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THIN CAPITALIZATION STRATEGY OF TAX AVOIDANCE, BANKRUPTCY RISKS AND CORPORATE OWNERSHIP STRUCTURE OF LISTED AGRICULTURAL COMPANIES IN NIGERIA

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Abstract: The moderating role of ownership structure is often ignored in associating thin capitalization strategy of tax avoidance with bankruptcy risk, thereby discouraging business firms from exploiting it. Against this backdrop, this study was undertaken to examine the moderating impact of ownership structure on the relationship between thin capitalization and bankruptcy risk. The population of the study is quoted agro-allied companies in Nigeria. Secondary data were collected from published annual financial statements of the population members using purposive sampling method over the periods 2013 to 2020. Thin capitalization was measured in terms of ratio of non-current liabilities to total shareholders' funds; corporate ownership structure was operationalized in terms of ownership concentration, while bankruptcy risk was measured in terms of probability function of Altman' Z-score. Pooled multiple regression technique was utilized for the analysis based on 5% level of significance. Following analysis, it was found that thin capitalization was significantly and positively related with bankruptcy risk thus confirming the anxiety over risk. But it was also found that below certain degree of ownership concentration, a significant negative relationship is possible between thin capitalization and bankruptcy risk. It was therefore concluded that thin capitalization strategy of tax avoidance can also be exploited without the risk of bankruptcy, though the strategy is not advantageous in every environment of ownership structure. In line with the conclusion reached, it is the recommendation of this study that firm managers should balance risk and return in seeking to exploit thin capitalization strategy of tax avoidance as the use of debt financing increases their firms' bankruptcy risk. Furthermore, firm managers should be sensitive to their peculiar shareholding structure in seeking to exploit thin capitalization strategy of tax avoidance.

Keywords: Thin Capitalization Strategy, Tax Avoidance, Bankruptcy Risks, Corporate Ownership Structure

1. INTRODUCTION

The tax deductibility of interest payments under most corporate income tax systems, while with no such measure is foreseen for equity financing, can create a distortion in the financing decision of companies. This tax-induced bias in favor of debt-financing instead of equity-financing (retained earnings or new equity) can result to some unintended consequences in the form of at least two types of economic distortions. First, the deductibility of interest expenses exacerbates opportunities to shift and decrease reported profit via debt-shifting or the use of hybrid instruments. Second, it may lead to too-high leverage in companies, thereby increasing systemic risk. The focus of the current study is on the second economic distortion. In fact, Dhawan, Ma and Kim (2020) have produced empirical evidence of thin capitalization as a corporate tax avoidance strategy, being responsible for increasing cost of capital and degrading credit and bond ratings. However, it is unknown if tax avoidance genuinely raises a business's risk of bankruptcy or is simply seen poorly by banks and rating agencies. Although given how systematic risk is known to correlates with bankruptcy risk, it seems a plausible proposition to draw a link between thin

capitalization and bankruptcy risk using systematic risk as mediating variable.

Thin capitalization strategy of tax avoidance basically implies the use of debt to finance the asset portfolio of the firm. Thin capitalization is critical for tax planning purposes, as it has a significant impact on the amount of profit a business report for tax purposes. Nigerian tax law permits the deduction of interest paid or payable for the purpose of calculating profit-before-tax. Thus, the more debt a business has, the higher the interest that must be paid, resulting in a lower taxable profit. But higher interest obligations expose the firm to higher bankruptcy risk (Modigliani & Miller, 1958). This means, the tax avoidance advantage firms derive from thin capitalization comes with a cost in the form of bankruptcy risk. To that extent, how much tax avoidance benefits a firm seeks to derive depends on the firm managers' risk appetite. What is thus suggested here is that, risk-adverse managers will tend to be more inclined to exploiting lower thin capitalization strategy of tax avoidance than risk-inclined managers would.

On the other hand, given the diverse ownership structure across a given industry, it is uncertain if any speculated relationship between thin capitalization and bankruptcy risk pervades consistently across such industry. Ownership structure concerns the internal organization of a business entity and the rights and duties of the individuals holding a legal or equitable interest in that business. In line with the foregoing definition, there are two complementary contexts in which ownership structure are presented in corporate governance literature. These are ownership concentration and ownership diffusion. A company's ownership structure is either concentrated in the hands of few promoters or diffused in the hands of many shareholders. Ownership concentration is a significant internal governance mechanism in which owners can control and influence the management of the firm to protect their interests. This ownership effect provides promoters enough control over the management of the firm whereas the contrary is true for ownership diffusion.

Within the context of the foregoing, how does ownership structure moderate the bankruptcy risk nexus to thin capitalization strategy of tax avoidance? Firstly, concentrated ownership is more likely to influence firm's management to protect interests of controlling shareholders. Where the controlling shareholders are risk-inclined, then there is high prospect that management will pursue aggressive thin capitalization strategy of tax avoidance. Where the controlling shareholders are risk-adverse, then there is low probability that management will pursue aggressive thin capitalization strategy of tax avoidance. Secondly, diffused ownership is unlikely to coerce management into expropriating minority interests. However, where the company's management is risk-inclined, a firm with well-dispersed ownership structure is likely to pursue aggressive thin capitalization since effective monitoring will be lacking in such control environment.

In Nigerian context, literature on thin capitalization nexus with bankruptcy risk is silent on the moderating role of ownership structure across a given industry, particularly the agricultural industry. Agricultural industry plays a big role in the economy of Nigeria. They do not only provide vital resources for industries that need raw materials from plants or farm animals, but also the highest employer of labour in the country (Punch, 2016). Therefore the Nigerian economy cannot afford to have firms in this sector succumb to bankruptcy. Against the backdrop of diversifying the economy away from total dependence on oil, several administrations, both past and current, have advanced loans to the agro-allied businesses. The industry also enjoys arrays of tax incentives along with home-made incentives engineered through tax avoidance. While it is exigent to encourage these firms to explore tax avoidance and everything possible they can to keep afloat, it is equally important for these firms to apply these tax avoidance options cautiously in order to avoid mortality.

High business mortality rate is threatening to thwart the economic diversification drive of the Federal Government of Nigeria. According to data from the

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Organisation for Economic Cooperation and Development (OECD), approximately 20% of new businesses fail during the first two years of being open, 45% during the first five years, and 65% during the first 10 years. Only 25% of new businesses make it to 15 years or more. Also recently, an online daily reported that Nigeria records 61% start-ups' failure rate in 9 years (BusinessDay, 2020). This means only few of the agro-allied businesses might survive in the next decade. The hope of achieving economic diversification through the agro-allied sector, and using it to combat the growing unemployment rate appears to be in limbo. To make matters worse, another online news network reported how multiple taxations is causing high mortality rate in Nigeria. Thus on one hand, the need for businesses to manage their taxes is exigent, while on the other hand the need for businesses to exercise precaution against mortality is equally a disturbing concern, especially given the popularity of thin capitalization strategy of tax avoidance among agro-allied firms in Nigeria. The worry therefore is how to proffer a single solution that will address the afore-stated chronic problems of business mortality due to multiple taxations in a bid to safeguard the agro-allied industry in Nigeria.

Many scholars have studied thin capitalization strategy of tax avoidance in the past. However, as important as this delicate balance between thin capitalization strategy of tax avoidance and bankruptcy risk is, none to the best of the author's knowledge have made any attempt to explore their nexus. This absence of prior studies on the subject thus creates a gap in literature to the extent that no reference material is available to aid understanding of the underlying relationships between the two variables. It is against this backdrop that the current study is conceived.

The rest of this paper will be organized as follows: section two reviews literature on ownership structure, thin capitalization and bankruptcy risk. The third section focuses on the research methodology, section four presents the results and section five provides the conclusion and recommendations.

2. LITERATURE REVIEW

2.1 Theoretical Background

The baseline theory used to explain the relationship between corporate tax planning and going-concerns of listed agro-allied firms is the trade-off theory. The trade-off theory is consistent with the Modigliani and Miller-inspired literature (1958). Numerous assumptions in the MM (1958) theory were relaxed, most notably the absence of taxes, transaction costs, distress costs, and agency costs. According to the trade-off theory, firms optimize their debt levels by weighing the tax benefits of debt against the possible costs of bankruptcy. This balancing act is exemplified by the risk-reward trade-off. While the theory's motivation is to explain firms' capital structures, the theory's underlying principle also applies to firms' working capital structures (Salaju & Kumar, 2012; Puneet & Parmil, 2012; and Garcia & Martinez, 2007). Reducing tax liability invariably enhances corporate liquidity. The more liquid the assets of a business, the less risky it is. Thus if a business wishes to mitigate risk, it must do so at the expense of profitability. As a result, a risk-reward trade-off is necessary, giving rise to a negative relationship between thin capitalization strategy of tax avoidance and bankruptcy risk.

2.2 Conceptual Review

(i) Thin Capitalization

Thin Capitalization refers to a situation in which a business is financed primarily through debt rather than equity. Companies with a small capital base are occasionally referred to as highly leveraged or highly geared. The positive aspect of high leverage is the corporate tax shield, as interest on borrowed funds is deductible as an expense. This means that the more debt a business has the more interest it pays and the less tax it owes (Akabom & Ejabu, 2018). When a business is particularly highly geared, it is said to be "*thinly capitalized*." The tax authorities are concerned that businesses do not receive debt financing from affiliates at a level that effectively hides their profits behind interest expense. Numerous jurisdictions have now enacted legislation defining an acceptable level of

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gearing for tax purposes. In some jurisdictions, such as the United States, Germany, or Australia, rules specify a maximum debt/equity ratio or required interest cover, while in others, such as the United Kingdom, rules limit finance charges based on the company's ability to borrow from a third party on an individual basis. Where the acceptable level of debt is determined subjectively, it is frequently possible to obtain approval from the fiscal authorities in advance for the proposed level of gearing. In Nigeria, there is currently no thin capitalisation regulation, but general anti-avoidance rules are usually applied to limit deductible interest on related-party loans. According to Section 24 and the Seventh Schedule to the Companies Income Tax Act, as amended by the Finance Act, the deductibility of interest and similar expenses incurred by a Nigerian company, in respect of debt issued by a foreign connected person, will be limited to 30% of the Nigerian company's earnings.

(ii) Bankruptcy Risk

According to Aruldoss, Travis, and Venkatesan (2015), the term bankruptcy means the financial failure of a business or an organization. Therefore, bankruptcy risk, or insolvency risk, is the likelihood that a company will be unable to meet its debt obligations. It is the probability of a firm becoming insolvent due to its inability to service its debt. Onakoya and Olotu (2017) are credited with the conceptualizing bankruptcy in terms of balance sheet. A balance sheet insolvency occurs when the assets of a debtor is exceeded by its liabilities which indeed may result in cash crunch and limit the ability of the debtor to meet its obligations (Onakoya & Olotu, 2017). For the purpose of this study, the term bankruptcy is operationalized in terms of balance sheet insolvency. The Nigerian Bankruptcy Act 1990 (partA, (1)) provides that a, "*debtor commits an act of bankruptcy if a creditor has obtained a final judgment or final order against him for any amount, and execution thereon not having been stayed, has a bankruptcy notice served on him*." The bankrupt status becomes firm if the debtor is unable to comply with the notice provisions, within 14 days after service of the notice. A corporate body, which is unable to pay his creditors, is termed insolvent. Consequently, its assets may be, deposed to settle its indebtedness (Companies and Allied Matter Act, 1990 s. 409 and Investments and Securities Act, 2007, s. 122).

Corporate bankruptcy has a significant impact on the economy and can lead to a wide range of social problems. Predicting bankruptcy is critical because it has such a large impact on it and has such a broad impact (Edward, 1993). The company may choose to consider bankruptcy claims to reduce its debt obligations if it determines that its current debt payment obligations exceed its current cash flow. However, since the global recession of 2008, financial distress has become more of a focus for business leaders' attention (Plumley, Serbera, & Wilson, 2020). Figure-1 presents the conceptual framework of the study

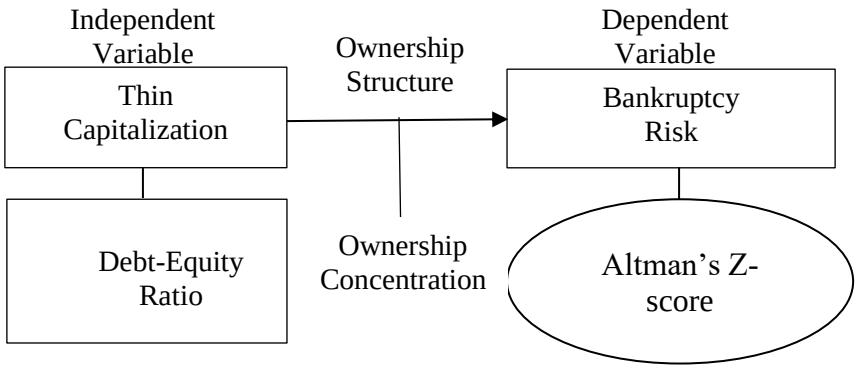

Figure-1: Conceptual Framework of Thin Capitalization, Bankruptcy Risk and Ownership Structure

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2.3 Hypotheses Development

(i) Thin Capitalization and Bankruptcy Risk

Modigliani and Miller's (1958) theorem suggests under the assumptions of corporate taxes, a perfect capital market with no transaction costs, firms should use more debts to take advantage of tax-deductibility of interest expense. Using more debts means preference for thin capitalization. Bankruptcy risk, however, increases when firms use thin capitalization (Luoma & Spiller, 2002). Higher thin capitalization leads to higher probability of failure to meet financial obligations concerning creditors (Levy & Sarnat, 1994). Firms have to cope with this shortcoming when they increase debt rather than equity. As a consequence, the balance between tax shield benefits and bankruptcy risks proposes an optimal capital structure. Besides, using huge debt can lead to underinvestment due to agency problems between shareholders and creditors, especially when information asymmetry exists (Myers, 1977; Hennessy, 2004; Titman & Tsyplakov, 2007). In such a situation, some positive net present value projects are forgone. In other words, to some extent, debt overhang prevents firms make new investments, which is likely to increase the probability of default. Therefore, the trade-off theory tends to support the hypothesis that increasing thin capitalization is likely to increase bankruptcy risk.

However, theoretical validation does not necessarily have to align with empirical findings. Hence an empirical review of literature on the subject-matter is imperative even though empirical literature on the subject-matter is rare, especially Nigerian context. Since direct studies involving thin capitalization and bankruptcy risk are rare, the empirical literature used are few studies which share conceptual affinity with the subject-matter. For instance, Yoon and Jang (2005) investigated the effect of financial leverage on financial performance and risk of sixty-two restaurant firms in the United States for the period 1998 to 2003. The findings revealed that a firm having a higher level of financial leverage has less volatility in return on equity (ROE) and stock prices changed compared to the firms having a lower level of financial leverage. It implies that the relationship between financial leverage (i.e. thin capitalization) and volatility in ROE and stock prices change is negative. Moreover, they pointed that total assets are negatively and significantly related to volatility in ROE and stock prices change. Also, here stock price and ROE volatility are approximated as systematic risk which is directly proportional to bankruptcy risk. In another study, Nguyen and Kien (2021) examined the relationship between debt maturity structure and bankruptcy risk. Using Vietnamese listed company data and various estimations, it was found that leverage is positively associated with the likelihood of default. Similarly, Gunarathna (2016) examined how financial leverage affects financial risk based on the data collected over ten years ranging from 2006 to 2015 regarding fifteen companies in hotels and travels, and chemicals and pharmaceuticals industries listed in the Colombo Stock Exchange. The findings revealed that financial leverage positively correlate with financial risk. Thus majority of existing empirical literature that closely approximates the link between thin capitalization and bankruptcy risk, also affirm the *a priori* expectation. Hence we propose the following hypothesis:

H_{01}: Thin capitalization is not significantly related with bankruptcy risk of listed agro-allied firms in Nigeria

(ii) Moderating Impact of Ownership Structure on Thin Capitalization

The primary motive behind thin capitalization strategy of tax avoidance is to maximize shareholders' value. Corporate ownership structure is expected to moderate the degree of bankruptcy risk responsiveness to thin capitalization via the framework of corporate governance mechanism. However, the evidences from theoretical and empirical studies appear to be contradictory, particularly in reference to the generation of corporate value. On the one hand, some scholars assert

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that this relationship does not exist (e.g., Barontini & Caprio, 2005) or is unverifiable (Prowse, 1992). On the other hand, despite diversification, this link is discernible. According to some experts, ownership concentration is a form of management discipline that serves to defend the processes of value creation – Monitoring hypothesis (e.g., Shleifer & Vishny, 1986). Others, on the other hand, view it as a component that may contribute to opportunism and therefore to processes of value expropriation - the entrenchment theory (e.g., Shleifer & Vishny, 1997). Some academics fall between these two extremes, implying the possibility of a non-linear effect of ownership concentrations on value generation processes - the monitoring and entrenchment theory. Among these viewpoints are those of some scholars that suggest the possibility of a non-linear effect of ownership concentration on value creation processes – the Monitoring and Entrenchment hypotheses (see, for example, De Miguel et al., 2004).

This study aligns with effective monitoring hypothesis which is a characteristic of an emerging market. Firms in emerging markets are characterized by concentrated ownership structure. For example Claessens et al. (2000) document findings by showing that more than two-third of the listed firms in emerging markets are controlled by a single entity. An important outcome of concentrated ownership is that significant amount of controlling shareholders' wealth is tied up in a single investment. As a result, they are unable to fully diversify their risk (Maug, 1998). The non-diversification of risk leads to reduction in welfare of controlling shareholders (Crutchley and Hansen, 1989). Therefore, these shareholders tend to take those actions that can minimize non-diversifiable risks faced by them (Amihud & Lev, 1981). One mechanism via which non-diversifiable risk can be minimized is by reducing debt holdings of the firm (Friend & Lang, 1988). Lower level of debt reduces bankruptcy risk and ensures that a firm remains sustainable even in hard times. Therefore, self-interested controlling shareholders have incentives to reduce corporate debt to a level which is less than optimal. Consequently, we expect to observe a negative relationship between ownership concentration and capital structure.

An alternate view that can lead to the above conclusion is driven by the fact that ownership concentration is associated with information asymmetries and agency problems. Extant literature documents that, in the absence of state-enforced property rights, ownership concentration is used as a mechanism to extract private benefits (McConnell & Servaes, 1990; Mikkelson & Partch, 1989). This strand of literature argues that private benefits of control provide incentives for controlling shareholder to expropriate. An important channel via which controlling shareholders ensure access to private benefits is by minimizing effective disclosure of information, thereby increasing information asymmetries. In an information asymmetric regime, there are a few constraints on the behavior of controlling shareholders. It, therefore, leads to increase in opportunistic behavior of controlling shareholders. Rajan and Zingales (1995) argue that information asymmetries make it difficult for firms to raise the capital, thereby reducing the proportion of debt in capital structure. Furthermore, since higher levels of debt draw active monitoring from creditors and lenders, controlling shareholders may choose to have lower levels of debt to escape such monitoring. Lower monitoring makes it easier for controlling shareholders to expropriate. Consequently, we expect to observe a negative relationship between ownership concentration and capital structure. Thus in relation to the moderating impact of ownership structure on bankruptcy risk response to thin capitalization, we propose as follows:

H_{02}: Ownership structure does not moderates the relationship between the corporate tax planning and going-concern of listed agro-allied firms in Nigeria

3. METHODOLOGY

To examine the impact of leverage on bankruptcy risk, we use the following model:

$$Z\text{-score}_{it} = \alpha + \alpha_1 TCAP_{it} + \alpha_2 OWN_{it} + \varepsilon_{it}$$

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Where *i* and *t* are firm *i* and year *t*, respectively

Z-score is Altman's (1968) Z-score which is used as proxy in place of bankruptcy risk. However, Altman (1968) and Altman and Hotchkiss (1993) provide two different calculations for manufacturing and non-manufacturing firms. Following this, the formula for Z-score is adjusted as follows:

$$Z'' = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

According to Edward and Kishore (1999), the results of the Z-score can be expressed as a percentage of bankruptcy probability. In order to make the quantitative bankruptcy probability easier to understand and interpret without prior knowledge of Z-score models, it is best to present data as percentages. Accordingly, Edward and Kishore (1999) proposed the formula for calculating the probability of bankruptcy as follows:

$$p = (1 - \frac{1}{1 + e^{-Z}})$$

Thin capitalization is operationalized as the ratio of non-current liabilities per naira equity fund employed:

$$THIN = \frac{Net\ Assets - Equity\ Funds}{Equity\ Funds}$$

Ownership concentration is measured as the degree to which majority of shares are held by minority of shareholders. To put differently, the degree to which equity shares of a public firm are concentrated in the hands of few shareholders. Quantitatively, this is represented as:

$$COWN = \frac{B_{jt}}{N}$$

Where B_{jt} represents number of equity shares owned by shareholders who own 5% or more shares and N represents total number of equity shares in issue, (Alzoubi, 2015).

To estimate the model, we used all three common regression models in corporate finance research: Ordinary least square (OLS), Fixed effect model (FEM), Random effect model (REM). Since these models are estimated under different assumptions, results would be more convincing when looking at estimations of all three models. Upon the final analysis, the OLS was selected based on redundant fixed effect test result.

Data were collected from website pages of the sampled listed agro-allied companies. Data covers all 5 agro-allied companies and 40 firm-year observations from 2013 to 2020. According to website page: https://www.nigeriagalleria.com/Galleria_Finance/Nigeria_Company_Profiles/Agriculture_Agro_Allied, there are five companies under the category of agriculture and agro sector, as presented in table-1:

Table 1: Listed Agro-Allied Firms in the Nigerian Stock Exchange

S/N	Names of Firms
1	ELLAH LAKES PLC (ELLAHLAKES)
2	FTN COCOA PROCESSING PLC (FTNCOCOA)
3	LIVESTOCK FEEDS PLC (LIVESTOCK)
4	OKOMU OIL PALM PLC (OKOMUOIL)
5	PRESCO PLC (PRESCO)

4.0 RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table-2 presents the descriptive results of the study.

	THIN	BANKRUPTCY_RISK	OWN
Mean	0.153319	0.016015	0.001677
Median	0.055808	0.000830	0.000719
Maximum	0.518823	0.093295	0.005070
Minimum	0.023788	1.76E-07	0.000348
Std. Dev.	0.190993	0.030647	0.001833
Skewness	1.174252	1.996157	1.106210
Kurtosis	2.477117	5.362806	2.358774
Jarque-Bera	9.648127	35.86905	8.843292
Probability	0.008034	0.000000	0.012014
Sum	6.132745	0.640593	0.067064
Sum Sq. Dev.	1.422650	0.036629	0.000131
Observations	40	40	40

The average thin capitalization ratio is 0.153, indicating that an average firm from among the sampled firms, is thinly capitalized to the extent that on the average, the

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asset portfolio is funded by 15.33 kobo for every ₦1 equity fund. The maximum thin capitalization ratio is 51.88 kobo per naira equity fund, and the minimum is approximately 2.38 kobo per naira equity fund. On the average, bankruptcy risk is low among the sampled firms. Likewise, ownership concentration is relatively low. All variables share similar statistical attributes, especially in the area of normality, skewness and variability.

4.2.1 Hypothesis Testing: H_{01}

Result of the regression analysis is presented in table-3.

Table3: Regression Result of Bankruptcy Risk

Variable	Coefficient	Std. Error	t-Statistic	Prob.
THIN	0.189857	1.09E-15	1.74E+14	0.0000
OWN	-5.171863	1.16E-13	-4.46E+13	0.0000
C	-0.004423	2.37E-17	-1.87E+14	0.0000

R-squared	0.775240	Mean dependent var	0.016015
Adjusted R-squared	0.763091	S.D. dependent var	0.030647
S.E. of regression	0.014917	Akaike info criterion	-5.500635
Sum squared resid	0.008233	Schwarz criterion	-5.373969
Log likelihood	113.0127	Hannan-Quinn criter.	-5.454837
F-statistic	63.81018	Durbin-Watson stat	3.086331
Prob(F-statistic)	0.000000		

White period standard errors & covariance (d.f. corrected) was used instead of the OLS because of concern about the reported high Durbin-Watson statistic. Other than that, there is no further concern that puts doubt on the accuracy and reliability of the results obtained.

Based on the results from table-3, the structural equation model for bankruptcy risk of listed agro-allied companies in Nigeria can be stated as follows:

$$\text{Prob. (Bankruptcy)} = -0.0044 + 0.1899*\text{THIN} - 5.1719*\text{OWN} + e \quad \ldots\ldots \text{(Eqn1)}$$

The regression equation illustrates the direction of thin capitalization's effect on bankruptcy risk. The positive regression coefficient for thin capitalization indicates that it has an additive influence on bankruptcy risk, but the negative regression coefficient for ownership structure indicates that increasing the degree of ownership concentration reduces bankruptcy risk. The constant term (-0.0044) indicates that if thin capitalization and ownership concentration are assumed to be zero, the average likelihood of bankruptcy for the studied firms is around -0.0044, which is mathematically absurd. This mathematical absurdity just underscores the improbability of complete ownership concentration absence in corporate governance realm. The regression coefficient (THIN) of 0.1899 indicates the rate at which bankruptcy risk increases when thin capitalization is increased by one unit. On the other side, with every additional unit of ownership concentration, the chance of bankruptcy decreases by 5.1719 units. Each of these regression coefficients is significant at the 1% level since their probability values are less than the 5% criterion.

The F-significance aims to see if all independent variables included in the model have a co-effect on the dependent variable. Based on table-3, it can be seen that this equation model has a sig value of 0.000 which is smaller than the α significance level of 0.05 which means that independent variables simultaneously or together affect dependent variables so that it can be concluded this model is worth using or fit. The adjusted-R^2 aims to measure how far the model's capabilities explain variations in independent variables. The higher the coefficient of determination is, the higher the ability of independent variables to explain the dependent variable. In our case, thin capitalization and ownership concentration can explain 76.3% of the changing behaviour of bankruptcy risk. Hence, regarding the hypothesis (H_{01}), there is sufficient statistical reason to reject it. Thus, our findings confirms the works of Nguyen and Kien (2021), Gunarathna (2016), Luoma and Spiller (2002) and Levy and Sarnat (1994).

4.2.2 Hypothesis Testing (H_{02})

The objective in this section is to test whether ownership structure moderates the degree of correlation between thin capitalization and bankruptcy risk or not. We have

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identified several avenues of moderation, including effective monitoring hypothesis, information asymmetry hypothesis, and expropriation hypothesis. In order to test our arguments, we add another variable representing the interaction between ownership concentration (being ownership structure proxy) and thin capitalization (OWN*THIN) in in the original Equation. It is important to mention here that there is no severe multicollinearity problem in the following equation. We compute VIF values after every regression analysis and find that VIF values are significantly lower than 10. Further, OLS was used since the reported Durbin-Watson statistic is within the acceptable threshold. Our regression takes the following form:

$$\text{Prob. (Bankruptcy)} = \beta_0 + \beta_1*\text{THIN} + \beta_2*\text{OWN} + \beta_3*\text{OWN}*\text{THIN} + U$$

The result of the moderated regression is presented in table-4.

Table-4: Moderating Impact of Ownership Structure

Variable	Coefficient	Std. Error	t-Statistic	Prob.
THIN	-0.346312	0.086179	-4.018537	0.0003
OWN	-18.46842	5.062186	-3.648309	0.0008
THIN*OWN	126.3622	17.27123	7.316341	0.0000
C	0.025143	0.004617	5.446181	0.0000

R-squared	0.909623	Mean dependent var	0.016015
Adjusted R-squared	0.902092	S.D. dependent var	0.030647
S.E. of regression	0.009589	Akaike info criterion	-6.361677
Sum squared resid	0.003310	Schwarz criterion	-6.192789
Log likelihood	131.2335	Hannan-Quinn criter.	-6.300612
F-statistic	120.7772	Durbin-Watson stat	2.321637
Prob(F-statistic)	0.000000		

In accordance with the results from table-4, the moderated structural equation model for bankruptcy risk of listed agro-allied companies in Nigeria can be stated as follows:

$$\text{Prob. (Bankruptcy)} = 0.025 – (0.346 - 126.362*\text{OWN})*\text{THIN} – 18.468*\text{OWN} + U \ldots \text{(Eqn2)}$$

According to the obtained equation, beyond ownership concentration level of 0.00274 (i.e. 0.346/126.362), thin capitalization will be negatively associated with bankruptcy risk. Otherwise, a positive relationship will continue to exist between the duo. Hence with moderation, our results show that bankruptcy response rate for every unit increase in thin capitalization depends on ownership concentration level. Therefore regarding hypothesis (H_{02}), there is sufficient statistical reason to reject the hypothesis.

Our results are consistent with the arguments that consider reluctance on the part of controlling shareholders to accumulate excess thin capitalization as the main reason behind the negative relationship between ownership concentration and bankruptcy risk. Given that controlling shareholders in the agro-allied industry are, usually, families or individuals who are not diversified, increased use of debt financing results in a substantial increase in risk of bankruptcy. Consequently, these arguments suggest that a negative relationship exit between ownership concentration and thin capitalization. Our results are also consistent with arguments that consider information asymmetries and agency problems that exist due to ownership concentration as the main cause of negative relationship between ownership concentration and thin capitalization. According to these arguments, when the levels of ownership concentration increase, it results in a few constraints on the behavior of controlling shareholders, thereby leading to an increase in opportunistic behavior. Given that the higher levels of debt invite increased monitoring from creditors and lenders, controlling shareholders may choose to have lower levels of debt to escape monitoring. Consequently, we should observe a negative relationship between ownership concentration and thin capitalization.

5. CONCLUSION AND RECOMMENDATION

This study empirically examined how thin capitalization affects bankruptcy risk with ownership structure in term

of ownership concentration as moderator. Based on collected data of five publicly listed companies over the eight-year period starting from 2013, finding revealed that thin capitalization is positively associated with bankruptcy risk. A higher level of thin capitalization results a higher level of bankruptcy risk because probability of bankruptcy is found to be high. Firms, therefore, should tend to earn additional earnings to compensate for additional risk arising from the financial decisions. More importantly, keeping thin capitalization moved over small variation is important for firms to have a lower level of bankruptcy risk. Therefore, the firm having the level of thin capitalization that is considered higher than the optimal level magnify the shareholder's return compared to the firm having lower than the optimal level of thin capitalization. Therefore, a higher level of thin capitalization facilitates shareholders to earn a higher return on equity with a higher risk of loss. This finding is consistent with the theory of Modigliani and Miller (1958).

In line with the conclusion reached, it is the recommendation of this study that firm managers should balance risk and return in seeking to exploit thin capitalization strategy of tax avoidance as the use of debt financing increases their firms' bankruptcy risk. Furthermore, firm managers should be sensitive to their peculiar shareholding structure in seeking to exploit thin capitalization strategy of tax avoidance. Thin capitalization strategy of tax avoidance is more likely to be advantageous without the fatal attraction of bankruptcy risk in an environment where shareholding is diffused, rather than concentrated in the hands of few.

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