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Corporate Governance and Dynamic Capital Structure Adjustments in Nigeria

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Abstract
The study is to examine the relationship between corporate governance and dynamic capital structure in Nigeria. Three specific research objectives were raised; ex-post facto research design was employed in the study using a sample of 78 listed firms quoted in the Nigerian Stock exchange. Secondary data was used for the study with data retrieved from annual reports of the sampled companies from 2010-2018. The purposive sampling technique was used to select a sample of non-zero debt firms. The data were analyzed using panel regression and the Generalized Method of Moments (GMM) estimation techniques. The results reveal that the effect of the specific corporate governance variables on capital structure confirm that BDIND has a positive (0.0056) impact on capital structure and this is statistically significant at 5% (p=0.0028). BGD has a positive (0.1006) effect on LEV and statistically significant while CEOOWN has a negative (-0.1013) effect on LEV and statistically significant (p=0.000) at 5% . Also, the effect of these variables on optimum capital structure going by the Wald test $\chi^2_{Wald\ test}$ (3046, p=0.00) revealed that the corporate governance variables used in this study can be considered, as a whole, determinants of LEV structure. The lagged leverage (Lev_{-1}) is positively (0.4903) significant at 5% level for one lag. This finding confirms that the leverage ratios of firms converge towards an optimum capital structure over time as postulated by the dynamic considerations of the trade-off theory. The adjustment speed is estimated at 0.51 (1-0.49). The computed half-life, time required for a deviation from optimum to be halved, as ln0.5/ln (1-λ) which implies that firms take nearly 1.03yrs to reach half of the target leverage from the current leverage and this indicates some reasonably quick and active management intervention in readjustment. This is possible with the inclusion of the deviations from target leverage alongside the corporate governance variables. The lagged leverage (Lev-1) is positive (0.1745) and significant at 5% level. The adjustment speed is estimated at 0.8255 (1-0.1745) and is higher than without the presence of deviations from target leverage. Furthermore, the Wald test $\chi^2_{Wald\ test}$ (101.76 p=0.00) revealed that both corporate governance and deviations from target leverage are joint determinants of leverage adjustments. The study recommends the need for strong corporate governance that can address agency costs and thus reduce the risk of opportunistic capital structure decisions by managers and that optimum capital structure decisions must be taken jointly to guarantee an all-inclusive corporate response to the mix of debt and financing sources of firms that maximise shareholders' wealth

Key Words: *Corporate Governance, Capital structure and speed of Adjustments, Shareholders' Wealth Jel Codes: M14*

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I. Introduction

Plausible questions have been triggered in the scientific area of capital structure dynamic determination regarding how "quickly", in different macroeconomic states, companies adjust their capital structure to their book leverage targets.(De Jong, & Verwijmeren,2011) However, this adjustment process takes time particularly when firms face adjustment costs. (Drobetz, & Wanzenried, 2006) agree that it seems that corporate leverage mean reverting at the firm level but the speed at which this happens is not a settled issue suggest that the seemingly passive attitude of firms toward achieving leverage targets could be due to miss measurement of the speed of adjustment. It is argued that the standard models of leverage lack power to separate the benefits of achieving targets from other motivations of financing.

On the contrary the effects of corporate governance on the optimal capital structure choices have been well documented in the literature. However, there is little empirical evidence on the impact of corporate governance quality on the adjustment speed towards an optimal capital structure. (Bulathsinhalage, & Pathirawasam, 2017) that the agency theory suggests that better corporate governance will reduce agency costs and improve investor confidence, which in-turn will enhance the ability of a firm to gain access to equity finance, reducing dependence on debt finance. Corporate governance has been identified as one of the determinants of decision of corporations (Buvanendra, Sridharan & Thiyagarajan 2017). In fact, (Ravivathani, & Danoshana, 2014) noted that the adverse and opportunistic decisions related to a firm's financing are influenced by corporate governance. Therefore, for a proper understanding of a firm's financial structure, the characteristics and the effects of corporate governance must be seriously considered. Corporate governance mechanisms monitor and discipline the managers to contain agency conflicts, and the need to fulfil this role often demands that the use of debt is supported and facilitate capital structure rebalancing. (Masnoon, & Rauf, (2016)

On the other hand literatures has also focussed on the speed of adjustment towards the target leverage ratio, examining the process of convergence to the optimal level of debt (Flannery & Rangan, 2006; Huang & Ritter, 2009; Leary & Roberts, 2005; Lemmon, Roberts, & Zender, 2008; Strebulaev, 2007). It can be concluded that firms do actively pursue optimum debt ratios, even though market frictions lead to an incomplete adjustment in any one period. Flannery and Hankins (2007) noted that the speed of adjustment to optimum capital structure depends on the adjustment costs, benefits and the costs of non-adherence to the target. The broad factors such as financial constraint, financial deficit or surplus, external financing cost, size of gap between the observed and optimal debt ratio, financial distress, capital market access costs and ownership of the company, macroeconomic factors and governance system affect the adjustment costs of the companies (Lemmon, et al 2008). These in turn affect the speed of adjustment to the optimum capital structure.

Given that corporate governance is designed to align the manager's interest with shareholders, a well-functioning corporate governance system would make the manager move leverage toward the shareholders' desired level rather than toward his own desired level. (Peasnell, Pope, & Young, 2006).

(Morellec, Nikolov, & Schurhoff, 2012) opined that the greater the severity of agency conflicts, the lower is the manager's desired leverage level, and the slower is the speed of adjustment toward the shareholders' desired level. Thus firm's capital structure decision is related to its agency costs that in turn depend on the governance system within which the firm operates.

Also, corporate governance has been incorporated in the theory of dynamic structure of capital (Mukherjee, & Wang, 2015). According to the static trade-off theory, a firm maximizes the wealth of its shareholders when its capital structure reaches the optimal level via a trade-off of tax benefits against financial distress costs of debt. Consequently, any deviation from optimal leverage should be removed quickly (Lemmon, Roberts & Zender 2008). Consequently, the theory set in motion, the awareness that capital structure may reflect dynamic tendencies as companies try to achieve optimal capital structure mixes. The quality of the governance system is one of the important determinants of the deviation from the target as well as how quickly the deviation is minimised.

With particular interest in emerging economies such as in Nigeria, it is believed that corporate governance in emerging markets leaves a lot to be desired in terms of their quality and effectiveness. Though several studies have been examined looking at corporate governance and capital structure such as Masnoon and Rauf (2016), Suto (2003), Haque and Kirkpatrick (2011), Berger and Lubrano (2006), Uwuigbe (2013), Abor and Biekpe (2007) and Hassan and Butt (2009), Ganiyu & Abiodun (2012) and Bulathsinhalage and Pathirawasam (2017), the findings have been inconclusive. These studies, do not take into account the dynamics of leverage ratio. This study revisited this issue by augmenting the dynamic panel model of leverage evolution, which is adopted in the recent capital structure adjustment literature. The study therefore, seeks to address corporate governance dynamic and capital structure adjustments in Nigeria, focusing on three specific research objectives (i) to ascertain the relationship between corporate governance board gender diversity on and dynamic capital structure adjustments (ii) to examine the relationship between corporate governance board sizes on dynamic capital structure adjustments. (iii) to ascertain the relationship between corporate governance CEO ownership on dynamic capital structure adjustments.

II. Literature Review

2.1. Conceptual Framework

Corporate Governance

There are two paradigms in the quest to define the concept of corporate governance', namely: Stock Market and Welfare State Capitalism (Dore, 2000). The former focuses on accountability to stockholders (La Porta, Lopez-de-Silanes, Shleifer and Vishny, 2000). Thus, corporate governance is structures, processes, cultures and systems to reduce principal and agents'conflict (Peiris, & Fernando, 2013), and in this way, ensures the firm is run for the benefit of the stockholder. Critics, however, argue that shareholder long term

interest would be best served by considering the wider interests of other stakeholders (e.g. employees). For this reason, Welfare State Capitalism takes a broader perspective of accountability to all stakeholders (Ravivathani, & Danoshana, 2014). In this regards, Solomon (2010), for example, defines corporate governance as both internal and external mechanisms which ensure that firms discharge their accountability to all their stakeholders. Liu, Harris, and Omar (2013) define corporate governance as an internal mechanisms designed to enhance shareholders interest and facilitate managers to be transparent and accountable on issues related to companies' operations as well as decision makings. Shukeri and Aminul (2012) defined corporate governance as a kind of structure put in place by firms upon which they are controlled and directed to promote perpetuity organisation, which is the sole concerned management and the board of directors. Alawattage and Wickramasinghe (2004) viewed corporate governance as practices that unite the structures with agents, like manner management are directed and transparent, as well as institutional rules, norms and laws.

Capital Structure

The theory of capital structure began with the seminal work done by Modigliani and Miller (1963). It stirred the academic world towards more interesting research in the field. According to Bhaduri (2002), capital structure refers to the different options used by a firm in financing its assets. Financing decisions result in a given capital structure and suboptimal financing decisions can lead to corporate failure. A great dilemma for management and investors alike is whether there exists an optimal capital structure. Firms can obtain funds from either external or internal sources. (Sibilkov, 2009) Internal sources of funds include retained earnings while external sources include loans from financial institutions, trade credit, issuance of loan stock, and issuance of equity shares. The creation of a capital structure, therefore, can influence the governance structure of a firm which, in turn, may influence the ability of a firm to make strategic choices (Jensen, 1986).

2.2. Theoretical Framework-Agency Cost Theory

Capital structure decisions have been discussed to some extent based on the agency costs theory, developed by Jensen and Meckling (1976). Agency costs are related to conflicts of interest between different groups of agents (managers, creditors). There could be two types of agency problems. The trade-off theory states that there is an optimal capital structure that maximises the value of a firm. Therefore, management will set a target leverage ratio and then gradually move towards that. De Wet (2006) have demonstrated that firms select target leverage ratios based on a trade-off between the benefits and costs of increased leverage Managers will therefore choose the combination of debt and equity that achieves a balance between the benefits of debt (tax advantage) and the various costs associated with debt (financial distress costs and agency costs) (De Wet, 2006). The use of debt in the capital structure can also lead to agency costs which arise due to a conflict of interest. According to Jensen and Meckling (1976), conflicts of interest can arise either between shareholders and bondholders (agency costs of debt) or between shareholders and managers (agency costs of equity) (Singh, Wallace, & Suchard, (2003). Therefore, corporate governance can be instrumental in directing capital structure decision to the extent that it can address agency cost. (Kajananthan, 2012) points out that different corporate governance quality have implications on the adjustment speed toward an optimal capital structure. Managers of firms with weak versus strong governance may have different incentives to adjust their capital structures and thus adopt different adjustment speeds.

2.3. Empirical Review

Several studies have examined the relationship between corporate governance and capital structure varying findings. For example, Buvanendra, Sridharan and Thiyagarajan (2017) investigated the key drivers of speed of adjustment (SOA) towards optimum/target capital structure of listed firms in Sri Lanka and India for the period 2003/04 to 2012/13. The study used a combination of both firm specific and corporate governance factors and then adopted dynamic adjustment model to show the relationship. Both the fixed effects and Generalized Method of Moments (GMM) estimation techniques were used in the analysis. The findings of the study revealed that firms in both countries partly adjust to an optimum capital structure over time. Furthermore, there are international differences existing in the significant determinants of capital structure adjustments between Sri Lanka and India.

Chang, Chou and Huang (2018) examined corporate governance and the Dynamics of Capital Structure. The study data was from 1993–2009. Using purpose sampling, each firm must have at least two consecutive years of observations and the final sample used was 4,297 firm-year observations. The direction of the study looks at two effects of debt originating from agency theory on the speed of adjustment to the optimal capital structure. The findings of the study reveal that corporate governance has a distinct effect on the speed of capital structure adjustment. Furthermore, they found that weak governance firms that are underlevered tend to adjust slowly to the optimal capital structure, because the costs of the disciplinary role of debt outweigh the benefits of using debt as a takeover defense tool. Although, overlevered weak governance firms also adjust

slowly. Therefore, this study finds that both over levered and underlevered firms with weak governance adjust slowly toward their target debt levels, though with different motivations.

Still focusing on dynamics, Liao, Mukherjee and Wang (2015) examined corporate governance and capital structure dynamics. The initial sample consists of all firms from the Compustat Fundamental Annual data file during 1996–2008. The Generalized method of moments (GMM) was used as the method of data analysis. Consistent with theoretical predictions, the authors find that both a higher level of financial leverage and a faster speed of adjustment of leverage toward the shareholders' desired level are associated with better corporate governance quality as defined by a more independent board featuring CEO–chairman separation and greater presence of outside directors, coupled with larger institutional shareholding. In contrast, managerial incentive compensation on average discourages use of debt or adjustments toward the shareholders' desired level, consistent with its entrenchment effect.

Without recourse to dynamics, Ganiyu & Abiodun (2012) finds that board size, board skills and CEO duality have significant impact in determining debt to equity ratio for the companies under survey in the food and beverage industry in Nigeria. They conclude that larger board sizes and higher profitability may make firms more prone to taking risk and seek external sources of finance for expansion and aggressive exploitation of investment opportunities. Elucidating that larger board sizes may weaken corporate governance practices as a product of conflicts emanating from the failure of the board to reach a consensus in decision making thereby leading to high leverage.

Hasan & Butt (2009) analyze the corporate governance and capital structure decision mix of 58 randomly listed companies in Pakistan. The study covers the period from 2002-2005. Using board size, board composition, CEO duality, and more specifically institutional shareholding, the findings suggest that corporate governance is necessary when making financing mix decision. Furthermore, the results find no significant relationship between institutional shareholding and capital structure explaining that most institutional shareholders in the sample are either handpicked nominees or are family representatives. Therefore for institutional shareholders to have effective control, their nomination should be random and independent.

Morellec et al. (2012) further show that the speeds of adjustment toward the target capital structure are slower for underlevered firms with weak governance than for underlevered firms with strong governance, which conflicts with Berger et al.'s (1997) finding that overlevered firms tend to adjust slower than those underlevered firms, regardless of their governance quality.

III. Methodology

The ex-post facto research design was used in this research. The design provides an appropriate approach to aid the provision of answers for the research questions. Secondary data sourced from annual reports and accounts of the sampled companies was used for the study. The annual reports and accounts of the sampled companies in Nigeria were from 2010-2018. A purposive sampling technique was used to select a sample of 78 listed firms of non-zero debt firms. The data were analyzed using panel regression and the Generalized Method of Moments (GMM) estimation techniques. The relevant diagnostic test and model selection tests for both the panel and GMM estimations were conducted.

Model Specification

$$Lev^*_{it} = \sum_{j=1}^{L} \alpha_j X_{jit} \qquad (1)$$

Thus, this formula explicitly accommodates the dynamic nature of a firm's capital structure decision. This implies that the optimum debt ratio may vary both across firms and over time. Without market frictions, the observed leverage ratio of firm i at time t, denoted as Lev_{it}, should be equal to the optimum leverage ratio, i.e. $Lev_{it} = Lev_{it}^*$

But in the practical world, due to market imperfections giving rise to adjustment costs, firms may not fully adjust their actual debt ratio from the previous period to the current target debt ratio. Consequently, with dynamic partial adjustment, the firm's observed leverage ratio at any point in time would not, by and large, equal its optimal leverage ratio. This can be represented by a dynamic partial adjustment model as in Equation 2.

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

Where Lev_{it} and $Lev_{i,t-1}$ represent leverage for firm i in periods t and t-1, λ_{it} represents the speed of adjustment to the optimum debt ratio, starting from previous year's debt ratio. The effects of the adjustment costs are represented by the restriction that $|\lambda| < 1$, which is a condition that $Levi_{,t-1}$ tends to Lev^*_{it} as $t \to \infty$. Leverage

values that deviate from their target level will be regarded as sub-optimal. Combining Equations 1 and 2, the following can be derived:

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

$$Lev_{it} = Lev_{it-1} + \lambda_{it}Lev^{*}_{it} - \lambda_{it}Lev_{it-1} \quad (4)$$

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

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

It can be rewritten as

$$Lev^{*}_{it} = \delta_0 Lev_{it-1} + \sum_{j-1}^{L}\delta_j Xjit + \omega_{it} \quad (7)$$

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

Equation 7 is used to estimate the dynamic capital structure model**.**

Where: Xjit is the vector corporate governance variables used in this study which includes; BDIND (Board independence) which is measured as the ratio of executive directors on the board,

BS (Board size) measured as the number of individuals on the board,

CEO Ownership (CEOOWN) measured as the percentage of ownership by CEO

Board gender diversity (BGD) measured as the male-female board ratio on the board

INSOWN (Institutional Ownership) measured as the % proportion of institutional ownership

IV. Presentation Of Results

Table 4.1: Descriptive Statistics

	BDIND	BDS	CEOOWN	BGD	INSOWN	LEV
Mean	35.058	8.9661	4.2729	8.5655	50.111	61.340
Max	64.444	23.000	50.408	44.444	98.000	75.80
Min	10.000	4.0000	0.0000	0.0000	0.0000	4.7055
Std. Dev.	15.756	2.6351	10.176	9.3392	26.195	26.032
Skewness	-0.4298	1.0474	2.4672	0.8971	-0.4295	2.1338
Kurtosis	2.8060	5.5990	7.9638	3.2735	2.1865	16.100
J.B	27.729	397.91	1749.32	117.64	49.990	6779.0
Obs	857	857	857	857	857	857

Source: Researcher's compilation (2020)

The descriptive statistics is presented in table 4.1 and as observed, the LEV structure shows a mean debt-equity ratio is 61.340 which suggest that the firms in the sample have above average debt to equity ratio and thus debt plays a considerable role in their capital structure composition with maximum and minimum values of 75.80 and 4.7` respectively. The standard deviation of 26.032 is an indication of the extent of clustering around the mean. The mean for BDIND is 35.1% with a standard deviation of 15.76. The mean for BDS is approximately 9 with a standard deviation of 2.63. CEOOWN has mean of 4.27% and standard deviation of 10.2. The mean of BGD ratio is 8.6 showing a standard deviation of 9.3. INSOWN has mean of 50.11% with a standard deviation of 26.2. The Jacque-Bera statistics for the series suggest the absence of outliers and hence there will be no need for winsorizing or trimming the series.

Table 4.2. Pearson Correlation Result

Probability	BDIND	BDS	CEOOWN	BGD	INSOWN	LEV
BDIND	1					
BDS	0.0843*	1				
	(0.0135)					
CEOOWN	-0.2038*	-0.2388*	1			
	(0.000)	(0.000)				
BGD	-0.0558	0.0897*	0.05001	1		
	(0.1024)	(0.008)	(0.1433)			
INSOWN	0.1272*	0.0408	-0.2994*	-0.1302*	1	
	(0.000)	(0.2326)	(0.000)	(0.0001)		
LEV	0.0130	-0.0708*	-0.1181*	-0.0301	0.1269*	1
	(0.7033)	(0.0382)	(0.0005)	(0.3776)	(0.0002)	

Source: Researcher's compilation (2020)

The Pearson correlation results reveals that BDIND is positively correlated with LEV(r=0.0130) though not significant at 5% [p=0.703]. A similar positive correlation is observed between INSOWN and LEV (r=0.1269) though significant at 5% [p=0.00] while a negative correlation is seen between BDS and LEV (r=-0.0708) which is also significant at 5% [p=0.0382]. BGD is negatively correlated LEV (r=-0.0301) though not statistically significant at 5% [p=0.3776]. Similarly, CEOOWN is negatively correlated with LEV (r=-0.1181) and significant at 5% [p=0.005]. However, correlations do not necessarily imply functional dependence and causality in a strict sense and regression analysis and more suitable for that purpose.

Table 4.3: Corporate governance and Optimal Capital Structure (Fixed effects)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	61.184	0.4295	142.451	0.0000*
BDIND	0.0056	0.0018	3.0040	0.0028*
BDS	-0.1148	0.0436	-2.6319	0.0087*
BGD	0.1006	0.0017	57.155	0.0000*
CEOOWN	-0.1013	0.0114	-8.8105	0.0000*
INSOWN	0.0082	0.0084	0.9656	0.3345
Model Parameters				
R-squared	0.973	Mean dependent var		351.9614
Adjusted R-squared	0.871	S.D. dependent var		2082.181
S.E. of regression	9.616	Sum squared resid		70744.10
F-statistic	341.7(0.000)	Durbin-Watson stat		0.816526
Model Diagnostics				
χ^2_{Hetero} $\chi^2_{Serial/Corr}$	0.2738 0.4252	χ^2_{Norm} $\chi^2_{Hausman}$	0.5362 11.232 (0.00)	
Mean VIF Ramsey Reset	5.45 0.6914	$\chi^2_{wald\ Test}$	3046 (0.00)	

Source: Researcher's compilation (2020)

Considering corporate governance and capital structure is the main focus of our investigation, the shareholders' desired leverage level is perhaps an interesting reference point because corporate governance mechanisms are designed to help maximize shareholders' wealth rather than the manager's. In other words, if corporate governance has an effect on capital structure adjustments, it would help speed up adjustments toward the shareholders' desired level but not the manager's desired level. Specifically, we employ aggregate corporate governance to find the predicted leverage ratio as in equation (3). This predicted ratio would serve as our estimate of the optimum capital structure. Going forward, the hausman test [$\chi^2_{Hausman}$] 11.232 (0.00) indicates that the fixed effects estimation is used as presented and the results reveal a high adjusted R^2 performance of 87.1% with f-statistics of 341.7 (p=0.00).

The effect of the specific corporate governance variables on capital structure shows that BDIND has a positive (0.0056) impact on capital structure and this is statistically significant at 5% (p=0.0028). The result suggests that an increase in the number of independent directors on the board increase the debt-equity ratio. A similar effect is also seen for BGD which has a positive (0.1006) effect on LEV and statistically significant (p=0.000) at 5%. BDS depicts a negative effect (-0.1148) indicating that larger boards have a declining effect on debt-equity ratios and this is significant at 5% (p=0.009). A similar effect is also seen for CEOOWN which has a negative (-0.1013) effect on LEV and statistically significant (p=0.000) at 5% indicating that increased CEO ownership have a declining effect on debt-equity ratios and this is significant at 5% (0.000). The relationship between INSOWN and LEV is positive (0.008) though not statistically significant at 5% (0.3345). However, the Wald test $\chi^2_{Wald\ test}$ (3046, p=0.00) revealed that the corporate governance variables used in this study can be considered, as a whole, determinants of LEV structure.

The diagnostics for the estimation reveal the absence of serial correlation [$\chi^2_{Serial/Corr}$ = 0.4252] and confirms that the errors exhibit homoscedastic properties [χ^2_{Hetero} = 0.2738). The residual normality [χ^2_{Norm} =0.5362] reveals that the residuals are normally distributed. On the overall, the results finds theoretical support in the agency theory and confirm the Morellec, Nikolov, and Sch€urhoff (2012) prediction that corporate governance (and hence lower agency conflict) is associated with the use of debt. However, the results reveal that the all instruments of corporate governance may not have the same effect on the determination of optimal capital structure for firms.

Table 4.4: Corporate governance and Speed of Adjustment (GMM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEV(-1)	0.4903	0.0372	13.188	0.000*
BDIND	-0.2066	0.1076	-1.9203	0.055*
BDS	-4.3892	0.8413	-5.2173	0.000*
BGD	-0.8542	0.2487	-3.4348	0.001*
CEOOWN	1.6172	0.2874	5.6268	0.000*
INSOWN	-0.130391	0.144013	-0.905410	0.3656
S.E. of regression	29.93224	S.D. dependent var		21.60251
Mean dependent var	84.64125	Sum squared resid		622677.6
Diagnostics				
χ^2_{Hetero}	0.274	χ^2_{Norm}		0.536
$\chi^2_{Serial/Corr}$	0.425	Ramsey-Reset		11.232 (0.00)
Sargan Test (J-stat)	33.00	Ar(1)		0.6473
Prob	0.739	Ar(2)		0.0453
Instrument rank	45	$\chi^2_{Wald\ test}$		56.88(0.000)

Source: Researcher's compilation (2020)

In order to examine the speed of adjustment towards optimum capital structure, dynamic estimator of GMM (system) was tested on the firms. The GMM estimator produces consistent estimates in the data featuring a large cross-section with short time spans, and confers the convenience of using deeper lags of predetermined variables, including corporate governance variables, as instruments to mitigate their potential endogeneity. The results of the GMM (system) are displayed in Tables 4.4. According to the results the lagged leverage (Lev_{-1}) is positively (0.4903) significant at 5% level for one lag. This finding confirms that the leverage ratios of firms converge towards an optimum capital structure over time as postulated by the dynamic considerations of the

trade-off theory. The adjustment speed is estimated at 0.51 (1-0.49). This SOA estimate is considerably higher than that for developed county studies which is around 0.25 (e.g., Lemmon, Roberts & Zender 2008). Studies such as Chen and Zhao (2007), Chang and Dasgupta (2009), argue that leverage ratios exhibit mechanical mean reversion, leading to an upward bias in the SOA estimates. Specifically, when a leverage ratio is close to zero (one), it is by definition easier to raise (lower) the leverage ratio than to further lower (raise) it.

Unlike studies such as Liao, Mukherjee and Wang (2015) which considered this a problem because the inclusion of zero-debt issuance firms may cause a biased adjustment speed estimate and thus had to reestimate using subsamples that delete the zero-debt issuance observations, the samples for our study do not typically show any significant skewness towards zero-debt issuance properties for the firms. We compute the half-life, the time required to for a deviation from optimum to be halved, as ln0.5/ln (1-λ) (Huang & Ritter, 2009) which implies that firms take nearly 1.03yrs to reach half of the target leverage from the current leverage and this indicates some reasonably quick and active management intervention in readjustment.

Table 4.5. Speed of adjustment (GMM).

Variable	Coefficient
Lev(−1)	0.4903
Speed of Adjustment (λ_i)	0.5107
Half-life (years)	1.03yrs

Source: Researcher's compilation (2020)

The behaviour of the governance variables are similar to that in table 4.4 though some variations in the signs. As observed BDIND has a negative (-0.2066) impact on capital structure and this is statistically significant at 5% (p=0.0055). A similar effect is also seen for BGD which has a negative (-0.8542) effect on LEV and statistically significant (p=0.000) at 5%. BDS depicts a negative effect (4.3892) on debt-equity ratios and this is significant at 5% (p=0.009) and for CEOOWN, the effect is positive (1.6172) and statistically significant (p=0.000) at 5%. The relationship between INSOWN and LEV is negative (-0.1304) though not statistically significant at 5% (0.3656). However, the Wald test $\chi^2_{\text{Wald test}}$ (56.88 p=0.00) revealed that the corporate governance variables used in this study can be considered, as a whole, determinants of LEV structure. This study adopts three standard diagnostic tests designed to detect problems in GMM estimation arising from validity of instruments (J-statistic) while the AR(2) tests give *p*-values above 0.10, which means that a null hypothesis of no second-order serial correlation could not be rejected.

Table 4.6. Corporate governance, Target leverage Deviation and Speed of Adjustment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEV(-1)	0.1745	0.0208	8.4002	0.000*
BDIND	0.0306	0.0447	0.6842	0.4941
BDS	-0.3164	0.2888	-1.0959	0.2735
BGD	-0.0844	0.0446	-1.8937	0.0587**
CEOOWN	0.0074	0.1580	0.0468	0.9627
INSOWN	-0.0329	0.0663	-0.4969	0.6194
TARGET-dev	-0.8868	0.0303	-29.2295	0.000*
S.E. of regression	8.15	S.D. dependent var		21.723
Mean dependent var	65.058	Sum squared resid		45555.1
Diagnostics				
χ^2_{Hetero} $\chi^2_{\text{Serial/Corr}}$	0.908 0.614	χ^2_{Norm} Ramsey-Reset		0.711 11.232 (0.00)
Sargan Test (J-stat) Prob	28.142 0.879	Ar(1) Ar(2)		0.031* 0.458
Instrument rank	45	$\chi^2_{\text{Wald test}}$		101.76(0.000)

Source: Researcher's compilation (2020)

The estimation results in table 4.6 shows the inclusion of the deviations from target leverage alongside the corporate governance variables. We expect that the speed of capital structure adjustments relates to governance quality and deviations from the target leverage because a deviation of the actual leverage away from the target leverage reduces a firm's value, firms are incentivized to adjust their leverage to the optimal level The lagged leverage (Lev-1) is positive (0.1745) and significant at 5% level and again the finding confirms that the leverage ratios of firms converge towards an optimum capital structure over time in line with the trade-off theory. The adjustment speed is estimated at 0.8255 (1-0.1745). This SOA is higher than without the presence of deviations from target leverage. This suggests that deviation from target leverage provides an added motivation for a higher speed of adjustment to optimal leverage. Importantly, the results show the dominance of deviations from target leverage as a key driver of SOP in the presence of corporate governance. However, the Wald test $\chi^2_{\text{Wald test}}$ (101.76 p=0.00) revealed that all variables used in this study joint determinants of leverage adjustments. The half-life, the time required to for a deviation from optimum to be halved is implies that firms take nearly 3.72yrs to reach half of the target leverage from the current leverage. Furthermore, the diagnostics for the estimation reveal the absence of serial correlation [$\chi^2_{\text{Serial/Corr}}$ = 0.614] and confirms that the errors exhibit homoscedastic properties [χ^2_{Hetero} = 0.908). The residual normality [χ^2_{Norm} =0.711] reveals that the residuals are normally distributed. The null hypothesis of instrument validity cannot be rejected based on the results of Sargan test (J-statistics). The AR(1) tests indicate that the residuals in first differences are correlated as expectation, while the AR(2) tests give *p*-values above 0.10, which means that a null hypothesis of no second-order serial correlation could not be rejected.

V. Conclusion

A strong governance system is therefore expected to encourage the manager to rebalance the capital structure toward the level where shareholders' wealth is maximized. In order to achieve this policy therefore, a proper understanding of a firm's financial structure, the characteristics and the effects of corporate governance must be seriously considered. Since the focus of the study is to examine the relationship between corporate governance and dynamic capital structure framework. The results reveal that the effect of the specific governance variables on optimum capital structure going by the Wald test χ2Wald test (3046, p=0.00) revealed that the corporate governance variables used in this study can be considered, as a whole, determinants of LEV structure. The lagged leverage (Lev_{-1}) is positively (0.4903) significant at 5% level for one lag. This finding confirms that the leverage ratios of firms converge towards an optimum capital structure over time as postulated by the dynamic considerations of the trade-off theory. The adjustment speed is estimated at 0.51 (1-0.49). The lagged leverage (Lev_{-1}) is positive (0.1745) and significant at 5% level. The adjustment speed is estimated at 0.8255 (1-0.1745) and is higher than without the presence of deviations from target leverage. However, the Wald test χ2Wald test (101.76 p=0.00) revealed that both corporate governance and deviations from target leverage are joint determinants of leverage adjustments.

The study recommends that in emerging markets, which are highly uncertain and sometimes corporate managers give due consideration to their internal corporate governance arrangements as these factors are crucial to policy makers, bankers, other creditors, and equity investors there is therefore the need for strong corporate governance that can address agency costs and thus reduce the risk of opportunistic capital structure decisions by managers. Finally, optimum capital structure decisions must be taken jointly with other firm level characteristics to guarantee an all-inclusive corporate response to the mix of debt and financing sources of firms that maximise shareholders' wealth as corporate governance is necessary when making financing mix decision.

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