lambda_{it}}$ represents the speed of adjustment to the optimum debt ratio,

The effects of the adjustment costs denote | $\boldsymbol{\lambda}$ | < 1, which is a condition that $\boldsymbol{Lev_{it}}$ t-1 tends to $\boldsymbol{Lev^{*}}$ *i,t* as *t*⟶∞. Leverage values that differ from their target level are regarded as sub-optimal, this leads to a combination of equations 1 and 2, given this derivative:

$$\boldsymbol{Lev_{it} = Lev_{it-1} + \lambda_{it}\,(Lev^{*}_{it} - Lev_{it-1}) \ldots\ldots\ldots\ldots 3}$$

$$\boldsymbol{Lev_{it} = Lev_{it-1} + \lambda_{it}\,Lev^{*}_{it} - \lambda_{it}\,Lev_{it-1}) \ldots\ldots\ldots\ldots 4}$$

$$\boldsymbol{Lev_{it} = (1-\lambda_{it})Lev_{it-1} + \lambda_{it}\left(\sum_{j=1}^{L}\alpha_j\, X_{it}\right) + \varepsilon_{it} \ldots\ldots\ldots\ldots 5}$$

$$\boldsymbol{Lev_{it} = (1-\lambda_{it})Lev_{it-1} + \sum_{j=1}^{L}\lambda_{it}\alpha_j\, X_{jit} + \varepsilon_{it} \ldots\ldots\ldots\ldots 6}$$

It can be re-stated as

$$\boldsymbol{Lev^{*}_{it} = \delta_0\, Lev_{it-1} + \sum_{j=1}^{L}\delta_j\, Xjit + \omega_{it} \ldots\ldots\ldots\ldots 7}$$

Where; $\boldsymbol{\delta_0 = 1-\lambda_{it}}$; $\boldsymbol{\delta_j = \lambda_{it}\alpha_j}$ **and** $\boldsymbol{\omega_{it} = \lambda_{it}\varepsilon_{it}}$

The estimated dynamic capital structure model is considered in eaquation.7

Model of the study

$\boldsymbol{\mathrm{Lev} = f(fatr) \ldots\ldots\ldots\ldots 8}$

Where;

Lev represents Leverage

fat represents firm attributes

Equation (8) can be re-written as:

$\boldsymbol{\mathrm{Lev} = f(prf, fgr, mow, Insow) \ldots\ldots\ldots\ldots 9}$

$$\boldsymbol{Lev^{*}_{it} = \lambda_0\, Lev_{it-1} + \sum_{j=1}^{L}\lambda_{1fat_{it}} + \omega_{it} \ldots\ldots\ldots\ldots 10\ from\ equ..7}$$

To accommodate moderating and macroeconomic variables, this can be re-specified as*:*

$$\boldsymbol{Lev^{*}_{it} = \lambda_0\, Lev_{it-1} + \sum_{j=1}^{L}\lambda_{1fat_{it}} + gdp_{it} + inf_{it} + \omega_{it} \ldots\ldots\ldots 11}$$

Where $\boldsymbol{Xjit}$ $represents$ $\boldsymbol{fatr}$ = is a vector of firm attributes variables in this study are profitability, firm growth. Managerial ownership, institutional ownership*.* Hence, the above equation 12 can be re-specified in an explicit form as shown below:

$$\boldsymbol{Lev^{*}_{it} = \lambda_0 Lev_{it-1} + \lambda_1 prf_{it} + \lambda_2 fgr_{it} + \lambda_3 mow_{it} + \lambda_4 isow_{it} + \lambda_5 gdp_{it} + \lambda_6 inf_{it} + \omega_{it} \ldots\ldots\ldots\ldots 13}$$

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EMI, Vol. 15, Issue 1, 202x
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

Where,

Lev= Leverage; prof= Profitability; Fgr= Firm Growth; Mow= Managerial ownership; Isow= Institutional ownership, Inf= inflation rate, Gdp= Gdpg growth

$\sum$ = Summation; $\boldsymbol{Lev_{it-1}}$ = is the lagged dependent variable

$\boldsymbol{\lambda_1 - \lambda_8}$ = explanatory variables model; $\boldsymbol{\omega_{it}}$ =Error terms;

Note :the subscription index "*it*" and "*jL*"**;** i=firm**;** t =time; j = first explanatory variable; L= last explanatory variable

4 RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 2: Summary of Descriptive Statistics

	LEV	PROF	FGRW	MOW	INSOW	GDPg	INF
Mean	0.573913	5.740954	11.56829	14.48920	48.19033	3.653889	11.80277
Median	0.539986	4.927000	8.022500	2.584200	55.00000	4.230061	12.09473
Maximum	1.879447	53.95940	805.0840	254.9639	94.87000	8.005656	16.52354
Minimum	0.027976	-70.34480	-89.00000	0.006500	0.000000	-1.616869	8.062486
Std. Dev.	0.327001	12.09361	52.12233	29.70654	29.14299	2.838049	2.749486
Skewness	1.581791	-0.631742	10.61592	4.996508	-0.374302	-0.199666	0.283586
Kurtosis	6.826591	9.667906	157.3490	37.86693	1.879590	2.099951	1.968091
Jarque-Bera	358.4672	669.7508	352990.3	19130.48	26.40367	14.09893	20.16231
Probability	0.000000	0.000000	0.000000	0.000000	0.000002	0.000868	0.000042
Sum	200.2955	2003.593	4037.332	5056.729	16818.43	1275.207	4119.167
Sum Sq. Dev.	37.21143	50896.85	945424.5	307102.5	295561.1	2802.974	2630.766
Observations	349	349	349	349	349	349	349

Source: Authors Computation (2022)

Table 2 shows that the mean of leverage, return on assets, managerial ownership, institution ownership, GDP growth and, inflation of 0.573913 5.740954, 11.56829,14.48920, 48.19033, 3.653889 and 11.80277 respectively. Table 2 also shows that; PROF had a maximum value of 53.95940 and a minimum value of -70.34480. This implies some manufacturing firms run into losses in the fiscal year. GDP growth had a maximum value of 8.005656 and a minimum value of -1.616869. This implies that GDP growth contributed maximally to leverage when the economy peaked, hence manufacturing firms will move toward the source for debt to produce. From Table 2 the standard deviation for LEV, PROF, FGRW, MOW, IOW, GDP growth and INF are 0.327001, 12.09361, 52.12233, 29.70654, 29.14299, 2.838049 and 2.749486 respectively. The result implies that FGR with a standard deviation of 52.12233 is riskier than other parameters in the study. The Probability values of Jarque-Bera of LEV, PROF, FGR, MOW, IOW, GDPg and INF were less than the 0.05 significance level, indicating that all sampled data were normally distributed.

Paper received: 5.1.2023 Paper revised:6.6.2023 Paper accepted:22.6.2023

4.2 Correlation analysis

Table 3: Pairwise Correlation Matrix

	LEV	PRF	FGRW	MOW	INSOW	GDP	INF
LEV	1.000000						
PROF	-0.337168	1.000000					
FGRW	-0.098716	0.110929	1.000000				
MOW	0.223080	-0.156223	-0.005999	1.000000			
INSOW	0.008420	0.148991	0.013578	0.045034	1.000000		
GDP	-0.044333	0.101130	0.021398	-0.099643	-0.018778	1.000000	
INF	0.054686	-0.053078	0.038104	0.059902	-0.018402	-0.566808	1.000000

Source: Authors Compilation (2022)

Table 3 indicates that negative associations were found among the variables except for managerial ownership, institution ownership, and inflation. The findings also discovered that all variables have a weak correlation to leverage. The result indicates that level of multicolinearity between the explanatory variable was not very high and this implies that the influence of each variable in the regression equation could be isolated easily.

4.3 Generalized Method of Moments (GMM System)

Table 4: Determinants of Speed of Adjustment (GMM System)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEV(-1)	0.412303	0.028624	14.40386	0.0000
PROF	-0.003217	0.000365	-8.817621	0.0000
FGRW	-0.000610	8.94E-05	-6.821577	0.0000
MOW	0.001083	0.000315	3.442569	0.0007
INSOW	0.001199	0.000364	3.299105	0.0011
GDP	0.006339	0.001374	4.614165	0.0000
INF	0.006037	0.000817	7.393601	0.0000

Sargan J-stat	20.70234	(0.837537)
Instrument rank	35	
Observations	279	
Adj sample	2012 -2019	
$x^2\ Wald\ test$	40.34621	(0.0000)
AR(2) P-value		0.4988

Source: Authors Compilation (2022).

Table 4 shows coefficient (Lev-1) is positively significant (coefficient 0.412303, P-val =0.000). Thus, profitability and firm growth which are specific firms' attributes have a negative significant relationship with capital structure adjustments. This indicates that PROF and FGR were negative significant (coefficient -0.003217, P-v =0.0000) and (coefficient -0.000610, P-v =0.0000) related to capital structure adjustments. Managerial ownership and institutional ownership revealed a negative and significant influence on the capital structure adjustments as shown (coefficient. -0.001083, P-v <0.05) and (coefficient -0.001199, P-v <0.05). There is a positive significance of GDP growth rate and inflation rate on capital structure adjustments towards target debt (coefficient. 0.006339, P-v <0.05) and (coefficient. 0.006037, P-v <0.05).

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EMI, Vol. 15, Issue 1, 202x
ISSN: 1804-1299 (Print), 1805-353X (Online)
www.emijournal.cz

However, the $x^2\ Wald\ test$ (40.34621, p- value =0.000) disclosed that firm attributes and macroeconomic variables are taken into account as determinants of capital structure adjustments. The study employed a coefficient diagnostic test to discover flaws in GMM estimation arising from the validity of data via (J-stat) which shows Sargan J-stat of (20.70234, P-value = (0.837537) whereas AR(2) tests gave a P-value of 0.4988, this implies there is no presence of second -order serial correlation.

Table 5: Speed of Adjustments (GMM System)

Lev(-1) δ_0	0.412303
Speed of Adjustments $\boldsymbol{\lambda_{it}}$	0.587697
Half –life years	0.8

Source: Authors Compilation (2022)

Table 5 reports that (Lev-1) is positively significant at a 0.05% level of significance. From the estimated lagged leverage coefficient value of 0.412303 infer that manufacturing firms adjust leverage towards the target capital structure and the adjustment speed is 59% (1−λ) per year, which implies that manufacturing firms take nearly 0.8 years to reach half of the target leverage from the present leverage. Half-life is the amount of time required by the process to reduce the difference between the actual and target firm leverage level by half (50%) following a one unit shock to the error term. As a result, half-life is computed as log (0.5)/log(λ) (Aderajew et al,2017)

5 DISCUSSION OF FINDINGS

The result indicates that PROF and FGR were negatively significant at P-value <0.05. A negative relationship exists between profitability and capital structure adjustments in Nigeria. This gives reason for the assertion of (Myers& Majluf ,1984) that increases in profitability, the increases availability of internal funds thereby giving room for firms to adjust toward target leverage which is in support of the pecking order theory. These findings are also reported in other studies such as Pervaiz et al. (2021) for Pakistan, and Haron et al. (2013) for Malaysia, Buvanendra et al. (2017) for Sri Lanka, and India. Ezeani (2019) for Nigerian, Mawitjere et al. (2016) and Surwanti (2015) for Indonesia. The negative firm growth rate implies that the increases in firm growth level result in rapid adjustment speed to firm leverage of manufacturing firms in Nigeria, this is supported by (Eriotis et al.,2007; Pervaiz et al.,2021). It is also consistent with the outcome of Haron et al. (2013) for Malaysian firms, Reschiwati et al. (2020) for Indonesian firms. The results of managerial and institutional ownership revealed a positive and significant influence on capital structure adjustments. This indicates that the moderating role played by the managerial and institutional ownership structure can be explained by effectively achieving the speed of adjustment towards target leverage. It is contended that there was a possibility that firms managed by owners will have the optimal debt ratio thereby enjoying their advantages of it. This is inconsistent with agency theory. The findings are in support (Doorasamy, 2021; Elmagrhi et al., 2018; Vu et al., 2018). The positive significance of GDP growth rate and inflation rate in the economy of a county influencing the capital structure adjustments towards target debt, because when economy boom, firm will encourage to borrow funds, this is supported by (Chipeta & Mbululu, 2013; Doorasamy, 2021; Hanousek & Shyamshur,2011; Lemma & Negash, 2014; Oztekin, 2015; Pervaiz et al., 2021; Surwanti, 2015) they documented positive significant association exists between GDP growth rate, inflation rate, and adjustment speed.

Table 5, reports (Lev-1) is positively significant at a 0.05% level of significance and the adjustment speed is 59%. This implies that the SOA of 59%, indicates a percentage of the variation between target and actual total leverage is adjusted each year. This shows a reasonable and quick interference of management in rebalancing or readjustment. The findings are slightly similar to the work of Aderajew et al. (2017) reported that 65.28% of horticulture farms in Dutch farms. Eneh et al. (2020) report SOA of 51%

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for listed firms in Nigeria, and Bhaduri (2002) documented 50% of SOA for Indian listed companies. Buvanendra et al. (2017) reported an SOA of 45.4% for Sri Lanka firms. This is compared with evidence documented that low SOA of 30% for US firms, 32% SOA for UK firms, and 34% SOA for French firms (Antoniou et al.,2008; Dang et al., 2012; Flannery & Rangan, 2006).

The study contributes to the existing literature to shed the light on how firm attributes influenced the capital structure adjustments of the firms for the period 2010-2019. The combined result of the study showed that all the identified measurements of firm attributes and macroeconomic variables are the major predictors of capital structure adjustments. The outcome of this study is not unique to the Nigerian business environment only but it is similar to other studies in emerging markets but slightly different from the studies conducted in developed countries.

6 CONCLUSION AND RECOMMENDATIONS

The study concluded that profitability and firm growth which are specific firm attributes have a positive and significant relationship with capital structure adjustments. This supports the postulation of the trade-off theory. It also concluded that managerial ownership helps to better moderate the speed of adjustment. Firms managed by owners would have optimum leverage structure thereby being advantageous to the firms. The positive and significant of GDP growth rate and inflation rate in the economy of a country has an influence on adjustment speed towards target debt. Conclusively, firm-specific attributes and macroeconomic variables used in this study can be accounted for as determining factors that influence capital structure adjustment. The speed of adjustment towards optimal leverage structure is 59 percent with the period to be taken to make full adjustment towards target leverage is 0.8 years respectively.

In line with the findings, this study recommends that the management of manufacturing firms should moderate the extent to which they use debt capital in their businesses by analyzing the possible influence of leverage on firms before sourcing for funds. Management of the Nigerian manufacturing firms should take advantage of investing in assets, thereby leading to firms' growth opportunities and profitability (return on assets). This will directly provide expanded opportunities for business growth and employ a lower debt level. The inclusion of new firm attributes and industry effects would give better insights into the adjustment behaviour of listed manufacturing firms in Nigeria. The study, however, recommends among others that the regulatory authorities should formulate macroeconomic policies that will enhance GDP growth and promote a low inflation rate.

The limitation is that the study focused on the sample manufacturing firms that are listed on the Nigerian Exchange Group (NGX) and ignored companies that are not listed on the floor of the NGX. Further studies can investigate the influence of other firm attributes and ownership variables to see their effect on capital structure adjustments.

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