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Tax Shield and Firms Value of Quoted Manufacturing Companies in Nigeria

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ABSTRACT: *This study investigated the effect of tax shield on firms' value of selected manufacturing companies in Nigeria from 2012 to 2021. The dependent variable of this study was firm value which was proxied by Tobins Q, while the independent variables were debt tax shield, depreciation tax shield and charitable donation tax shield. The research design adopted for the study was ex post facto, secondary data were employed, three hypotheses were tested and purposive sampling technique was used. The data for the study were analyzed using ordinary least square regression technique and the statistical tool package used was SPSS Version 20. From the result of the analysis, it was found out that debt tax shield, depreciation tax shield and charitable donation tax shield have significant effect on market value of selected manufacturing firms in Nigeria. Hence, it was concluded that tax shield could be used to optimize the value of manufacturing firms' in Nigeria. Based on the outcome of this study, it was recommended among others that management of manufacturing firms should consider increasing debt financing, invest more in non-current asset, take advantage of charitable donation as means to enhance corporate image and maintain a proper mix of tax shield in the firm thus bringing overall benefit to shareholders and prospective investors.*

KEYWORDS: Tax shield, debt tax shield, depreciation tax shield, charitable donation tax shield, firms' value

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INTRODUCTION

In the area of public finance, one of the most widely discussed issues is the taxation system. Taxes are compulsory charges levied by the government on the income, gain, profit, property and consumption of private individuals and corporate entities. They are statutory obligations of all individuals and businesses in a country. The 1999 Constitution of the Federal Republic of Nigeria provides that every individual who is an adult is expected to pay a certain percentage of his or her income as tax and the Companies and Allied Matters Act, Cap. C20 Laws of the Federation of Nigeria 2004 also provides that a registered company is statutorily required to pay 30% of its taxable profit as income tax (Nwaobia, 2018). Hence income tax constitutes a significant cost to both private individuals and companies. In a bid to reduce the impact of tax on income and profit and consequently the firm value, tax shield becomes imperative. Tax shield means the methods employed by taxpayers to compute tax payable in such a way to legally reduce the amount of tax payable. The Government on the other hand is anxious to generate revenue; hence stiff penalties are imposed on taxpayers for non-compliance with tax laws. Such penalties may include imposition of levies and penalties, forfeiture of property or in extreme cases of violation of tax laws penalties may mean imprisonment as may be decided by a court of competent jurisdiction (Isola, Frank &Leke 2015; Lawal, Olayanju, Salisu, Asaleye, Dahunsi, Dada, Omoju&Popoola 2019). However, there is no tax legislation that compels its citizens to pay more than required therefore it is rational that taxpayers may wish to explore relevant provisions in the tax laws to reduce the amount of tax that they pay to the relevant tax authorities.

Consequently, tax payer behaviour often tend towards engaging in tax avoidance to ensure that less possible tax is paid without infringement and thereby make tax savings. Ariwodola (1991) posit that tax shield is concerned with maximizing opportunities created in tax legislations to trim down or reschedule tax payment within the scope of tax law. Hanlon and Heitzman (2010) stated that tax shield is any diminution in explicit taxes. It embraces all legal means employed by individual or corporate taxpayers with the objective of maximizing allowances, exemptions and reliefs are fully browbeaten. Firm value represents the assets owned by a company. It is crucial because it describes the prosperity of the business owners. The manager being the representative of the owners of the business is responsible for optimal maximization of the value of the firm which forms the fundamental objective of any organization. A high firm value indicates that the company is prosperous and hence the shareholders' wealth is maximized. The desire of shareholders is increasing firm value because the increasing of firm value shows higher shareholders' prosperity. The wealth of shareholders and company is presented by stock price as a reflection of investment decision,

finance, and assets management. Tax shield is a component of investment decision that business managers ought to make to improve a firms' value (Bauer, 2014).

Therefore, the management of business organizations needs scrupulous facts of tax laws and their appliance to fastidious condition in recognizing and winning advantages of the rules to maximise tax shield. However, the issue of tax shield and the best suitable scheme to be employed that would not violate the law has been the dilemma of tax payers since time immemorial and such behaviours are common everywhere taxes are imposed. Concern of corporations is the consideration of how taxes obviously trim down their distributable earnings and this could be the ideology for the incessant seek for tax reduction. While the payment of more taxes helps to increase the funds available to the government for the improvement of the society, firms need not pay their fair share in order to minimize effect of tax on the affluence of equity holders (Ezeoha, 2010). Armstrong, Blouin, Jagolinger, and Larcker (2013) opined that tax shield is a crucial investment decision that business managers ought to make to improve shareholders value. It is expected that factors that influence firms' overall investment strategy and position would most likely affect its value.

Tax shield is the result of tax deductibility of business expenses. A tax shield is a reduction in taxable income for an individual, or corporation achieved through claiming allowable deductions such as mortgage interest, medical expenses, charitable donations, amortization and depreciation. These deductions reduce a tax payer's taxable income for a given period or defer income taxes into future years. Tax shield is believed to be as important as it affects the amount of debt held. To avoid paying more tax, firms prefer to take more debt. Interest multiplied by the corporation tax rate yields tax shield which is a benefit to the firm and this benefit is promoted by static trade-off theory which predicts that the more tax amounts that a firm has to pay, the greater the debt it will have in its capital structure. Firms with higher debts tax shield are likely to use more debt while firm with higher non-debt tax shields are likely to use less debt. Given the current worldwide trend of lowering corporate tax rates, the debt tax shield is an important policy tool that can be used to reduce the loss of corporate tax revenue due to lower statutory corporate tax rates.

Besides shielding tax with debt or leverage structure, it has also been established that tax strategy could also involve using non-monetary saving such as depreciation to reduce the amount of taxes paid by corporation. This implies that investment in fixed asset is a good strategy that can be employed with much success (Onaolapo & Kajola, 2010, Otekunrin *et al*, 2018). The profit motive of a business has often been perceived as representing a lack of concern for all other objectives of a business organisation. In this regard, businesses are realizing that in order to stay profitable in a rapidly changing environment, they would have

to become socially responsible and promote their public image. For society as a whole, corporate philanthropy may yield important benefits (to non-shareholders) that can increase social welfare. At first sight, corporate philanthropy may seem inconsistent with maximizing shareholder wealth, because giving money or other assets away contradicts the commercial, profit-making purpose of a company (Friedman, 1970). According to such rationales, grouped under the agency theory, the primary reason why managers would still decide to donate is because it satisfies their personal altruistic needs or yields other private benefits. In other words, managers serve their own interests at the expense of the shareholders. In contrast, the value-enhancement view argues that corporate philanthropy increases the value of the firm.

In majority of developed countries of the world with strong and efficient tax laws and proper monitoring, the impact of tax shield on a firms' value can clearly be evident. Unfortunately, Nigerian case is different. The Nigerian tax law provides firms with an incentive to use debt financing and other allowable deductions but the extent to which firms take advantage of this opportunity in debt financing remains obnoxious and unclear. Little is known of studies that have been carried out to ascertain the effects of tax shield on firms' value using debt tax shield, depreciation tax shield and charitable donation tax shield. Moreover, studies on the effects of various taxes and firms' value have produced mixed results. The results of previous empirical literature on the effect of tax shield on firms' value are not unanimous; some came out with positive, negative, no effect and also previous studies remains silent on the use of firm size as a control variable and how best a firm can optimize the value of manufacturing firms which justifies further research. It is against this background that this study was carried out.

REVIEW OF RELATED LITERATURE

Tax shield

Tax shield is a reduction in taxable income for an individual or corporation achieved through claiming allowable deductions such as mortgage interest, medical expenses, charitable donations, amortization, and depreciation. These deductions reduce a taxpayer's taxable income for a given year or defer income taxes into future years. As noted by Ezeoha and Ogamba (2010) tax shield is a reduction in taxable income by taking allowable deductions and it is the deliberate use of taxable expenses to offset taxable income. The intent of a tax shield is to defer or eliminate a tax liability. This can lower the effective tax rate of a business or individual, which is especially important when their reported income is quite high. Examples of taxable expenses used as a tax shield are: paying out funds for charitable contributions, to charge off the contributions as a taxable expense; incurring debt, in order to charge off the related interest expense as a taxable expense; incurring medical expenses, in

order to charge off the payments as a taxable expense; and acquiring fixed assets, in order to charge accelerated depreciation or amortization (in the case of intangible assets) as a taxable expense.

The term tax shield references a particular deduction's ability to shield portions of the taxpayer's income from taxation. According to Charities Aid Foundation (2016) tax shields vary from country to country, and their benefits depend on the taxpayer's overall tax rate and cash flows for the given tax year. For example, because interest payments on certain debts are a tax-deductible expense, taking on qualifying debts can act as tax shields. Tax-efficient investment strategies are cornerstones of investing for high net worth individuals and corporations, whose annual tax bills can be very high (Yusuf &Abubakar, 2017). Tax shields differ between countries and are based on what deductions are eligible versus ineligible. The value of these shields depends on the effective tax rate for the corporation or individual. According to Kliestik and Michalkova (2018) tax shields increase cash flow because they keep more money in a business. The cash flow statement, which is one of the financial statements that a business produces, lists expenses, including taxes paid on operating activities and investment activities. Tax shields directly reduce these amounts without affecting income. The issue of tax shields is an increasingly important object of interest for both business managers and academics.

Firms' value

Firm's value represents the assets owned by a company. It is crucial because it describes the prosperity of the business owners. The manager being the representative of the owners of the business is responsible for maximization of the value of the firm which forms the fundamental objective of any organization. A high firm value indicates that the company is prosperous and hence the shareholders' wealth is maximized. The desire of shareholders is increasing firm value because this shows higher shareholders' prosperity. The wealth of shareholders and company is presented by stock price as a reflection of investment decision, finance, and assets management. Basically, it is expected that higher leverage should bring about higher firm value because of the fact that debt is not tax deductible, which increase the net income or future streams of income of the firm. However, because this future stream of income must be discounted by the risk adjusted cost of fund, the risk of default will create a counter effect on the gains in terms of reduced present value of future streams of earning and in effect market value. Franks and Pringle (1982) however opined that the value of firms does actually depend on not just the level of debt of the firm but it also takes the debt capacity of the firm in question into consideration.

To optimize firm value therefore, some researchers like Modigliani and Miller (1969) have simply prescribed a continuous increase in firm leverage so long as the firm's total cost of financing debts (which includes debt issuing costs, bankruptcy costs, agency costs), is less than the total benefits (such as interests tax shields, lower agency cost of equity). However, under the traditional theory of capital structure paradigm the relationship between leverage and firm value is depicted as a concave shape having an optimal capital structure at the point where the gradient of the function is zero. In this way, other researchers like Robicheck and Meyer (1966), Hamada (1969) and Schall (1972) recommended the use of an equi-marginal principle which suggests that firm value continues to rise so long as marginal gains from leverage is higher than marginal expected loss from the default costs. When marginal gain becomes smaller than the marginal cost the firm value declines (Kim, 1978).

Firm size

A determinant of the firms' value that was analyze in this study is the size of the firm. The trade-off theory sustains a positive relationship between size and tax shield. This theory suggests that large firms are more diversified, have lower financial distress and agency costs. Thus, they are able to borrow more than other small companies and therefore enjoy higher debt tax shield. The authors Lopez-Garcia & Sogorb-Mira (2008) found a positive relationship in small and medium firms and they confirm that the risk of bankruptcy is related with the size.

Debt tax shield and firms' value

Debt tax shield refers to reduction in taxable income resulting from allowability of interest on debt expenses as a reduction from taxable income. This concept as well as it is effect on the firm has been the focus of theories such as the Irrelevance theory of Modigliani and Miller (1958), Modigliani and Miller (1963), the agency theory of Jensen and Meckling (1979), the trade-off theory of Mayer (1984). Modigliani and Miller (1967) had postulated that a firm debt was not only taking advantage of tax-free debt to lower cost but that since debts are by virtue of arbitrage channels risk-free, firms can take advantage of the tax shield and still not have to bother about their finance risks. Myers (1977) however noted that existing shareholders of firms with high levels of debt will only be motivated to invest more if and only if expected return on investment is greater than or as much as the returns long term creditor are promised. Otherwise Shareholders refuse to make more investment which may lead to situation he termed as underinvestment. This expectation of shareholders is explained by the fact that the more debt a firm incurs the more it tends to expose the direct owners or shareholders to greater risk and as such justifies higher returns for the owners. Schmidt and Tyrell (2002) noted that debts many times are either sourced from the capital market or the banks, such that firms which obtain more of their debt through the issue of bonds in the capital market are referred to as capital market dominated and where the reverse obtains they

are referred to as bank dominated. Taking into consideration the above consideration, debt tax shield, particularly when it is high, increases the firms' value through improving the firm asset base and tax deductable on interest charge. The consequence is that the more debt interest payment by manufacturing firms in Nigeria the more likely it affects the value of firms by boosting their production capacity. In these circumstances, management of the manufacturing firms consider increasing debt financing which will lead to improved debt tax shield. Based on the above, it was hypothesized that:

Ho_1: *Debt tax shield has no significant effect on the value of listed manufacturing firms in Nigeria.*

Depreciation tax shield and firms' value

Depreciation is the allocation of the cost of long-lived asset to the period that benefit from the use of such asset. In business, the purchase of fixed asset for use in the business is seen as investment because it leads to out flow of fund with the potential to generate future benefits. To encourage investments outlays, such out flow is usually compensated with capital allowance deductions that are not taxable that usually approximates the depreciation charge.

In taxation, because there are various methods for calculation of depreciation and depreciation being a function of company's policy, section 21(g) of Personal Income Tax Act of 1993 as amended to date, treat it as non-allowable expenditure but the 5th Schedule of the same Act in compensation for purchase and use of fixed asset in business, made provision for capital allowance in place of depreciation. Abbas, Bashir and Akram (2013) in their study found firm's performance and tax saving strategy to be significantly affected by depreciation and other non-debt tax shielding strategies that can be effectively employed by companies. Non-debt tax shield are those other items different from interest expense that contribute to the reduction in tax payment obligation. For instance, tax deduction for depreciation and bad debts are labelled as non- debt tax saving strategies. Bauer (2004) opined that corporation with enough tax credit from investment or depreciation deductions are likely to use less debt financing as a tax saving as cited in Kuok and Said (2012). Consequently, firms with huge fixed asset investment may opt to use depreciation as tax shield rather than interest expense to optimize a firms' value; this behaviour may be informed by the need to stave off possible cost of bankruptcy that more debts can generate when they are overused. Based on the above, it was hypothesized that:

Ho_2: Depreciation tax shield has no significant effect on the value of listed manufacturing firms in Nigeria.

Charitable donation tax shield and firms' value

According to the value-enhancement view, corporate donations may increase firm value. Although firms usually pretend to donate out of altruistic convictions, corporate philanthropy is often presented and justified by managers as shareholder value-enhancing. For example, companies may benefit from the goodwill generated by corporate giving, resulting in a higher employee morale and customer loyalty, and more lenient treatment by regulators or government officials (Brown et al., 2006). Although there is considerable support for such a value-enhancement theory in the literature, the empirical evidence is largely indirect. Navarro (1988) argues that donations enhance revenues through improving the firm's reputation and increasing demand for the firm's products, because there is a positive relation between advertising and the donations-to-sales ratio. Moreover, corporate donations can bring about managerial perks for executives, such as meeting with celebrities at charity events. This could inspire employees to strive for promotion and form a far more cost-effectively method to motivate lower level personnel than equivalent amounts of salary (Rajan &Wulf, 2006). The more closely a company's philanthropy is linked to the firm's competitive context, the greater the company's contribution to society will be, according to Porter and Kramer (2012). Corporate giving can enable managers and directors to support their own pet charities, which means that they pursue private objectives at the expense of the firm (Brown et al., 2006). In addition, corporate giving creates some kind of 'warm-glow' effect for insiders, since they enhance their reputations as individuals who care about people and communities (Andreoni, 1990). Executives may be keen to expand their networks and improve their own image at e.g. a charity gala or a celebrity golf tournament (Balotti & Hanks, 1999). Thus, corporate giving may enable managers to further their own objectives, boost their personal reputation, attract media attention, advance their careers and improve the overall firms' value of the organisation. Based on the above, it was hypothesized that:

Ho_3: *Charitable donation tax shield has no significant effect on the value of listed manufacturing firms in Nigeria*.

Theoretical framework

The trade-off theory by Modigliani and Miller (1963)

Tax shield remains one of the most important determinants of a firms' value and probably the most debated across empirical literature. However, the trade-off theory holds that the optimal level of debt in a firms' capital structure can be determined by the balance of tax shield provided by debt and the present value of financial distress costs (Myers, *2018).* Trade-Off Theory claims that firms have an incentive to use debt to benefit from debt tax-shields. So it can be stated that a firm has an incentive to turn to debt as the generation of annual profits allows benefiting from the debt tax shields. According to several studies (DeAngelo and

Masulis 1980; Haugen and Senbet 1986; Fama and French 2002; LópezGracia, Sogorb-Mira 2008), a positive relationship is expected between the effective tax rate and debt. Hence, there is a relationship between the corporate tax shield and firm value given that each increase in the debt portion of' a firms capital structure decrease the after tax cashflow. In summary, the trade-off theory states that firm value is based on a trade-off tax savings and distress costs of debt. The theory is capable of explaining why firm's value differs between industries whereas it cannot explain, why profitable companies within the industry have lower debt ratios (trade-off theory predicts the opposite as profitable firms have a larger scope for tax shields and therefore subsequently should have higher debt levels). This theory is so bulky and most of the statements are not your own and should be acknowledged appropriately. I have tried to remove some items please loot at it again and also state how the theory is related to your study.

METHODOLOGY

Research design

In this study *Expost facto* research design was adopted. This design was suitable for this study because the data used were historical. This is because the issues investigated relates to events that have already taken place and for which a causal-comparative evaluation was carried out to analyze the objectives of the study. Also, this study was longitudinal covering a period of ten (10) years from 2012 to 2021.Secondary data was the major sources of data used for this study. These secondary sources were obtained from audited annual reports of the listed manufacturing companies in the Nigerian Stock Exchange (NSE) Fact book for the time periods covered by the study (2012-2021). As at 2021 the total number of firms that was engaged in manufacturing activities and listed at the Nigeria Exchange Group was Forty-five (45). The sample size of 21 companies were purposively selected based on certain selection criteria. The data for the study were analyzed using ordinary least squares technique and the statistical tool used was ordinary least square regression analysis.

Model specification.

The model used in this study is expressed as given below:

Firms' Value=f(Tax Shield)

$FV_{it} = f(DTS, CDTS, DEPTS, FS)$ (i)

$FV_{it} = \beta_0 + \beta_1 DTS_{it} + \beta_3 CDTS_{it} + \beta_4 DEPTS_{it} + \beta_5 FS_{it} + \mu_{it}$ (ii)

$FVit = \beta_o + \beta_1 DCD_{it} + \mu_{it}$ (iii)

Where:

FV= Firms' value
DTS= Debt tax shield
CDTS= Charitable donation tax shield
DEPTS = Depreciation tax shield
FS= Firm size (control variable)
it = (i no of cross section and t = time periods)
μ = Stochastic term

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

Data presentation

The data sets required for this study were extracted from the financial statement of listed manufacturing firms on the floor of the Nigerian Exchange Group from 2012 to 2021. These data sets were used to compute the various variables of the study. The computed variables are firm value (FV), Debt tax shield, Depreciation tax shield (DEPTS) and charitable donation tax shield(CDTS) as well firm size (FS) (control variable).

Table 4.1 Descriptive Statistics of the effect of tax shield on firms' value

	N	Minimum	Maximum	Mean	Std. Deviation
FV (%)	206	-60.28	95.00	51.62	24.93
DTS (%)	206	.00	13.42	2.65	2.76
CDTS (%)	206	-.01	42.94	1.04	6.08
DEPTS (%)	206	.38	36.05	4.56	4.21
FS (N'000)	206	88,963.00	2,582,298,000.00	150,288,695.07	354674357.43
Valid N (listwise)	206				

Source: Researcher computation (2023).

Table 4.1 depicts the mean and standard deviations as well as maximum and minimum of the predictor variables and the dependent variable. Independent variables, DTS, CDTS, DEPTS have mean values of 2.65%, 1.04% and 4.56% respectively while the mean value of the dependent and control variable, is 51.62% and N150,288,695,000 respectively. The predictors, DTS, CDTS, DEPTS have standard deviation of 2.76%, 6.08% and 4.21%respectively while FV has 24.93% as its standard deviation. The standard deviation is a measure of the degree of dispersion of the data set from the mean.

The maximum values of the independent variables were; DTS (13.42%), CDTS (42.94%) and DEPTS (36.1%). This indicates the maximum percentage of the assets of the selected companies used for debt tax shield, charitable donation tax shield and deprecation tax shield. The maximum value of the firm value which was computed using Tobin's Q stood at 95.0%.

The minimum values for the dependent variable was -60.28% while that of the independent variables were DTS (0%), CDTS (-0.10%) and DEPTS (0.38%) respectively. The minimum firm size stood at ₦88,963,000.00.

Regression analysis Assumptions

Normality Test:

Table 4.2 Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Firm Value	.099	206	.000	.931	206	.000
Debt Tax Shield	.169	206	.000	.849	206	.000
Charitable Donations Tax Shield	.498	206	.000	.155	206	.000
Depreciation Tax Shield	.170	206	.000	.551	206	.000
Total Tax Shield	.077	206	.005	.978	206	.002
Firm Size	.042	206	.200*	.989	206	.103

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Source: Researcher's Computation (2023)

In Table 4.2, the results of the Kolmogorov-Smirnov statistic are presented. This assesses the normality of the distribution of scores. A non-significant result (Sig value of more than .05) indicates normality. From the analysis firm size has a non-significant result while the other variables showed significant result. This means that firm size was normally distributed while the other were not. This does not post any significant impediment as to their suitability as variable for regression analysis.

Multicollinearity Test:

Table 4.3 Collinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Debt Tax Shield	.331	1.019
	Charitable Donations Tax Shield	.436	1.294
	Depreciation Tax Shield	.351	1.849
	Total Tax Shield	.163	1.154
	Firm Size	.830	1.205

Source: Researcher's Computation (2023)

Multicollinearity refers to the relationship among the independent variables. Multicollinearity exists when the independent variables are highly correlated (r=.9 and above). The results are

presented in the Table 4.3. Two values are given: Tolerance and VIF. Tolerance is an indicator of how much of the variability of the specified independent is not explained by the other independent variables in the model and is calculated using the formula 1–R for each variable. If this value is very small (less than .10), it indicates that the multiple correlation with other variables is high, suggesting the possibility of multicollinearity. The other value given is the VIF (Variance inflation factor), which is just the inverse of the Tolerance value (1 divided by Tolerance). VIF values above 10 would be a concern here, indicating multicollinearity. None of the variables had any instance of multicollinearity, thus they were fit for regression analysis.

Autocorrelation Test:

One common test for autocorrelation is the Durbin-Watson test. This test examines whether the residuals from a regression model are autocorrelated. The Durbin-Watson test statistic ranges from 0 to 4, with values close to 2 indicating no autocorrelation, values less than 2 indicating positive autocorrelation, and values greater than 2 indicating negative autocorrelation. None of the Durbin-Watson values in the analysis showed any sign of autocorrelation.

Heteroskedasticity Test

Table 4.4 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.326922	Prob. F(4,94)	0.735
Obs*R-squared	12.27742	Prob. Chi-Square(4)	0.854
Scaled explained SS	48.79522	Prob. Chi-Square(4)	0.600

Source: Researcher's Computation (2023)

A test for heteroscedasticity, or the existence of uneven variances among the observations in a regression model, is the Breusch-Pagan-Godfrey test. The test's null hypothesis is that the variances are equal, while the alternative is that they are not equal. Three test statistics are listed in table 4.5, the F-statistic, Obs*R-squared, and Scaled explained SS. Additionally, the p-values for each of these statistics are given. A test for the combined importance of all independent variables in the model in explaining the variance in the residuals is the F-statistic. The F-statistic in this instance is 3.326922, and the p-value is 0.735. This suggests that there is no substantial correlation between the independent variables and the heteroscedasticity of the residuals, indicating that the joint significance of the independent variables is not statistically significant.

Regression Analysis

Table 4.3-4.5 depicts the results of the effect of tax shield on the firm value of selected manufacturing companies in Nigeria.

Table 4.5 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.545[a]	.297	.279	21.1728282	.999

a. Predictors: (Constant), Firm Size, Total Tax Shield, Charitable Donations Tax Shield, Depreciation Tax Shield, Debt Tax Shield

b. Dependent Variable: Firm Value

Source: Researcher computation (2023).

Table 4.5 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	37814.268	5	7562.854	16.870	.000[b]
	Residual	89657.731	200	448.289		
	Total	127471.999	205			

a. Dependent Variable: Firm Value

b. Predictors: (Constant), Firm Size, Total Tax Shield, Charitable Donations Tax Shield, Depreciation Tax Shield, Debt Tax Shield

Source: Researcher computation (2023).

Table 4.5 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	22.438	12.808		1.752	.081		
	Debt Tax Shield	4.686	.929	.520	5.047	.000	.331	1.019
	Charitable Donations Tax Shield	.552	.368	.135	1.500	.135	.436	1.294
	Depreciation Tax Shield	1.076	.592	.182	1.818	.071	.351	1.849
	Total Tax Shield	26.694	11.374	.345	2.347	.020	.163	1.154
	Firm Size	9.635	1.719	.365	5.604	.000	.830	1.205

a. Dependent Variable: Firm Value

Source: Researcher computation (2023).

$FV_{it} = \beta_0 + \beta_1 DTS_{it} + \beta_2 CDTS_{it} + \beta_3 DEPTS_{it} + \beta_5 FS_{it} + \mu_{it}$

Interpretation

$FV_{it} = 22.43 + 0.520DTS_{it} + 0.135CDTS_{it} + 0.182DEPTS_{it} + 0.365FS_{it} + 12.80_{it}$

A positive relationship exists between firm value (FV) and Depreciation tax shield (β_3 = +0.182) and debt tax shield (β_1 = +0.520). The result revealed a positive relationship between firm value and charitable donation tax shield (β_2=+0.135). The probability values for each of the independent variables were Debt tax shield (P-value = 0.000), charitable donation tax shield (P-value = 0.135) and depreciation tax shield (P-value = 0.071). This means that charitable donation tax shield and depreciation tax shield have insignificant effect on the firm value of the selected manufacturing firms in Nigeria. Instead the debt tax shield of the firm has significant effect on the value of the firm. The Adjusted R-value which measures the proportion of the changes in the firm value due to varieties in explanatory variables depicts that 0.279(27.9%) modifications in the firm value of the selected manufacturing firms in Nigeria was attributable to the interactions of the various tax shield in the model, while the remaining 72.1% were from other factors not captured in the model.

DISCUSSIONS OF RESULTS

Debt Tax shield and firms' value of selected manufacturing company in Nigeria

The result of the analysis of hypothesis one indicates that debt tax shield has positive influence on firms' value of manufacturing companies in Nigeria. The result of the analysis showed a beta coefficient for debt tax shield of 0.520 which implies that 52% of the variation in firm value is accounted for by debt tax shield. The positive influence shows that the value of firm is likely to increase as a result of debt tax shied adopted by the company. The finding is in line with the finding of Inaya and Ekwueme (2016) who investigated the relationship between corporate borrowing and tax shield among listed companies in Nigeria. Five specific variables namely tangibility, size, total debts, short-term debt and long-term debt as independent variables for thirty companies were used in order to measure their effect on firm's tax shield.

Depreciation tax shield and firms' value of selected manufacturing company in Nigeria

The result of the analysis of hypothesis two indicates that depreciation tax shield has insignificant effect on the value of listed manufacturing firms in Nigeria. The result of the analysis showed a beta coefficient for depreciation tax shield of 0.135 which implies that 13.5% of the variation in firms' value is accounted for by depreciation tax shield. The positive influence shows that the value of firm is likely to increase as a result of depreciation tax shied adopted by the company. This finding suggests 13.5% of times that a manufacturing

firm in Nigeria chooses depreciation tax shield a means of optimising its firm value, the decision is a function of the depreciation of the firm. The finding is in line with the finding of Beneish and Kasznik(1999) studied the effect of depreciation tax shield on capital structure. They noted that depreciation tax shield does not require companies to pay high cost so it could reduce the amount funds occupied. Therefore, companies have a strong incentive to choose the depreciation tax shield way to delay or reduce the taxes; all in all, the depreciation tax shield may be preferred over the debt tax shield. The depreciation tax shield plays a certain substitution effect on the debt tax shield.

Charitable donations tax shield and firms' value of selected manufacturing company in Nigeria

The result of the analysis of hypothesis three indicates that charitable donation tax shield has no significant effect on the value of listed manufacturing firms in Nigeria. The result of the analysis showed a beta coefficient for charitable donation tax shield of 0.182 which implies that 18.2% of the variation in firms' value is accounted for by charitable donations. The positive influence shows that the larger the charitable donation of the firm, the more likely for the firm to use charitable donation as means of optimizing its firms' value. This finding suggests 18.2% of times that a manufacturing firm in Nigeria chooses charitably donation a means of optimising its firm value. The finding is in agreement with the finding of Freeland *et al* (2015) who studied on the effect of total tax burden on total state income and found that an increase in tax burden of roughly 1 percentage point of total state income results in roughly a 0.09 percentage point decrease in measured charitable donations as a percent of income. A noted earlier in the paper, charitable giving as a percent of annual gross income (AGI) ranges from roughly 5.2 percent down to 1.15 percent across states and years. As such, total tax burden appears to have a large effect on charitable giving. The opposite of this figure is also true—a decrease in taxes is associated with an increase in charitable giving. This is statistically significant at the 0.000 level, which is a strong statistical relationship.

CONCLUSION AND RECOMMENDATIONS

Based on the result of the analysis it could be concluded that tax shield variables jointly influence optimization of firms' value in manufacturing firms in Nigeria. Based on the findings of the study, the following recommendations were raised; The management of manufacturing firms should consider increasing debt financing which will lead to improved debt tax shield. An increase in their debt will enhance their chances of improving firms' value thereby boosting their production capacity. Management of the manufacturing companies should invest more in non-current asset as this will improve the depreciation tax shield thus improving firms' value and bringing overall benefit to shareholders and prospective investor. Corporate managers should take advantage of charitable donation, as a marketing tool in

which sales are increased through enhanced corporate image and visibility, to create value to the firm while reducing tax burden.

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