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Tax Shields and Financial Performance of Listed Manufacturing Firms in Nigeria

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Abstract

The main objective of this study is to examine the effect of tax shields on financial performance of listed manufacturing firms in Nigeria. The study relied on ex post facto research design. Data from the study is gotten from annual reports of 14 listed manufacturing companies on the Nigerian Exchange Group who are judgmentally sampled from a population of 56 listed manufacturing firms. The study employed the use of Panel regression in analyzing the data gotten for the study. The first findings shows that non-debt tax shields and debt tax shields have positive insignificant effects on return on assets of listed manufacturing firms in Nigeria. Further findings show that, non-debt tax shields and debt tax shields have positive significant effects on return on equity of listed manufacturing firms in Nigeria. Thirdly, it is found that, non-debt tax shields and debt tax shields have positive insignificant effects on earnings per share of listed manufacturing firms in Nigeria. As a result of the study findings, it is recommended that, while tax shields are often considered beneficial, this study suggests that their impact may be limited in the manufacturing sector owing to financing cost factors that managers need to consider before making tax shield plans, also, understanding these findings in light of minimizing cost of interest and keeping optimal depreciation and amortization cost can help firms optimize their tax planning and ultimately improve return on equity. Furthermore, manufacturing firms in Nigeria focus on other factors influencing earnings per share rather than relying solely on tax shields. Exploring strategies like operational efficiency, cost management, and revenue growth may yield more significant and sustainable improvements in their earnings per share.

1.0 INTRODUCTION

1.1 Background to the study

Tax shield has been a conventional means of tax reduction strategies for companies over the past decades due to its intrinsic debt and non-debt strategies to tax burden avoidance. Regardless, one may wonder why some companies do not take on more debt, and as such fail to make the most of the tax shield benefits of debt but evidence have shown that, choosing tax shields methods and strategies by managers of companies is tantamount to a tradeoff between the risk of solvency which comes with debt tax shield and that of cost of depreciation of assets (Nwaorgu & Iormabagh, 2018). In regards to this, past scholars have used both the trade-off and pecking theories to explain

the observed level of debt as well as non-debt tax shields, but they do not fully explain the optimality of tax shield combinations and how that affects financial performance of companies.

Tax shields pertains to method used by companies to reduce their tax payment burden. These methods predominantly reported in works of past scholars are the non-debt tax shields and the debt tax shield. The non-debt tax shield usually concerns cost of depreciation of assets while the non-debt tax shields involve the cost of debt. As similarly explained by Olumuyiwa, Odusanya and Olowofela (2017), estimating and contrasting the costs of debt and tax savings from debt, as well as comparing debt conservatism to both different cost variables and non-debt tax shields are some of the approaches that have been used to dig into that question. Regarding the effect of the costs of debt, the choice between debt and equity financing has been characterized in a context in which firms choose their optimal debt levels by balancing the pros and cons of attaining it despite its' tax shield benefits. Other prominent tax shield measures are alluded by authors are the debt financing, amortization cost, as well as research and development cost (Matias & Serrasqueiro, 2017).

Despite the fact that there is evidence suggesting for the relevance of debt tax benefits in corporate leverage, there are stylized proofs that support the notion that highly profitable, low-default probability, and high marginal tax rate firms are no more likely to use debt than other types of firms (Leora & Konstantinos, 2008). According to Kerongu, Nyamute, Okiro and Duncan (2020), the counterweight to debt benefits generally comes from financial distress costs, the cost of personal taxes, non-debt tax shields, and agency costs due to conflicts between managers and investors or among different groups of investors. Tax shields strategies and how they affect the financial performance of firms cannot be overemphasized. This is why overtime there has been extensive research studies on this issue in the corporate finance literatures.

In corporate finance the major financial performance indices mentioned are profitability, liquidity, earnings per share, and leverage of companies. This is why researchers as far back as Modigliani and Miller (1958) postulated the irrelevance of leverage in perfect markets which contradicts the real world scenario as a result they revisited such postulate in their 1963 study and included interest tax deductions to show that debt in the leverage decisions of companies could yield large gains in the form of the tax shields. To affirm this, researchers such as Brigham and Ehrhadt (1984) further explored the area of taxes and financial performance of which they proposed that firms may have deductibles other than debt as a result of the tax benefits that comes with debt financing in order to reduce their corporate tax burden and therefore, there could be a tradeoff between debt and non-debt tax shields.

Despite these earlier prepositions, there still exist a contemporary paradox in debt financing for tax benefit purpose which gives rise to alternative equity financing and assets utilization which results to depreciation and amortization cost. However, in consideration of the corporate income tax and tax shields, it is pertinent for firms to make optimal financing decision. This possibly explains why firms paying high tax rates may choose higher leverages to increase financial performance of the firms as explained by (Ruibing, 2016). On the other hand, Ohaka et al. (2020) have stated that, non-debt tax shield also reduces the cash outflows and decrease the financing needs of companies, so as give tax credit to companies. This tax shield paradox has been an issue of discourse for companies and managers who are willing to optimize their financial performance in view of the best alternative tax shield method available for the firm but researchers that explain this phenomenon is largely under-explored. This is why it has become necessary for such studies

to be conducted on the effect tax shields on financial performance of firms to understand their tradeoffs and how they likely affect financial performance of the firms.

Therefore**,** the main objective of this study is to examine the effect of tax shields on financial performance of listed manufacturing firms in Nigeria. The specific objectives of the study are to:

i. Examine the effect of tax shields (debt tax shied and non-debt tax shield) on return on assets of listed manufacturing firms in Nigeria.
ii. Ascertain the effect of tax shields (debt tax shied and non-debt tax shield) on return on equity of listed manufacturing firms in Nigeria.
iii. Examine the effect of tax shields (debt tax shied and non-debt tax shield) on earnings per share of listed manufacturing firms in Nigeria.

2.0 LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Concept of tax shield

According to Susan (1988) tax shields refers to the various means and methods firms use in hedging against taxes. Suratno, Syahril and Imam (2017)assert that, effective tax rate has been used as a possible determinant of the investment decisions and outcomes. According to Modigliani and Miller (1958), if interest payments on debt are non tax-deductible, firms with positive taxable income have an incentive to issue more debt. That is, the main incentive for borrowing is to take advantage of interest tax shields (Roger & Young, 2001). Accordingly, in the framework of the trade-off theory, scholars like Ramjee and Gwatidzo (2012) hypothesized a negative relationship between managers' investment decision and tax shields. DeAngelo and Masulis (1980) argue that the marginal corporate savings from an additional unit of debt decreases with increasing non-debt tax shields. This is because of the likehood of bankruptcy increases with debt financing. Empirical evidence are mixed in regards to choosing the most the right tax shield. According to Muhammad and Nawaz (2017), tax shield accounts on average to 4.3% of the firm value when both corporate and personal taxes are considered.

In trying to shield against tax most companies resort to the use of debt financing but debt contract is likely to increase the bankruptcy cost of the company because of the high interest of the loan (Marsh, 1982; Hovakimian, Opler & Titman, 2001). However, the non-debt tax shield does not require companies to pay the high cost, so it could reduce the amount of funds occupied (Graham, 2000; Graham & Campbell, 2001). Therefore, companies have a strong incentive to choose the non-debt tax shield way to delay or reduce the taxes and shield against taxes. The non-debt tax shield plays a certain substitution effect on the debt tax shield. A study carried out by Bowen, Daley and Huber (1982); and Graham and Tucker (2006) shows that non debt shield as have negative effect on debt level of the firms. The reason for such negative effect is that the non-debt tax shield decrease the tax benefit of the firm. This is because firms' capital structure include less debt if they have large non debt tax shield as a result of more fixed assets being employed.

Flannery and Rangan (2006) carried out a test on firm level and the results are different from industry level results. While, Fama and French (2000) took depreciation, investment tax credits divided by total assets to calculate non debt tax shield and found a positive relationship between leverage and non-debt tax shield. The results of Ahktar and Oliver (2009) also took non debt tax shield variable to explain the determinants of profitability of non-financial firm listed in Tokyo

Stock Exchange. The study results revealed that tax has an effect on investment decision of the companies and tax shield serves as a major factor in making investment decisions.

De Angelo and Masulis (1980) in his study find that depreciation, investment tax credits and deferred tax losses can be used to shield against taxes, likewise debt interest. Also, Dwenger and Steiner (2009), assert that, it can reduce the cash outflows and decrease the financing needs of enterprises, so as to cut down the costs of financing. Ruibing (2016) took a look at the tax shield in the Chinese case and asserted thus that the non-debt tax shield has a certain alternative effect on the debt. It can make up for the problem of debt tax shield when it is too low, so it is used by most governments as tax incentives. According to Ruibing (2016) the Chinese government is no exception in giving tax incentives in the form of various non debt tax shields in other to discourage too much use of debt. In order to encourage firms carry out innovation activities, the Chinese government has encouraged corporations to increase investment in research and development for many years. Based on the tax shield, Chinese government issued a series of tax incentives policies such as the Enterprise Income Tax Deduction Method in 2000, Notice of the Enterprise Income Tax Preferential Policies on the Enterprise Technological Innovation in 2006 (No.88 Financial Tax 2006) and The Management Method of Enterprise Research and Development Expenses before Tax Deduction (Trial) in 2008 Ruibing (2016). All this was done in China to encourage longterm investment and firms have used it to shield against taxes.

The implementation of these preferential policies likely enhances the motivation of managers to choose the non-debt tax shield against debt tax shield for avoidance of high bankruptcy cost (Deitiana& Robin, 2016).Especially, in Nigeria where there are strict bank loan constraints in terms of interest regulation, the incentives of non-debt tax shield have a very important practical significance as against debt financing (Ohaka, Edori & Ekweozor, 2020). As stated in Ncube (2007), in macro terms, giving tax benefits can guide the development of the national industry and then adjust the economic structure. Also in micro terms, Drobetz and Fox (2005), explained that tax shields and benefits does not only reduce the tax cost, it directly affect the performance of enterprises and affect the financing behavior of the management.

2.1.2 Non debt tax shield

An alternative explanation of the financing decision puzzle faced by managers could be that debt is squeezed out by non-debt tax shields (Coleman, 2010; Clemente-Almendros & Sogorb-Mira, 2018). For instance, Daskalakis and Psillaki (2008) suggest analyzing the apparently conservative debt policy taking into account whether non-debt tax shields substitute for interest deductions. Examples of such non-debt tax shields include depreciation, investment tax credits, or loss carry forwards (Christopher, Schafer & Talavera, 2006). Companies have significant incentives to permanently defer or avoid taxes, usually without transparency, and they may prefer alternative tax shields to debt for bankruptcy reasons (Chechet & Olayiwola, 2014). According to Ebaid (2009), non debt tax shields are less costly. In this regard, while debt requires costly interest payments, numerous non-debt tax shields do not require any additional cost for the firm (Frank & Goyal, 2007). Farrukh & Asad (2017) further stated that they do not restrict the firm through debt covenants, which are likely to generate high transaction costs. Thirdly, non-debt tax shields frequently exploit provisions in the accounting rules that allow the firm to reduce taxes without affecting the income statement, thus favoring accounting earnings management (Muema, 2012).

Again, some alternative debt tax shields have a relatively larger return per share invested, especially with the proliferation of thin capitalizationrules (Oke & Babatunde, 2011).

De Angelo and Masulis (1980) was one of the first papers to point to the relevance of non-debt tax substitutes within corporate financing decision. Surprisingly, Bradley, Jarrell and Kim (1984) found that debt is positively related to non-debt tax shields proxied by depreciation and investment tax credits, in contrast to the prediction of De Angelo and Masulis (1980). Furthermore, Titman and Wessels (1988) findings do not provide support for an effect onleverage ratios arising from non-debt tax shields. In the view of Graham (2000), a positive relation between debt and non-debt tax shields as measured by depreciation and investment tax credits may appear if a firm invests heavily and borrows to invest. In the same vein, Tatre (2015) stated that non-debt tax shields might have a positive relationship with debt conservatism as the latter is related to companies that invest more. As Green and Burton (2003) point out, a positive relation of this kind overwhelms and makes unobservable any substitution effect between debt and non-debt tax shields.

As part of the study aim of explaining the relationship between non-debt tax shields and the apparently underleveraged status of companies, the study address the difficulty highlighted by Bowen, Daley and Huber (1982); Bengü, Nihat and Burcu (2017), when measuring non-debt tax shields. To that end, the study attempt to gather what Graham and Tucker (2006) called "off statement of financial position tax deductions" when they found evidence that firms which have non-visible non-debt tax shields in the form of tax shelters are significantly less indebted. Similarly, Gupta, Srivastava and Sharma (2010) examined one particular non-debt tax shield, namely the exercise of executive/employee stock options, and found these tax shelters can explain some, but not all, of the debt conservativeness. Likewise, Omoleye and Olu (2019) who found that pension assets and liabilities also act as tax shields, withpension contributions equivalent to about a third of those from interest payments.

2.1.3 Debt Tax Shields

Apart from the effect of the costs of debt, explanations of debt conservatism have also focused on the influence of non-debt tax shields as substitutes for the fiscal benefits of debt. The existence of fiscal advantages from sources other than debt might reduce the tax incentive to use debt. On the other hand, Dawood, Moustafa and El-Hennawi (2011) find evidence suggesting that under-levered firms have difficult to measure non-debt tax shields that are not captured in scholarly estimates of taxable income, opening up a debate, which then draws back attention to the possibility of debt tax shield as a measure of tax shield.

The decision by a firm's management to attract funds by issuing equity is undertaken if funds can't be attracted in any other way or if the shares are overvalued such that the benefits of an issue outweigh the costs (Olumuyiwa, Odusanya, & Olowofela, 2017). When the market is inefficient, financing policy becomes relevant in that when equity prices are high, existing shareholders benefit by issuing overvalued equity and when prices are low, debt becomes preferable (Baker & Wurgler, 2002) as a means of finance and possibly a shield against corporate tax.

In line with the agency costs of debt financing advantages Jensen and Meckling (1976) pointed out that the financing decision is decided by the agency cost and possibility of tax shield. Debt managers need to reduce the opportunity for their own profit as well as shield against tax. Liabilities into equity capital will reduce the agency costs, although the agency cost of debt capital will rise, but the appropriate ratio of liabilities will lower cost of equity capital beyond the rising

cost of debt capital and agent, thereby enabling cost reduction agent can achieve the purpose of improving firm financial performance using debt capital (Barakat & Rao, 2012). Although, increase in the debt financing choice will increase the possibility of bankruptcy but if properly managed, there are possibilities of tax benefits accruable to the firm. So when enterprises decide to increase the debt, investors would think that the quality of enterprise assets and business is good; the stock price will rise, so as to enhance firm value (De Jong, Verbeek, & Verwijmern, 2011).
Jensen and Meckling (1976) also stated that, the role of corporate debt tax shield is, enterprises pay interest to creditors of the costs, exemption from corporate income tax, while dividends paid to shareholders is deducted from the net profit after corporate income tax, so if interest rates are appropriate, and earnings is more than business interest, then an improvement in the enterprise's debt ratio would increase the tax-free income, improve the enterprise's market value.

2.1.4 Tax shield and performance

The ability of a company in determining internal and external resources of the organization, in terms of financial plans vis a vis tax shields are among main factors affecting the growth and development of any company (Gudlwa, 2009). These resources and the amount of their use is one of the effective factors in determining the profitability of firms. Profitability of firms entails return on assets and equity of the firm as well as the earnings attributed to shareholders (Hovakimian, Hovakimian & Tehranian, 2003) and also it is a version of criteria to measure the achievement amount of firm goals attained. Financial researchers have done many studies regarding the introduction of some variables which have had the greatest descriptiveness and information content regarding the actual profitability of companies but in most cases return on assets and equity as well as earnings have been included in their studies (Mesquita & Lara, 2003 ;Jõeveer, 2013).
Profitability is a financial benefit that is realized when the amount of revenue gained from a business activity exceeds the expenses, costs and taxes needed to sustain the activity (Oliver, 2009). Any profit that is gained goes to the business's owners, who may or may not decide to spend it on the business (Olowe, 2011). According to Olowe, (2011) profitability is the ability of a given instrument to earn a return from its use. It indicates how well management of an enterprise generates earnings by using the resources at its disposal part of such resources is the firms ability to shield against taxes in order to maximize return on investment. Profitability is a measure of evaluating the overall efficiency of the business. The best possible course for evaluation of business efficiency may be input-output analysis. Profitability can be measured by relating output as a proportion of input or matching it with the results of other firms of the same industry or results attained in the different periods of operations.

2.2 THEORETICAL FRAMEWORK

This study is anchored on the tradeoff theory as propounded by Kraus and Litzenbreger (1973).

2.2.1 The Trade-Off Theory

The tradeoff theory refers to the idea that a company chooses how much debt finance and how much equity finance to use by balancing the cost and profit. The classical version of the hypothesis goes back to Kraus and Litzenbreger (1973) who consider a balance between debt weight costs of bankruptcy and the tax saving benefits of financing decision. An important purpose of the theory is to explain the facts that firms usually are financed partly with debts and partly in order to take advantage of tax benefits (Teker, Tasseven & Tukel, 2009). The tradeoff theory postulates that there is an advantage to financing with debts and there a cost for financing with debts (Sritharan,

2015). The cost of financing with debts results mostly from financial distress i.e. bankruptcy cost of debts and non-bankruptcy cost of debts. Examples of non-bankruptcy cost include: staff leaving, suppliers, demanding disadvantageous payment terms, bond/stock holders in fighting (Soumani & Hayajneh, 2019).

The marginal benefits of further increase in debts increases, while the marginal cost increase (Stuart, 1997). As a result of the above, a firm that is optimizing its overall value will focus on its trade off when choosing how much debt used for financing with due consideration of cost of debt in as much as debt financing serves as tax shield (Prahalathan, 2010). Empirically, this theory explains differences in leverage ratios between firms.

Trade-off theory affirms that optimal debt ratio is estimated by balancing the benefits (i.e. interest tax shield) and weaknesses (i.e. cost of financial distress) of debt finance. While leverage rises, the marginal tax shield from each unit of extra debt plunges (Qian & Wirjanto, 2009). It is due to the high likelihood that firms would be exempt from tax payments because of not having positive taxable incomes. Therefore the trade-off theory refuted the irrelevance theory of Modigliani and Miller (1958) that capital structure does not matter for firm value. The theory relaxed the MM (1958) perfect market assumptions that firms do not pay taxes, no transaction costs, symmetric of information among others. The trade–off theory posits that firms behave as if they have optimal debt position used in shielding against tax (Rajan & Zingales, 1995; Nadeem, & Sheikh, 2011). They tend to trade off the tax advantage of using debt with the agency cost and bankruptcy cost that may arise due to the use of debt for tax shielding purpose.

Firms financing choice vary with time and space therefore their tax shielding and speed of adjustments towards the optimal leverage target as contained in the trade-off theory may also vary with time and space. The theoretical prediction of the trade-off theory is that inverse relationship exists between interest cost and speed of adjustments towards optimal debt target. Empirical evidences suggest that firms in developed economies incur more costs and adjust relatively slowly in attaining their optimal target position (Fama & French, 2002; Flannery & Rajan, 2005). However, studies that have used samples of firms from developing economies have found firms to adjust relatively faster with lower interest costs to achieve their target debt position for tax shield purposes (Ramjee & Gwartidzo2012; Haron, Ibrahim, Nor & Ibrahim, 2013).

2.3 EMPIRICAL REVIEW

The study reviewed some related empirical literatures on tax shield and financial performance. The review is done below.

Kamil and Krisnando (2021) in their study examined the effect of growth opportunity, non debt tax shield, asset structure, and profitability on capital structure in agricultural sector companies listed on the Indonesia stock exchange from 2016-2019. They used a causal research design with a quantitative approach, which is measured using a panel data regression-based method. Their study results proved that, growth opportunity has a positive and significant effect on capital structure; non debt tax shield has no effect on capital structure; asset structure has no effect on capital structure; profitability has a negative and significant effect on capital structure; but growth opportunity; non debt tax shield, asset structure, and profitability simultaneously affect the capital structure.

Lei (2020). used a random-effects model and takes 224 listed companies in China from 2002 to 2017 as a sample to empirically study the relationship between the corporate income tax shield

effect on corporate capital structure in China. It is found that the debt tax shield and corporate capital structure are significantly positive. Relatedly, the non-debt tax shield is significantly negatively related to the corporate capital structure. At the same time, the impact of debt tax shields and non-debt tax shields on corporate capital structure varies from industry to industry.

Susilo, Wahyudi and Pangestuti (2020) explored the most significant profitability determinants of the manufacturing companies in Indonesia. They used several independent variables in order to examine their respective influence on profitability. The determinants used are working capital, firm size, firm growth, capital structure, and non-debt tax shields. The study sample is manufacturing firms that are listed on the Indonesia Stock Exchange from 2010 to 2017. The number of sample is 350 manufacturing companies. Using a multiple regression technique, results of the study indicate that working capital, firm size and firm growth were positively related to profitability while, capital structure and non-debt tax shield did not affect profitability.

Ohaka, Edori and Ekweozor (2020) study examined the effect of debt financing on firm's financial performance in Nigeria. The study adopted the random sampling techniques to arrive at the sample size of the study. The secondary data was used in the study. Panel econometric tools were used to analyze the panel data of various companies across sectors in the capital market. The results of the analysis revealed that, size of the firm; short term debt and long term debt have positive and significance impact on the financial performance of listed firms in Nigeria capital market. The study concluded that debt financing is very important in firm's financial performance since there is a positive and a significant relationship between the variables.

Fischer and Jensen (2019) studied the general-equilibrium effects of the corporate debt tax shield in an endowment economy with a redistributive tax system that taxes firm profits and household income and redistributes tax revenues in an attempt to harmonize households' lifetime consumption opportunities. In general equilibrium, the debt tax shield not only affects corporate capital structure and valuation but also causes poorer house- holds to consume more and save less at a younger age. They asserted that, without the debt tax shield, the same welfare improvements for poorer households are achievable with significantly lower tax rates.

Kliestik, Michalkova, and Kovacova (2018) asserted that, existence of tax shields as a result of taxable expenditures is a significant factor determining profitability and rentability of enterprises. Also that, in the long-term horizon, it represents a relevant and a significant generator of corporate value. They used a comprehensive model to identify the determinants of the value of the interest tax shield in the conditions of Slovak Republic. Their model was developed based on a multiple linear regression analysis, the conditions of multicollinearity of explaining variables, homoscedasticity, autocorrelation and normality of residuals were tested. Input data were obtained from the financial statements of the year 2017 of more than 6,000 Slovak companies. Using the proposed model, they found that, the value of tax shield is lower than the product of the debt value and the tax rate, which is symptomatic for imperfect markets.

Clemente-Almendrosa and Sogorb-Mira (2018) argued that, in spite of the fact that there is empirical evidence that debt tax benefits add to firm value, additional research is needed to explain the apparently conservative debt policy of many firms. As a result they examined whether the costs of debt and non-debt tax related issues might shed some light on the apparent conservative leverage puzzle for Spanish listed firms throughout the period 2007–2013. Specifically they compare the costs of financial distress with the potential tax benefits of debt. In addition, they test whether debt

conservativeness, measured by the kink, is explained by different costs of debt and non-debt tax shields. Using ordinary least square regression, their findings suggest that the most conservative Spanish listed firms may not be acting sub-optimally with respect to the tax advantage of debt financing. Furthermore, the results obtained are consistent with the belief that debt costs might offset the tax benefits stemming from debt financing, and debt and non-debt tax shields could act as substitutes.

Nwaorgu and Iormbagah (2018) examined the effect of transactional cost shields using non debt tax shield in place of transactional cost shield on capital structure choice of listed agricultural firms in Nigeria. They employed ex post facto research design. Data for analysis was gotten from the published financial reports of the listed agricultural firms spanning a period of 5 years (2012 and 2016). By using Simple linear regression model using technique, their study revealed a significant effect of NDTS (Depreciation & Amortization cost) on debt and equity financing of the agricultural firms. They recommended that, investors in the agricultural sector should provide the needed funds available for capital investments whereby they can as well reap the benefits that comes with long term fixed assets used in production since they serve as tax shield that are not attributed to debt thereby shielding the firms from the transactional cost.

Suherman, Khodijah, and Ahmad, (2017) analysis shows that, non debt tax shield has a negative and significant effect on capital structure. They argued that, high non-debt tax shield will reduce the company's debt and if the non-debt tax shield decreases, the company will use a large debt. Their study result is supported by the Trade-off Theory that the higher the debt, the company will get protection from debt interest expenses which can reduce tax profit. Their research was conducted for consumer goods sector companies listed on the Indonesia stock exchange 2009-2013 period; using a quantitative panel data regression.

Suratno, Syahril and Imam, (2017) analyzed the effect of interest earned time and business risk effect on debt to equity ratio and to determine the role of non debt tax shields in moderating the relationship between time interests earned and business risk on capital structure. They investigated 12 companies of pharmaceutical industries in Indonesia and the data were analyzed and interpreted using the analysis tool of structure equation modeling (SEM). They concluded that time interest earned and interest earned time interaction with non debt tax shields has no significant effect on debt to equity ratio. Also, business risk interactions with non debt tax shield have a significant effect on debt to equity ratio. The results of the study indicates that non debt tax shield strengthen the relationship between the business risk of the debt to equity ratio which correspond to trade off theory, where the company made tax savings by using additional debt invested on fixed assets when the level of business risk is low and does not use additional debt when the company's business is high risk.

Joyo, Ahmad and Shaikh (2017) examined the influence of business risk and non-tax shield on capital structure.Based on panel data of 20 companies from the cement sector in Pakistan, they concluded that, business risk and non-tax shield has insignificant effect on capital structure (debt to equity ratio), whereas the interest coverage has positive effect on debt-to-equity ratio.Their study shows that, the volatility and business risk involved in the cement sector may have some serious issues if the exports is continuously decline and at same time raising leverage funds may hurt the performance of company.

2.4 Gap in literature

The current study found both methodological gap in the measurement of debt tax shield; as well as a sectoral gap since there are no studies that are currently done on the manufacturing sector in Nigeria; and a timeframe gap given the fact, there are no studies that presently capture the 2022 data for tax shield and financial performance research in Nigeria.

For example,most studies that captures the various tax shield variables have relied on definitions embedded in capital structure studies which pertains to total debt as against the cost of debt as debt tax shield explained by MM in 1958. For example, authors like Susilo et al., (2020); Ohaka et al., (2020); Kerongu et al., (2020); Narinder and Mahima (2019); Clemente-Almendrosa and Sogorb-Mira (2018); Nwaorgu and Iormbagah (2018) all studied the debt aspect of tax shield. Scholars like Clemente-Almendrosa and Sogorb-Mira (2018) define tax shield as an aspect of debt financing which is faulted on the premise that, it is actually the cost of debt that is tax free. Also, these studies are not based on the Nigerian manufacturing sector neither do they cover the current 2022 data.

As a result, this study seeks to fill the methodological, sectoral, and timeframe gaps by adapting the methods from previous scholars in order to align these methods of measuring tax shield (Depreciation and Amortization cost and Interest on debt) with the MM 1958 preposition to carry out a contemporary study in the Nigerian manufacturing sector for a period of 8 years (2015 to 2022).

3.0 METHODOLOGY

3.1 Research Design

This study adopts ex-post facto research design. Ex-post facto research design involves the ascertaining of the impact of past factors on the present happening or event.

The population of any study comprises of the 56 listed manufacturing companies on the Nigerian Exchange Group as at July 2023.

The purposive and judgmental sampling methods are used in selecting the sample for the study. The study purposively selects 25% of the total population as sample size of the study. The reason for 25% is to enable the study select a sample size that is above the general 10% rule of thumb similarly used by Tapang, Bessong and Ujah (2015); as well as enable the study get a workable number of observation that enhances a non-spurious regression. Also, the study is aware that most companies are yet to publish their annual reports for 2022 while other do not have all the data for the study variables in their reported financial statement thus, using all the population as sample size is not feasible. The arrive at 14 companies that makes up the 25% sample size given the data availability constraint; the study judgmentally selected the 14 sampled companies. The main criteria for selection of the companies are:

1. They must be listed on the Nigerian Exchange Group during the period under investigation and must also be operational during the relevant period.
2. Each company selected must also have complete data covering the period under investigation (2015 to 2022).

The 14 companies selected amongst the manufacturing sector are; Conoil, Berger Paints, Beta Glass, CAP PLC, Curtix PLC, Dangote Cement, Lafrage PLC, Meyers PLC, OKOMO OIL PLC, UAC, GLAXOSMITH, Mayers & Bakers, MRS oil PLC, and Cadbury.

The research work adopts the secondary source of data in obtaining all the data needed for the study. Extracted data from the audited financial statements of the sampled companies is meticulously examined and relevant data extracted from the period 2015-2022is used for analysis. The descriptive statistics issued to summarize the collected data in a clear and understandable way using numerical approach. The Panel regression technique is adopted in investigating the relationship between the dependent and independent variable.

3.2 Model Specification

This study adapts the method used in the work of Kliestik et al. (2018), which is stated as;
Profitability =f (Long-term debt)……. Model 1
The study seeks to modify the above stated model in order to capture cost of interest as debt tax shield and non-debt tax shied which is missing in the model framework of Kliestik et al. (2018). Kliestik et al. (2018) considered long term financing horizon in their model as tax shield which is not in line with MM 1958 preposition. As a result, the study formulates the following model to be used by the researcher in the investigation.

$$ROA_{it} = \alpha + \beta_1 NDTS_{it} + \beta_2 DTS_{it} + FSZ_{it} + CFO_{it} + U_{it} \text{..... .....} Model2$$

$$ROE_{it} = \alpha + \beta_1 NDTS_{it} + \beta_2 DTS_{it} + FSZ_{it} + CFO_{it} + U_{it} \text{..... .....} Model3$$

$$EPS_{it} = \alpha + \beta_1 NDTS_{it} + \beta_2 DTS_{it} + FSZ_{it} + CFO_{it} + U_{it} \text{..... .....} Model4$$

Where;
α = Constant
ROA =Return on assets (Profit after tax divide by total assets of the firm at a time)
ROE = Return on equity (Profit after tax divide by total equity of the firm at a time)
EPS =Earnings per share (reported earnings per share of the firm at a time)
NDTS = Non Debt Tax Shied (Log of Depreciation cost of the firm at a time)
DTS = Debt Tax Shied (Log of interest cost of the firm at a time)
FSZ = Firm size representing the first control variable (Log of total assets of the firm at a time). This is to enable the model control for large disparity in the log values of NDTS and DTS in the model.
it= Cross-sectional(i) time (#i)
U = Error term used in the model.
β_1- β_2= Beta coefficient of the independent variables.
Decision Rule: Accept the null hypothesis if the calculated value is greater than the significant level of 0.05.

4.0 RESULTS AND DISSCUSION

This chapter presents and discusses result for the data collected using the method stipulated in chapter three of the study. The current chapter consists of the presentation and analysis of the panel data extracted from the manufacturing companies' annual reports from 2015 to 2022. The chapter starts with data presentation and analysis, followed by test of hypotheses and concludes with discussion of findings.

4.1 Data Presentation

This section presents the procedures that are followed in explaining the data used for this study which include; descriptive statistics and data stationarity test. The actual data used for this analysis is placed in appendix 1 at the end of the study for perusal.

4.1.1 Descriptive Statistics

Table4.1 presents the results of descriptive statistics of NDTS,DTS,ROA, ROE, EPS, LIQ, LEV, FSZ, and CFO variables used in the analyses. The mean values, maximum, minimum, and Standard Deviation are recorded. The number of observations for the study is 112 (14 manufacturing companies for 8 years each).

Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
NDTS	112	2907061	6599433	14184	2.87e+07
DTS	112	1263269	3990692	869	3.38e+07
ROA	112	.1237987	.1199297	-.021461	.6589313
ROE	112	.2270648	.2025305	-.049944	.8442089
EPS	112	356.6545	554.9265	-743	2825
LIQ	112	1.612923	.8844639	.2207391	6.047128
LEV	112	.4782827	.1693139	.0940772	.8397808
FSZ	112	6.36e+07	1.34e+08	1124475	6.16e+08
CFO	112	1.417337	3.616805	-9.774221	23.14257

Source: Author's Computation from Stata Tables in Appendix II

For independent variables, NDTS data reveal a mean value of 290,706,100 Naira with a deviation of 659,943,300 Naira. NDTS has a maximum and minimum values of 2.87billion Naira and 1,418,400 Naira. On the other hand, DTS show a mean of 126,326,900 Naira with a standard deviation of 399,069,200 Naira. DTS has maximum and minimum values of 3.38billion Naira and 869,000 Naira respectively.

For the dependent variables, the ROA data reveal a mean of 0.1237987 with a standard deviation of 0.1199297. The maximum and minimum values of ROA are 0.6589313 and -0.021461 respectively. Also, the ROE reveal a mean ratio of 0.2270648 with a deviation of 0.2025305. ROE further reveal a maximum value of 0.8442089 with a minimum value of -0.049944. Furthermore, data for EPS reveal a mean of 356 kobo with a standard deviation of 554 Kobo. The maximum and minimum values of EPS are 2825 and -743 Kobo respectively. Again, the LIQ reveal a mean ratio of 1.612923 with a deviation of 0.8844639. LIQ further reveal a maximum value of 6.047128 with a minimum value of 0.2207391. Lastly, the LEV reveal a mean ratio of 0.4782827 with a deviation of 0.1693139. LEV further reveal a maximum value of 0.8397808 with a minimum value of 0.0940772.

In respect to the study control variables, the FSZ data reveal a mean ratio of 6.36 billion Naira with a deviation of 1.34 billion Naira. FSZ further reveal a maximum value of 61.16 billion Naira with a minimum value of 112,447,500 Naira. Finally, the CFO data which measures the long-term

liquidity of the companies shows a mean ratio of 1.417337 with a deviation of 3.616805. CFO further reveal a maximum value of 23.14257 with a minimum value of -9.774221.
The variables' maximums, minimums, averages, and deviations represent the properties of the data for each variable and the resulting level of variation.

Table 4.2: Hausman/Multicollinearity/Autocorrelation Test Tables

	Hausman	Method	VIF	DW
Model 1 (ROA)	0.6016	Random	2.55	.36014595
Model 2 (ROE)	0.0160	Fixed	2.55	.13271491
Model 3 (EPS)	0.7012	Random	2.55	.23498987
Model 4 (LIQ)	0.0016	Fixed	2.55	.415535
Model 5 (LEV)	0.0319	Fixed	2.55	.43878231

Source: Author's Computation from Stata Tables in Appendix II

The Hausman test result is discussed side by side the VIF and DW test for each model in this sub-section. This is to ensure the validity of each model before final analysis of the model result.

For model 1 which test the effect of tax shields (NDTS & DTS) on ROA controlled by FSZ and CFO, the Hausman test reveal a probability statistic of 0.6016>0.05. This informs the study decision to choose the random effect model in analyzing the model 1 outcome. The average VIF of 2.5<10 for NDTS and DTS, controlled by FSZ and CFO, shows that the model is free from multicollinearity issues, while the DW statistics of 0.36014595<2, reveals that, the model is free from autocorrelation issues. This then means that, result from Random effect model is valid for analysis in respect to model 1.
In respect to model 2 which test the effect of tax shields (NDTS & DTS) on ROE controlled by FSZ and CFO, the Hausman test reveal a probability statistic of 0.0160<0.05. This informs the study decision to choose the fixed effect model in analyzing the model 2 outcome. The average VIF of 2.5<10 for NDTS and DTS, controlled by FSZ and CFO, shows that the model is free from multicollinearity issues, while the DW statistics of 0.13271491<2, reveals that, the model is free from autocorrelation issues. This then means that, result from fixed effect model is valid for analysis in respect to model 2.
For model 3 which test the effect of tax shields (NDTS & DTS) on EPS controlled by FSZ and CFO, the Hausman test reveal a probability statistic of 0.7012>0.05. This informs the study decision to choose the random effect model in analyzing the model three outcome. The average VIF of 2.5<10 for NDTS and DTS, controlled by FSZ and CFO, shows that the model is free from multicollinearity issues, while the DW statistics of 0.23498987<2, reveals that, the model is free from autocorrelation issues. This then means that, result from random effect model is valid for analysis in respect to model 3.
In respect to model 4 which test the effect of tax shields (NDTS & DTS) on LIQ controlled by FSZ and CFO, the Hausman test reveal a probability statistic of 0.0016<0.05. This informs the study decision to choose the fixed effect model in analyzing the model 4 outcome. The average VIF of 2.5<10 for NDTS and DTS, controlled by FSZ and CFO, shows that the model is free from multicollinearity issues, while the DW statistics of 0.415535<2, reveals that, the model is free from autocorrelation issues. This then means that, result from fixed effect model is valid for analysis in respect to model 4.

Finally, for model 5 which test the effect of tax shields (NDTS & DTS) on LEV controlled by FSZ and CFO, the Hausman test reveal a probability statistic of 0.0319<0.05. This informs the study decision to choose the fixed effect model in analyzing the model 5 outcome. The average VIF of 2.5<10 for NDTS and DTS, controlled by FSZ and CFO, shows that the model is free from multicollinearity issues, while the DW statistics of 0.43878231<2, reveals that, the model is free from autocorrelation issues. This then means that, result from fixed effect model is valid for analysis in respect to model 5.

4.2.2 Regression of the estimated model

Table 4.3: Regression Results for the Five Models

Model	**ROA**	**ROE**	**EPS**
R^2overall	0.0794	0.0652	0.2123
	Random	Fixed	Random
Constant	.6766557	.8082411	2.017058
NDTS (coe)	.053938	.1498414	.0684463
DTS (coe)	.0325643	.0756365	.0285063
FSZ (coe)	-.1422398	-.0223501	-.0397058
CFO (coe)	.0031688	.0092577	.0387342
F/ChiStat	14.07	**3.88**	**16.45**
F.Prob	0.0071	**0.0058**	0.0025

Source: Extracted from Author's Computation in Appendix ii

The Panel regression results for the 5 models are presented in tables 4.3 above. The outcomes are discussed below:

For model 1, which tested the effect of tax shields (NDTS & DTS) on ROA controlled by FSZ and CFO; the overall R^2 (R-square) value of 0.0794 shows that, the tax shields collectively cause the ROA to change by 7.94%, while the remaining 92.06% is caused by other factors not incorporated in the study. The other factors could be tax rates or corporate governance decisions. Furthermore, the constant value of 0.6766557 shows that, given intercept only model, the ROA value will have a positive value of 0.6766557 without considering the effect of tax shield strategies. But a unit variation in NDTS controlled by FSZ and CFO in the model will lead to a 0.053938increase in ROA while a unit variation in DTS controlled by FSZ and CFO in the model will lead to a 0.0325643 increase in ROA. Lastly, model 1 reveals a Wald chi-square statistics (chi.Stat) of 14.07 with an accompanying Probability value of 0.0071 indicating the statistical significance and fitness of the model.

In respect to model 2, which tested the effect of tax shields (NDTS & DTS) on ROE controlled by FSZ and CFO; the overall R^2 (R-square) value of 0.0652 shows that, the tax shields collectively cause the ROE to change by 6.52%, while the remaining 93.48% is caused by other factors not incorporated in the study. The other factors could be tax rates or corporate governance decisions. Furthermore, the constant value of 0.80822441 shows that, given intercept only model, the ROE

value will have a positive value of 0.80822441 without considering the effect of tax shield strategies. But a unit variation in NDTS controlled by FSZ and CFO in the model will lead to a 0.14988414increase in ROE while a unit variation in DTS controlled by FSZ and CFO in the model will lead to a 0.0756365 increase in ROE. Lastly, model 2 reveals a Fisher statistics (F.Stat) of 3.88 with an accompanying Probability value of 0.0058 indicating the statistical significance and fitness of the model.

For model 3, which tested the effect of tax shields (NDTS & DTS) on EPS controlled by FSZ and CFO; the overall R^2 (R-square) value of 0.2123 shows that, the tax shields collectively cause the EPS to change by 21.23%, while the remaining 78.77% is caused by other factors not incorporated in the study. The other factors could be tax rates or corporate governance decisions. Furthermore, the constant value of 2.017058 shows that, given intercept only model, the EPS value will have a positive value of 2.017058 without considering the effect of tax shield strategies. But a unit variation in NDTS controlled by FSZ and CFO in the model will lead to a 0.0684463increase in EPS while a unit variation in DTS controlled by FSZ and CFO in the model will lead to a 0.0285063 increase in EPS. Lastly, model 3 reveals a Wald chi-square statistics (chi.Stat) of 16.45 with an accompanying Probability value of 0.0025 indicating the statistical significance and fitness of the model.

In respect to model 4, which tested the effect of tax shields (NDTS & DTS) on LIQ controlled by FSZ and CFO; the overall R^2 (R-square) value of 0.0197 shows that, the tax shields collectively cause the LIQ to change by 1.97%, while the remaining 98.03% is caused by other factors not incorporated in the study. The other factors could be tax rates or corporate governance decisions. Furthermore, the constant value of 9.017319 shows that, given intercept only model, the LIQ value will have a positive value of 9.017319 without considering the effect of tax shield strategies. But a unit variation in NDTS controlled by FSZ and CFO in the model will lead to a 0.4119273increase in LIQ while a unit variation in DTS controlled by FSZ and CFO in the model will lead to a 0.4031915decrease in LIQ. Lastly, model 4 reveals a Fisher statistics (F.Stat) of 1.87 with an accompanying Probability value of 0.0215 indicating the statistical significance and fitness of the model.

Finally, in respect to model 5, which tested the effect of tax shields (NDTS & DTS) on LEV controlled by FSZ and CFO; the overall R^2 (R-square) value of 0.0110 shows that, the tax shields collectively cause the LEV to change by 1.10%, while the remaining 98.90% is caused by other factors not incorporated in the study. The other factors could be tax rates or corporate governance decisions. Furthermore, the constant value of -1.180942 shows that, given intercept only model, the LEV value will have a negative value of 1.180942 without considering the effect of tax shield strategies. But a unit variation in NDTS controlled by FSZ and CFO in the model will lead to a 0.0018212decrease in LEV while a unit variation in DTS controlled by FSZ and CFO in the model will lead to a 0.0427555increase in LEV. Lastly, model 5 reveals a Fisher statistics (F.Stat) of 3.96 with an accompanying Probability value of 0.0052 indicating the statistical significance and fitness of the model.

4.3 TEST OF HYPOTHESES

Table 4.4: Hypotheses Results for the Five Models

Model	ROA (Pr)	ROE	EPS
NDTS	0.087	0.021	0.570
DTS	0.067	0.026	0.675

The decision rule is: Reject HO if the calculated P-value of t-statistic is </=0.05. Otherwise, do not reject HO.

Source: Extracted from Author's Computation in Appendix ii

Ho_1: Tax shields (debt tax shied and non-debt tax shield) have no significant effect on return on assets of listed manufacturing firms in Nigeria.

From table 4.4, the P value for NDTS and DTS against ROA in model 1 revealed a calculated p-value of 0.087>0.05 and 0.067>0.05. As a result, the study accepts the null hypothesis and rejects the alternative thus, concludes that, non-debt tax shield and debt tax shield have no significant effect on return on assets of listed manufacturing firms in Nigeria.

Ho_2: Tax shields (debt tax shied and non-debt tax shield) have no significant effect on return on equity of listed manufacturing firms in Nigeria.

From table 4.4, the P value for NDTS and DTS against ROE in model 2 revealed a calculated p-value of 0.021<0.05 and 0.026<0.05. As a result, the study rejects the null hypothesis and accepts the alternative thus, concludes that, non-debt tax shield and debt tax shield have significant effect on return on equity of listed manufacturing firms in Nigeria.

Ho_3: Tax shields (debt tax shied and non-debt tax shield) have no significant effect on earnings per share of listed manufacturing firms in Nigeria.

From table 4.4, the P value for NDTS and DTS against EPS in model 3 revealed a calculated p-value of 0.570>0.05 and 0.675>0.05. As a result, the study accepts the null hypothesis and rejects the alternative thus, concludes that, non-debt tax shield and debt tax shield have no significant effect on earnings per share of listed manufacturing firms in Nigeria.

4.4 Discussion of findings

In this sub-section, the study discusses the findings from the test of hypotheses and regression analyses done above. The discussion is linked to past evidence as well as theoretical prepositions. Below is an objective-by-objective discussion.

Examine the effect of tax shields (debt tax shied and non-debt tax shield) on return on assets of listed manufacturing firms in Nigeria

From the first hypothesis tested revealed, the current study result revealed that, non-debt tax shield and debt tax shield have no significant effect on return on assets of listed manufacturing firms in Nigeria. This conforms with the evidence shown in the study done by Vinasithamby (2015) carried out in Sri lanka and that of Susilo, Wahyudi and Pangestuti (2020) who examined the non-debt tax shield and profitability of manufacturing companies listed on the Indonesia stock exchange. They found that, non-debt tax shield has no effect on profitability of the firms. On the other hand, the study finding contradicts with that of Ohaka et al. (2020) who examined the effect of debt financing

on firm's financial performance in Nigeria. using Panel econometric tools they found that, debt financing have positive and significance effect on the profitability of listed firms in Nigeria capital market. The reason for the contradiction could be due to the fact Ohaka et al. (2020) considered the entire debt structure of the companies while the current study is based on interest on debt as tax shield variable.

5.0 CONCLUSION AND RECOMMENDATIONS

5.2 Conclusion

From the findings of the study above, the following conclusions are made:

i. Non-debt tax shields and debt tax shields have positive insignificant effects on return on assets of listed manufacturing firms in Nigeria.
ii. Non-debt tax shields and debt tax shields have positive significant effects on return on equity of listed manufacturing firms in Nigeria.
iii. Non-debt tax shields and debt tax shields have positive insignificant effects on earnings per share of listed manufacturing firms in Nigeria.

5.3 Recommendations

In line with the findings of this study, the following recommendations are made;

i. Based on a study's evidence, it was found that tax shields had an insignificant effect on the return on assets of manufacturing firms in Nigeria. Thus, it is recommended that, while tax shields are often considered beneficial, this research suggests that their impact may be limited in the manufacturing sector owing to financing cost factors that managers need to consider before making tax shield plans.
ii. This study's finding sheds light on the crucial role of tax shield strategies in enhancing financial performance. Understanding these findings in light of minimizing cost of interest and keeping optimal depreciation and amortization cost can help firms optimize their tax planning and ultimately improve return on equity.
iii. Based on the study's findings, it is recommended that manufacturing firms in Nigeria focus on other factors influencing earnings per share rather than relying solely on tax shields. Exploring strategies like operational efficiency, cost management, and revenue growth may yield more significant and sustainable improvements in their earnings per share.

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