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BOOK TAX DIFFERENCES AND FINANCIAL DISTRESS OF PUBLIC LISTED CONSUMER GOODS FIRMS IN NIGERIA

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ABSTRACT:

Firms whose financial conditions are not stable enough often embark on aggressive techniques to enable them reduce their tax expense. This process starts with manipulating the earnings of the company in such a way that the lowest amount of tax can be paid while making the financial stance of the firm look stable. The study ascertains the effect of Book Tax Differences (BTDs) on the financial distress of public listed consumer goods firms in Nigeria. Specifically, the study intends to determine the effect of temporary Book Tax Differences, permanent Book Tax Differences, total Book Tax Differences and discretionary total Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria was assessed at 1% significance level. Ex-post facto research design was deployed purposively in selecting the sample size of sixteen (16) consumer goods firms from a population of twenty-one (21). The study employed secondary data that were extracted from the audited financial statements and annual reports of the selected firms for a 10-year period, spanning from 2012 to 2021 financial years. Feasible Generalized Least Squares estimator was applied in the hypothesis testing. The results obtained that temporary Book Tax Differences have a significant and positive effect on the Altman's Z-Score of listed consumer goods firms in Nigeria (P>|z| = 0.000); permanent Book Tax Differences have a significant and positive effect on the Altman's Z-Score of listed consumer goods firms in Nigeria (P>|z| = 0.000); total Book Tax Differences have a positive but non-significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria (P>|z| = 0.184); discretionary Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria (P>|z| = 0.373). It was concluded that increase in temporary Book Tax Difference and permanent Book Tax Difference make the financial conditions of the firms look better while changes in total Book Tax Differences and those in discretionary Book Tax Differences do not alter the financial conditions of the firms. The study recommended that managers of consumer goods firms should engage in tax planning that increases their permanent book tax difference using legal means that yield tax savings in order to enhance the firms' financial conditions.

1. INTRODUCTION

Corporate income taxes are non-discretionary expenditure imposed by the government on all income-generating firms. At times, a number of managerial practices are observed which are aim at reducing the taxable income through tax planning activities, whether these are legal, questionable, or even illegal (Osegbue, Nweze, Ifurueze, & Nwoye, 2018). In Nigeria where the administration of corporate income tax is complex and ambiguous, there are possibilities for tax avoidance and non-compliance. In addition, corporate income tax in Nigeria is a huge expense for most firms, so firm management is pushed to develop tax planning strategies to reduce the number of expenses to a minimum to meet profit targets, capital needs, especially in financially difficult periods. In fact, Chukwudi, Okonkwo and Asika (2020) observed that corporate taxation and tax policies in Nigeria do act as disincentive to manufacturing firms to create value for stakeholders and enhance the value of the firms. Firms whose financial conditions are not stable enough often embark on aggressive techniques to enable them reduce their tax expense (Noga & Schnader, 2013). This process starts with manipulating the earnings of the company in such a way that the lowest amount of tax can be paid while making the financial stance of the firm look stable. The aftermath of the earnings manipulation is that the firm's taxable profits calculated by tax authority will be different from the pre-tax profits calculated by the firm. This difference is termed boot tax differences (BTDs): a large BTDs are often one of the key indicators of financially-distressed companies (Agbo & Gina, 2022; Ofor & Akaegbobi, 2022; Osho & Orisamika, 2022).

Economic events are recorded differently for financial accounting ("book") and tax income purposes, which leads to book tax differences BTDs (Brummer, 2017). These discrepancies result from the fact that whereas tax revenue is calculated in accordance with the relevant tax laws and regulations, book income is computed in accordance with a specific standard, such as International Financial Reporting Standards (IFRS). IFRS, with its prudence concept, strives to prevent overstating income and assets to protect creditors, whereas tax accounting has a fiscal objective and seeks to prevent understatement of income. This is the key distinction between the two. Financial distress is a situation whereby a firm is not able to meet its financial commitments to capital providers, especially lenders. It starts with the poor financial condition whereby the company fails to generate sufficient earnings which then incapacitates the firm from meeting its financial obligations (Onoja, Adediran & Ude, 2020). The ravages of financial distress in firms come with attendant problems such as liquidation, merger, acquisition, et cetera. A number of manufacturing firms that were in distress position in previous years such as Nigeria Textile Mills Plc. have either been acquired or got liquidated. Consumer goods firms, just like other firms, are primarily established to maximize shareholders' wealth as a return to their

investment. These returns are measured in terms of financial competitiveness or financial performance (Olaniun, Jimoh, Shuaibu & Ibrahim, 2022). However, firms that attain such competitiveness are those experiencing no financial distress, or better put, those firms that are financially healthy enough and meet their financial commitments as they mature.

Firms undergoing financial distress experience much hurdles in actualizing their objective of gaining more returns to investment made by shareholders (Yusuf & Abudulkarim, 2021). To overcome this challenge, firm's management often resort to different strategies aimed at increasing the residual profit or after-tax profits of the firm in order to augment for the insufficiency of generated earnings. Of course, financial distress indicates that the firm is unable to generate adequate amount of earnings that can sustain the firms' operating and financing activities. Thus, one of the most important strategies adopted by distressed firms is aggressive tax planning (Sadjiarto, Hartanto & Octaviana, 2020) which entails the use of allowable tactics to by the firms to minimize tax payable to the government thereby leading to lower effective tax rate and increasing book tax difference. Financially-distressed firms have less liquidity for tax rates (Hashemi, Tootian & Soltanipanah, 2018); forcing the managers of the firms to devise any means possible to reduce the tax liabilities of the firms. In carrying out this, temporary or permanent book tax differences may ensue since the financial accounting treatments and tax treatment of income and expenses are not the same. While managers apply known accounting policies to window-dress their financial results, tax authorities have a comparatively different guideline on how to arrive at the taxable income of the firm. All the same, the end product of this is an unavoidable disparity between the pre-tax earnings of the company and the taxable income of the same company. There must be a difference; however, the issue is how large is the difference? And what effect does the difference have on the financial health of the firm? Previous studies dwelt on how the financial health of firms affect their tax avoidance practices; the present study will however take a different route just like Onoja, Adediran and Ude (2020) that examined how book tax differences affect financial distress of listed firms.

After multiple instances of financial distress and eventual bankruptcy among internationally renowned companies, financial distress became a hot topic in practically all markets throughout the world. The abrupt failure of some companies—Enron in 2001, Swissair in 2001, Pacific Gas and Electric Ltd. in 2001, WorldCom in 2002, Conseco in 2002, Parmalat in 2003, Delta Airlines in 2005, General Motors in 2009, and The CIT Group in 2009—that once stood for the icons of corporate financial stability before declaring bankruptcy had a significant impact on the world and raised questions about the underlying assumptions of the majority of these companies (Fredrick & Eboiyehi, 2018). In Nigerian

capital market, there are plethora of factors that threaten the financial health of companies. However, the focus of this study is on the effect of book tax differences which are predominantly the offshoot of aggressive tax planning by firms. Despite the place of book tax differences in determining the financial distress of firms, the influence of book tax differences on financial distress of firms in Nigeria have received very low attention. It is against this background that the present study is conducted using consumer goods firms as a case of reference.

Corporate entities, and manufacturing companies in particular, face a number of challenges, including high corporate tax rates and numerous other levies that result in high effective tax rates that are significantly higher than the statutory company income tax rate. Approximately forty different taxes are imposed on businesses and individuals and many of the taxes, which are levied by various levels of government, are forced upon corporate entities (Chukwudi, Okonkwo & Asika, 2020). Of course, these demands result in high cost structures for businesses. Managers of firms in distressed firms take advantage of the flexibilities in accounting standards to: determine the amount of revenue and expense to be recognized in a given period; select the accounting method for cost amortization and asset valuation; and use judgment over reserve allowances, which are geared towards painting the firm healthy even when the firm is financially unstable. The use of tax loopholes to reduce corporate tax liabilities create a number of problems for different stakeholders including the government who lose tax revenue, the citizens who lose tax benefits. The problem may further affect the firm's stock price which investors perceive risky since large book tax difference represent unhealthy financial condition and corporate illiquidity. Thus, managers of distressed firms who resort to the use of earnings manipulation as a means of reducing tax liability do the firms no good because such practice worsen the financial distress facing the firm.

Related studies carried out in the past did not specifically use book tax differences to explain the likelihood of financial distress among consumer goods firms in Nigeria (Rahiminejad, 2022; Agbo & Gina, 2022; Ofor & Akaegbobi, 2022; Osho & Orisamika, 2022; Suleiman & Barnabas, 2021; Onoja, Adediran & Ude, 2020; Chukwudi, Okonkwo & Asika, 2020; Sadjiarto, Hartanto & Octaviana, 2020; Widiatmoko & Indarti, 2019; Marques, Nakao & Costa, 2017; Panjaitan, 2017; Brummer, 2017; Dridi & Boubaker, 2016; Martinez & Souza, 2016; Wahab, 2016; Miiller & Martinez, 2016; Noga & Schnader, 2013; Huang & Wang, 2013; et cetera). The only very similar study carried out in Nigeria using listed consumer goods firms was by Onoja, Adediran and Ude (2020) which covered only 2012 to 2019 financial years using panel EGLS regression. This study will contribute to the body of knowledge by updating the current study to 2021 financial period and also addressing the likelihood

of cross-sectional dependence in the model. In view of this, the conduct of the study to examine the effect of Book Tax Differences (BTDs) on the financial distress of listed consumer goods firms in Nigeria is justified.

1.1 Objectives of the Study

The broad objective of the study is to ascertain the effect of Book Tax Differences (BTDs) on the financial distress of public listed consumer goods firms in Nigeria. The specific objectives of the study are to:

1. Determine the effect of temporary Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria.
2. Ascertain the effect of permanent Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria.
3. Investigate the effect of total Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria.
4. Find out the effect of discretionary total Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria.

1.2 Hypotheses

Ho1: Temporary Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria.

Ho2: Permanent Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria.

Ho3: Total Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria.

Ho4: Discretionary total Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria.

2. LITERATURE REVIEW

2.1 Conceptual review

2.1.1 Book Tax Differences

Wahab and Holland (2015) conceptualized book tax difference (BTD) as the discrepancy between accounting income and the anticipated taxable income. In simpler terms, BTDs are the differences between the taxable incomes reported to tax authorities and the pre-tax incomes displayed in the published financial statement. Total BTDs consists of temporary and permanent differences and tax

accruals. Book tax difference is a term used to explain the gap between pre-tax incomes, as shown in a company's published financial statement, and the taxable incomes reported to tax authorities (Tang, 2006). Here, taxable income mean the amount calculated in line with the rules established by the tax authorities of a particular country and on which the income taxes are levied. On the other hand, accounting or book income is intended to assist investors and others in making decisions about a firm in the capital market. The Security and Exchange Commission requires publicly traded firms to file audited financial statements, prepared in conformity with IFRS.

In extant studies, BTDs have been subdivided into three components which reflect variations of BTD sources, namely permanent differences, temporary differences and statutory tax rates differences (Ofor & Akaegbobi, 2022; Tye & Wahab, 2018). However, Miiller and Martinez (2016) opined that book tax difference can be broken down into two portions: the non-discretionary part of the permanent differences between the financial numbers according to tax and accounting rules (NBTD – normal book-tax differences); and the discretionary part of those differences (ABTD – abnormal book-tax differences). This second portion can be caused by earnings management (EM) and tax management (TM) (Koubaa & Anis, 2015). Permanent differences arise from income and expenses transactions that are recognized by accounting principles but not by tax rules, whereas temporary differences are caused by the difference in recognition time between the accounting principles and rules. Wahab (2016) submitted that book-tax difference (BTD) at firm-level can also be called tax gap because it can measure the differences between tax theoretically due and tax actually paid. BTDs are attributed to tax planning and the measures of BTDs reveal the extent to which taxable income deviates from the accounting income. The main factors that determine book tax differences stem from different accounting standards and tax treatment of revenue and expense items. The regulations guiding conventional accounting procedures and those guiding taxation of companies, although share similar concepts, are often in disagreement as to how to treat revenue and expenses in the books of the accounts (Koubaa & Anis, 2015). Total BTDs **r**epresent the most comprehensive measure and capture both temporary and permanent BTD. Though the Total BTDs measure is appealing with regard to its straightforward computation, it has been posited that it is subject to substantial measurement error, given various problems associated with estimating taxable income from financial statements (Hanlon 2003 as cited in Evers, Meier & Finke, 2016).

2.1.2 Temporary Book Tax Differences

Temporary differences are differences in the timing of accrual recognition between pre-tax book and taxable income (for example warranty reserve, bad debt reserve, depreciation, etc.). Temporary differences combine the choices a firm makes in terms of accruals for financial accounting and the choice of what is allowed for tax purposes (Hanlon, Krishnan, & Mills, 2012). Temporary differences can be positive or negative. Positive temporary differences arise when the accounting income is higher than the taxable income, while negative temporary differences occur when the accounting income is lower than the taxable income (Onoja, Adediran & Ude, 2020). Chytis (2019) distinguished between two types of temporary differences: (a) taxable temporary differences, which lead to higher taxes being paid in the future and the recognition of deferred tax liabilities (DTL) in the present; and (b) deductible temporary differences, which result in higher taxes being paid in the current year and lower in subsequent years, for which a deferred tax asset (DTA) is recognized. The statement of financial positions of DTA and DTL, account for the anticipated future tax consequences of short-term discrepancies between book and taxable income (Chytis, 2019). Temporary BTDs which emerge as a result of differences between book and taxable income with regard to the timing of accrual income and expense items can be measured by grossing up the deferred tax expense with the statutory tax rate. Temporary BTDs entail information about potential management of non-tax accruals such as depreciation (Hanlon & Heitzman, 2010).

Temporary book tax differences can as well be termed timing book tax differences since such differences between book and tax incomes will reverse subsequently. In the financial statements, temporary differences are recorded as deferred tax assets and/or liabilities. Deferred tax expense, on the other hand, reflects temporary differences associated with the income statement. Deferred tax expense usually equals the change in the deferred tax liabilities but differences are common due to items that only affect the tax accounts on the balance sheet (Chytis, 2015).

2.1.3 Permanent Temporary Book Tax Differences

Permanent disparities are discrepancies between pre-tax book and taxable income that never go away (Hanlon, Krishnan, & Mills, 2012). Due to tax restrictions, some transactions are not taken into account when determining taxable income, which results in this disparity. According to Balakrishnan, Blouin, and Guay (2019), aggressive tax reporting is also linked to permanent book tax differences. The discrepancies suggest that businesses engage in strategic tax planning to produce tax benefits by using their foreign permanent establishments that are subject to favorable tax regimes, notably through transfer pricing. Permanent book tax differences never revert, in contrast to temporary book tax

differences. When economic events are documented in the financial statements but have no effect on taxes, or vice versa, permanent BTDs ensue. Although managing pre-tax accruals can sometimes result in permanent book tax differences, normally tax planning is more closely related to permanent book tax differences than it is. Permanent book tax differences are usually computed as the difference between estimated Total BTD and Temporary BTD.

2.1.4 Discretionary Total Book Tax Differences

Discretionary accrual means the part of total accruals, which are not directly observable, and are easy to manipulate by the company (Onoja, Adediran & Ude, 2020). A frequently used measure for book tax differences is the discretionary total book tax differences. Discretionary BTDS refer to the decision-making methods of managers in selecting accounting and tax-related practices. It is estimated by regressing total BTD on total discretionary items that are known to cause differences that are likely unrelated to earnings management. (Evers, Meier & Finke, 2016). Specifically, discretionary total BTDs are the residual from this regression (Onoja, Adediran & Ude, 2020). This residual is supposed to capture intentional tax aggressiveness, after determinants that are not related to tax avoidance such as earnings management have been removed.

2.1.5 Financial Distress

Financial distress is a situation whereby a firm is not able to meet its financial commitments to capital providers, especially lenders. It starts with the poor financial condition whereby the company fails to generate sufficient earnings which then incapacitates the firm from meeting its financial obligations (Onoja, Adediran & Ude, 2020). Financial distress is denoted by either economic failure or financial failure (Sharan, 2011). When it is an economic failure, the revenue generated by the firm is unable to cover its cost of capital while financial failure is when the firm cannot meet its contractual obligations to the providers of debt fund (Onoja, Adediran & Ude, 2020). Beaver (1966) as cited in Lucky and Michael (2019) was one of the first researchers to point out that financial distress can have different forms of appearance. Dependent on the type of the event occurring, bankruptcy, bond default, an overdrawn bank account, or nonpayment of a preferred stock dividend can represent the operational form of financial distress.

Financial distress is commonly interpreted as a crucial event whose occurrences separates the time of a company's financial health from the period of financial illness and requires undertaking corrective actions in order to overcome the troubled situation (Lucky & Michael, 2019). Financial distress occurs when companies have bankruptcy potency as they cannot meet their obligation and make low profit.

The dynamics of financial distress are myriad, starting with failure and consequently resulting in either of restructuring or liquidation (Noga & Schnader, 2013). The first stage of financial distress shows when the firm's power to generate earnings become weak and the amount of debt exceeds the value of the company's total assets. The commonest financial distress is a situation where the firm's contractual agreements with creditors are broken or honored with difficulty (Wangige, 2016). Financial distress falls in tight cash situations when the firm is not able to pay the owed amount within the due date. Financial distress was broadly defined by Onoja, Adediran and Ude (2020) as "a condition when a firm suffers negative net income for consecutive periods and the cash flow is less than the current portion of company's long-term debt". Financial distress affects the relationship to debt holders and non-financial stakeholders. As a consequence, a company gains an impaired access to new capital and bears the increasing costs of maintaining this stricken relationship. The characteristics of financial distress incorporates the result of chronic losses which cause a disproportionate increase in liabilities accompanied by shrinkage in the asset value (Fredrick, 2019). In terms of probability, financial distress refers to the likelihood of bankruptcy, which depends on the level of liquid assets as well as on credit availability (Aggreh, Nworie, Ejimadu & Ikuemonisan, 2021). Studies on financial distress have become more relevant and important because even large firms are failing under unforeseen circumstances causing economic and social problems (Wangige, 2016) and many companies have gone into bankruptcy despite their good rating a year before. In this study, the probability of financial distress is measured using the Altman's Z-score model.

2.1.6 Altman's Z-Score Model

Altman's Z-Score is a standard model in capturing incorrect asset valuation. Altman's Z-score remains a model to predict whether an industry's assets have been correctly recognized to avoid financial distress (Altman, 1968). It was first carried out in 1968 by Edward I. Altman, a professor at the business school of Stern at New York University. The model utilizes operational capital, totality of assets, market capitalization, and recorded total debt to determine if a firm's assets are properly recognized. The model was extremely accurate since the percentage of correct predictions was about 95% (Altman, Danovi & Falini, 2013).

The model for calculating Altman's Z-scores was developed to predict the possibility of a business going bankrupt in the next two years, as well as a tool to examine the financial health of a business. Financial exhaustion is one of motivating factors which promote fraudulent behavior on financial statements. This is why Altman's Z-score is reputed to be a good gauge for the financial health of firms. Altman, Danovi and Falini (2013) employed practical information and estimation in order to

develop an algorithm made up of fraction where prearranged values are adopted. The Z-score is shown thus:

Z-Score = $1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$

When calculation is done, the variables are joined to realize the Z-score for the firm. The model classifies firms into three zones:

Financial Distress < 1.81 ≤ Grey Area ≤ 2.99 > Safe Zone (No Financial Distress)

2.2 Theoretical Review

2.2.1 Hoffman's Tax Planning Theory

Hoffman's Tax Planning Theory was propounded by William Hoffman in 1961. The theory postulates that tax payers have the capacity to arrange their financial activities in such a manner so as to suffer a minimum expenditure for taxes through effective tax planning (Osho & Orisamika, 2022). However not all tax planning activities reduce the tax liability to the desired minimum level. According to Hoffman (1961) as cited in Wahab (2016), tax planning theories introduce concepts and principles typically applicable to tax practitioners. The principles or concepts cover complexity of tax planning, beneficial impact of tax planning, underutilisation of tax planning, and level of awareness of tax planning advantages (Apua, 2019). Tax planning is also theorised as has been developed based on tax loopholes (Omesi & Appah, 2021), in which the methods are short-term given the popularity of the schemes provides insights to the authority to implement necessary actions in combating tax planning activities (Sani, Ka'Oje & Musa, 2022). This is particularly applicable to the cases of tax planning strategies that depend on tax regulation ambiguities and loopholes (Osegbue, Nweze, Ifurueze, & Nwoye, 2018). The basic assumption of the theory is that benefit from tax planning should exceed its cost. Deducing from the tenets of the Hoffman's Tax Planning model, the essence of tax planning in distressed firms is to reduce or defer corporate tax liability, which then make some difference between the tax income in the financial statements and the taxable income filed with tax authorities.

Hoffman's Tax Planning Theory is relevant to the present study since it argues that tax planning activities creates a number of book tax differences and firms engage in tax planning with the aim of reducing their tax liabilities, even for a temporary period. Distressed firms engage in aggressive tax planning in order to make more funds available to the firms for their operating activities. Therefore, Hoffman's Tax Planning Theory was used as the theoretical anchor of the study.

2.3 Empirical Review

Rahiminejad (2022) investigated the relationship between book tax difference (BTD) characteristics of firms. The study specifically examined large temporary differences between book income and taxable income. Data were extracted from Compustat annual dataset from 1995 to 2016 including 242,024 observations. After deleting observations with missing data, the final sample contained 21,981 firm-year observations and 4,341 firms. The result of the panel regression showed that BTDs from contemporary accounting perspectives significantly explain financial distress, firm life cycle, downward earnings management and tax planning.

Agbo and Gina (2022) determined the effect of book tax difference on cash flow activities of companies quoted in Nigerian Stock Exchange. Ex Post Facto research design was employed. Data for the study were extracted from annual accounts of the quoted companies in Nigeria from 2012-2020. Regression analysis was used to test the hypotheses via E-View 9.0. The analysis revealed that book tax difference has a positive but insignificant effect on operating cash flow of quoted companies in Nigeria at 5% level of significance.

Ofor and Akaegbobi (2022) examined book tax difference and corporate performance with evidence from quoted consumer goods and industrial goods manufacturing companies in Nigeria. Two research hypotheses were formulated for the study. Ex-post facto research design was employed in the study. The sample was restricted to only twenty-three (23) quoted consumer goods and industrial goods manufacturing companies on the Nigerian Stock Exchange for the period, 2010 to 2019. Data were analyzed using Panel least square (PLS) regression with the aid of E-views, 9.0. The study found a positive statistically significant relationship for book tax difference and corporate performance.

Olaniun, Jimoh, Shuaibu and Ibrahim (2022) examined the effect of tax aggressiveness on the financial performance of listed industrial goods firms in Nigeria. The population of the study was made up of the entire listed industrial goods firms in Nigeria. Sample of 10 firms were selected using a census sampling technique and data were collected using secondary sources of data collection from the annual report and accounts of the selected firms. Data for the study were analysed using Random-effects GLS regression which revealed that effective tax rate has significant positive effect on return on assets but cash effective tax rate has negative significance effect on return on assts.

Osho and Orisamika (2022) examined the effect of book tax difference on return of asset of deposit money banks in Nigeria. Ex-post facto research design was employed through secondary data to

establish the relationship between ROA and book tax differences. The population of this study covers all the 14 deposit money banks listed on the Nigeria Exchange Group as at 31st December, 2020. The study used census sampling to cover all the 14 deposit money banks. Data on all the explained and explanatory variables were extracted from the published financial statements of the 14 deposit money banks for the period of 2006-2020 with 90 observations. Data were analyzed using multiple regression which showed that book tax difference has a positive and significant effect on return on asset of deposit money banks.

Sani, Ka'Oje and Musa (2022) assessed the causes of corporate tax avoidance of Deposit Money Banks (DMBs) in Nigeria. The study covered the period, 2015 to 2020 using 14 DMBs in Nigeria. Panel data was used which consists of 84 observations analyzed using multiple regression model. Robust regression model showed that investment in PPE is reduce corporate tax avoidance among DMBs in Nigeria.

Suleiman and Barnabas (2021) ascertained the effect of book tax difference on the accounting conservatism of listed non-financial firms in Nigeria. The study covered a period of seven years (2014-2020) and a sample of forty-eight listed non-financial firms on the Nigerian stock exchange. The data were analysed using the panel regression technique. The findings discovered that book tax difference significantly and negatively affect accounting conservatism.

Yusuf and Abudulkarim (2021) examined the determinants of corporate financial distress of listed consumer goods companies in Nigeria. To achieve this, data was collected from financial statements for the period of 2009-2018. Ex-post facto research design was adopted, and the target population of the study was 21 companies listed on the Nigerian Stock Exchange out of which 13 companies were sampled using purposive sampling technique. Data was analyzed using logistic regression. The result of the study revealed that leverage is a significant predictor which is negatively related to the probability of financial distress while profitability is a significant predictor which is positively related to the probability of financial distress.

Dang and Tran (2021) examined the relationship between financial distress and tax avoidance of listed firms in Vietnam. A sample size of 369 listed companies in Vietnam over the 2008– 2020 period was analysed for a causal relationship. The regression model revealed the existence of a positive relationship between financial distress and tax avoidance for survey companies.

Onomuhara (2021) examined how corporate tax saving strategy relates with firm value of listed non-financial firms in Nigeria using a time frame of ten years (2011 – 2020). Ex-post facto research and descriptive research designs were adopted on a panel data set which was sourced from audited annual financial reports of seventy-three (73) listed non-financial firms in Nigeria. The result of the Moderated Regression Analyses technique (MRA) and hierarchical regression analyses technique showed that debt tax saving strategy is positively related with Tobin Q but negatively related with price to earnings.

Omesi and Appah (2021) investigated the effects of corporate tax planning on firm value of listed consumer goods companies in Nigeria for the period 2015 to 2019. The study employed ex post facto and correlational research design. The sample size of the study comprised twenty six companies that was determined using Taro Yamen's formula. The data for this study were obtained from the published annual financial statements of the sampled companies and pooled ordinary least square was used for data analysis. The results obtained from the analysis revealed that effective tax rate, tax savings and capital intensity have a negative and non-significant effect on corporate firm value.

Onoja, Adediran and Ude (2020) examined the relationship between book-tax differences (BTDs) and financial distress surrogated by Altman's Z- scores of listed consumer goods firms in Nigeria. The study adopted the ex post facto research design. The population comprised of listed consumer goods firms on the Nigerian Stock Exchange. The sample was purposively determined as twenty one consumer goods firms. The study relied on secondary sources of data sourced from the firms' annual reports from 2012 to 2019. The data were analysed using panel EGLS regression technique which revealed that temporary BTD and total BTD are positively related with Altman's Z-score. The positive effect of permanent BTD is not significant while discretionary BTDs have a negative significant effect on financial distress.

Chukwudi, Okonkwo and Asika (2020) determined the effect of Book Tax Differences (BTDs) on firm value of quoted consumer goods manufacturing firms in Nigeria. Ex-post facto research design was adopted for the study. A sample size 21 of firms was selected based on availability of the financial statement of the selected firms from the population of all the non-financial quoted on the Nigeria Stock Exchange. Data for the study were obtained from annual published financial of the non-financial covering a period of ten years from 2009-2018. Ordinary lease square regression was used to test the three formulated hypotheses with the aid of E-View 9.0. This study found that book tax difference have a positive but non-significant effect on firm value.

Sadjiarto, Hartanto and Octaviana (2020) examined the impact of financial distress on tax avoidance practices of Indonesian companies. The samples of this research were 292 companies in the manufacturing, trade and construction sectors which were listed on the Indonesia Stock Exchange in period 2015-2018 and obtained 1168 research data. This research used multiple linear regression method. The regression results proved that financial distress has a positive effect on tax avoidance practices of Indonesian companies.

Widiatmoko and Indarti (2019) examined the effect of book tax differences on the earning persistence among Indonesian manufacturing enterprises. The sample was made up of 129 manufacturing companies from which secondary data were obtained between 2014 and 2016. Regression with conventional least squares was used to analyze the data. The findings indicated that whereas permanent BTDs have a positive non-significant effect, temporary BTDs have a negative significant effect. Therefore, increases in temporary BTDs lead to lower earnings persistence in Indonesia manufacturing companies.

Amoa-Gyarteng (2019) applied the Altman algorithm model on companies in the United States to evaluate the financial characteristics of distressed firms. 105 firms that filed for Chapter 11 and Chapter 7 bankruptcy in the US between 2006 and 2016 made up the sample. Secondary data from financial statements submitted by companies to the U.S. Securities and Exchange Commission served as the study's data source. The paired samples t-test was used to analyze the data. The findings revealed that in the one and two years before bankruptcy, there were statistically significant differences in the Altman Z score, solvency, profitability, and asset productivity of the firms.

Fredrick (2019) examined the determinants of financial distress of firms in the manufacturing sector in Nigeria using fully modified ordinary least square (FMOLS) on annual time series data of eighteen listed manufacturing firms on the Nigeria stock exchange (NSE). The data for the study were obtained from the audited financial statements of the firms. Financial distress was measured using the Altman Z score while the exogenous variables employed in the study are firm size, liquidity, profitability, and leverage. The study also employed a list of control variables such as revenue growth and share price. Findings from the study showed that leverage, liquidity, profitability, firm size, revenue growth, and share price are the firm-specific determinant of financial distress of firms in the manufacturing sector in the country.

Apua (2019) assessed the effect of tax avoidance on value of financial firms in Kenya. The population for the research was all 17 financial firms of the Nairobi Stock Exchange. Secondary data were collected over five years (January 2014 - December 2018) annually. Descriptive cross-sectional research design was used for the research to assess the association between the variables. Data analysis was done using regression analysis which revealed that tax avoidance has a non-significant effect on the firm value of listed financial firms in Kenya.

Hashemi, Tootian and Soltanipanah (2018) examined the impact of financial distress on tax avoidance of the listed companies in Tehran stock exchange during the global financial crisis. All listed companies in Tehran stock exchange were selected as the statistical population of the research during 2003 to 2013. In this investigation, the base year (crisis) was 2008 and 2003 to 2008 as before the financial crisis and 2008 to 2013 was regarded after the crisis period. 90 firms were selected through the systematic elimination method. Heteroskedasticity, F-Limer, Hausman and Lin-Levene tests were used as pretest and regression test as post-test to confirm/reject the research hypotheses. The results showed that there is no significant relation between financial distress and tax avoidance of the listed companies in Tehran stock exchange.

Osegbue, Nweze, Ifurueze, and Nwoye (2018) examined the effects of tax sheltering on earnings management in Nigeria. The study used the ex post facto research design. The sample comprised of 116 listed companies on the Nigerian Stock Exchange. The study relied on secondary data obtained from annual reports and accounts of the firms. The data were analysed using pooled, fixed, random and GMM regression procedures. The results showed that total BTDs have a significant and positive on earnings quality while, temporary and permanent differences have negative and non-significant on the earnings quality proxy.

In a study conducted by Adiati, Rahmawati, and Bandi (2018), the effect of deferred tax on the earnings persistence of companies in the non-financial sectors listed on the Indonesia Stock Exchange was investigated. 1,609 firm-year observations from the Indonesia Stock Exchange made up the sample (IDX). The study used secondary data from annual reports published between 2007 and 2014. The technique of multiple regression was used to analyze the data. The findings indicated that deferred tax had a negative impact on the persistence of earnings.

Evangelos, Stergios and Nikolaos (2018) examined the factors affecting tax avoidance in Greece using firms trading on the Athens Stock Exchange (ASE). For this purpose, the corporate effective tax rates

(ETRs) of a sample of non-financial firms were calculated and regressed on firm attributes. The multiple regression conducted showed that ETRs are positively associated with firm size and profitability, indicating that larger and more profitable firms have lower tax avoidance rates.

Marques, Nakao and Costa (2017) examined the relationship between book tax differences, indebtedness and the cost of capital of Brazilian public companies before and after the adoption of IFRS. The methodology involved panel data analysis from a sample of 1,079 observations for the period of 2005 to 2015. The regression result showed that a higher BTD, and thus, lower book-tax conformity, represents higher accounting information quality because lower indebtedness is related to lower informational asymmetry.

Koubaa and Jarboui (2017) examined the direct and mediated associations among earnings quality, book-tax differences and the audit quality, using a sample of 28 Tunisian listed firms listed on the Tunis Stock Exchange. The study relied on secondary data collected from published financial statements and Financial Market Council from 2005 to 2012. They employed multiple regression technique to analyse the data. The results showed that BTDs have a significant negative effect on accounting conservatism. Also, normal and abnormal BTDs had significant negative effects on accounting conservatism of listed firms on the Tunis Stock Exchange.

Dhamara and Violita (2017) examined the relationship between financial distress and tax aggressiveness using a sample of 97 listed manufacturing firms on the Indonesia Stock Exchange. The study relied on secondary data obtained from published financial statements from 2010 to 2013. The data were analysed using multiple regression technique which revealed that financial distress had a positive but non-significant effect on the cash effective tax rate and a negative insignificant effect on tax sheltering.

Aditya (2017) predicted the financial distress of firms in Indonesia using book-tax differences as an indicator. The test that had been done to 98 firms sample shows that book-tax differences can be used as a significant indicator for the firm(s) in financial distress condition 1 and 2 years after firm experiencing abnormal BTDs. The result of the panel logit regression showed that abnormal BTDs have a significant effect on the financial distress of firms in Indonesia.

Panjaitan (2017) investigated the effect of book-tax differences on the quality of earnings of listed Indonesian firms. Secondary data for the study were generated from the annual reports of the firms

from 2012 to 2014. The data were analysed using multiple regression technique. The results showed that BTD have a negative and non-significant effect on earnings quality.

Brummer (2017) examined whether book-tax differences (BTDs) are a reasonable proxy for tax-induced earnings management in Finland. The data for the empirical study comprised 35,135 firm-year observations of profitable Finnish private firms in 2011–2015. Discretionary accruals were estimated following Jones (1991), Kothari et al. (2005) and Francis et al. (2013), and total BTDs were applied as a BTD measure. Three OLS regression models are developed to provide evidence for the hypotheses. The results suggest that BTDs reflect well opportunistic earnings management even in a higher book-tax conformity context when there is a strong tax incentive. In addition, earnings management in response to the CIT rate cut is significant with both proxies, and BTDs and discretionary accruals have a negative relation in 2013.

The study conducted by Dridi and Boubaker (2016) ascertained the effect of book-tax differences on the persistence of earnings in listed Tunisian firms. Secondary data were sourced from the annual reports of a sample comprising 21 firms listed on the Tunisian Stock Exchange from 2003 to 2012. The data were analysed using multiple regression technique. The results showed that discretionary BTD had a significant negative effect on earnings persistence; but, a significant positive effect on accruals.

Martinez and Souza (2016) examined the effect of book-tax differences on earnings persistence and tax planning before and after the adoption of IFRS in Brazil. Secondary data were sourced from the annual reports of industrial and commercial firms listed on the BMF&Bovespa. 727 firm-year observations retrieved from the Economática database between 2003 and 2012 were analysed using pooled regression and indicated that BTDs have a non-significant positive effect on EBIT.

Wahab (2016) examine the permanent and temporary nature of tax planning among Malaysian multinational companies. The sample was taken from Bursa Malaysia-listed MNC and the data were drawn from *Datastream* and annual reports of the companies. Using a direct consistency test, this study reports the behaviour of BTD and its main components, PD and TD, over 2008–2014. To investigate whether BTD can be explained by firm-specific, the data were also analysed using panel regression models. Earnings management was revealed to significantly affect tax planning among Malaysian multinational companies.

Wangige (2016) examined the causes of financial distress among listed companies in Kenyan market. The study used causal research design. The population of the study was 42 non-financial firms listed in NSE and covered a period between 2004 and 2012. The study used secondary data which are quantitative in nature collected from the annual reports of the firms. The study adopted the Logit model to predict the financial distress of listed non-financial firms. Tobin Q (investment), leverage and systematic risk were significant as they explained the financial distress of listed companies in Kenya.

Miiller and Martinez (2016) investigated the effect of Book-tax difference on the credit rating of bond issues in the Brazilian market, based on a sample of all nonfinancial firms that issued bonds in the period from 2004 to 2014 with published financial information, resulting in a final sample of 96 observations. The results of the regression analysis showed that BTD does not determine the credit rating in the Brazilian market.

Evers, Meier and Finke (2016) examined the implications of book tax differences. The design adopted in the study was a meta-analytical approach aimed at identifying the sources of heterogeneity in primary studies and at providing a consensus estimate with respect to the sign and the statistical significance level for the examined association. The qualitative literature reviewed revealed that major sources of heterogeneity in the study design include differences in the proxies for earnings management and tax sheltering and in the measures used to determine book tax differences. The findings of the meta-regression results showed that BTDs are significantly indicative of opportunistic reporting behavior.

Tang (2015) ascertained how book-tax conformity deters opportunistic book and tax reporting of firms across the world. A sample of 16,739 firms from 32 countries was used and secondary data were obtained from the firms' financial statements from 1994 to 2007. The result of the multiple regression technique indicated that high book-tax conformity negatively affects earnings management.

Koubaa and Anis (2015) investigated the factors affecting the book-tax gap in the Tunisian context. The sample was made up of 28 Tunisian companies from which secondary data were collected over an eight-year period, ranging from 2005 to 2012. The result of the regression analysis showed that this reporting gap is largely attributable to legal differences between financial and tax accounting as well as to discretionary earning management practices. The study showed that the major factors

affecting the book tax gap in Tunisia are profitability, sales growth, discretionary accruals, price to earnings ratio and debt.

The empirical research by Noga and Schnader (2013) studied book-tax differences as an indicator of financial distress among firms. The sample comprised of 54,577 firm-year observations from 1994 to 2010. The study relied on secondary data obtained from Compustat and the UCLA-LoPucki Bankruptcy Research Database. The data were analysed using multiple regression technique. The results showed that information from abnormal changes in BTDs significantly increases the ability to identify firms with an increased likelihood of going bankrupt in the coming five-year period, i.e., firms with BTD changes larger than their peers were more likely to experience bankruptcy in the future.

Huang and Wang (2013) determined the effect of book-tax differences on earnings quality for the banking industry of Taiwan. The sample comprised 214 firm-year observations from 27 commercial banks. The secondary data for the study were sourced from the Taiwan Economic Journal database from 1996 to 2006. The result of the regression analysis revealed that bank-years with large positive or negative temporary book-tax differences have discretionary loan loss provisions that are greater than bank-years with small temporary book-tax differences; bank-years with large temporary book-tax differences have one-year-ahead persistence of current earnings and accruals that are less than those with small temporary book-tax differences. Additionally, the study did not find a significant relation between permanent book-tax differences and earnings quality. Overall, the evidence is consistent with the supposition that large temporary book-tax differences are associated with lower earnings quality.

Tang and Firth (2011) examined the effect of book–tax differences on earnings management and tax management of Chinese-B-share-listed firms. The study relied on secondary data. The regression analysis conducted indicated that firms with strong incentives for earnings and tax management exhibit high levels of abnormal BTDs. The results showed that earnings management explains 7.4% of abnormal BTDs, tax management accounts for 27.8% of abnormal BTDs, and their interaction explains 3.2% of abnormal BTDs.

Tang (2006) explored book-tax differences as a function of accounting-tax misalignment, earnings management and tax management of firms in China. Secondary data collected for the study were from the CSRC designated official website, which yielded 436 firm-year observations from 1999 to 2004 periods. Employing multiple regression analysis, it was revealed that loss in current year, year t-1 and

t-2 have a significant positive effect on abnormal BTD. Overall evidence from the study suggests that BTD is an indicator of earnings management and tax management after controlling for accounting-tax misalignment.

3. MATERIAL AND METHOD

The study used ex-post facto research design to examine the extent to which book tax differences affect the financial distress of listed consumer goods firms in Nigeria. Ex-post facto design was adopted for the present study because the data collected on the study variables were in past financial ratios and hence of historical nature. The financial ratios computed for each firm over the ten (10) year period of the study are panel data for events that already took place in the past. For this reason, the use of ex-post facto research design is justified (Mugenda & Mugenda, 1999). The population of the study was made up of all the twenty-one listed firms under the consumer goods sector of the Nigerian Exchange Group (NGX) as at the end of 2021 trading year. The Stock List of the NGX reveals the following firms enlisted in Table 1 as the constituents of the consumer goods sector of the Exchange.

Table 1 Study Population

Name	
1. Cadbury Nigeria Plc.	11. Multi-trex Integrated Foods Plc.
2. Champion Brewery Nig. Plc.	12. Northern Nig. Flour Mills Plc
3. Dangote Sugar Refinery Plc.	13. Nascon Allied Industries Plc.
4. DN Tyre and Ruber Plc.	14. Nestle Nigeria Plc
5. Flour Mills Nig. Plc.	15. Nigerian Breweries Plc
6. Golden Guinea Brewery Plc.	16. Nigerian Enamelware Plc
7. Guinness Nig. Plc	17. PZ Cussons Nigeria Plc.
8. Honeywell Flour Mill Plc.	18. Unilever Nigeria Plc.
9. International Breweries Plc.	19. Union Dicon Salt
10. MCnichols Plc.	20. Vitafoam Nigeria Plc
	21. Bua Food

Source: NGX (2021).

The sampling technique applied in the study was purposive sampling approach which is a tool used to discriminate against population members that could not meet a given characteristics. Thus, the basis for the use of purposive sampling is that there must be a criterion or a set of criteria which the population members must meet before they can be selected into the sample size. The criterion for the

sample selection is that each of the listed firms to be selected must have uploaded its financial statements on either its website or the website of the Nigerian Exchange Group from 2012 to 2021. This criterion of course implies that any firm that was not listed as from 2012 cannot be part of the sample. The following sixteen firms enumerated in Table 2 met the criterion above.

Table 2 Study Sample

1. Cadbury Nigeria Plc.	9. Nascon Allied Industries Plc.
2. Champion Brewery Nig. Plc.	10. Nestle Nigeria Plc
3. Dangote Sugar Refinery Plc.	11. Nigerian Breweries Plc
4. Flour Mills Nig. Plc.	12. Nigerian Enamelware Plc
5. Guinness Nig. Plc	13. PZ Cussons Nigeria Plc.
6. Honeywell Flour Mill Plc.	14. Unilever Nigeria Plc.
7. International Breweries Plc.	15. Union Dicon Salt
8. Northern Nig. Flour Mills Plc	16. Vitafoam Nigeria Plc.

Source: Author's Compilation, 2023

The study employed secondary data that were extracted from the audited financial statements and annual reports of individual consumer goods firms. The data obtained were for a 10-year period, spanning from 2012 to 2021 financial years. The data collected were used to compute total book tax differences, temporary book tax differences, permanent book tax differences, discretionary total book tax differences, and Altman's Z-score in addition to firm leverage and firm size. It is assumed that the financial statements of the firms are both a valid and reliable research instrument for the conduct of this study since they have undergone statutory audits.

The nature of the data collected determines the type of tool to be adopted for analysis. The secondary data collected for the study are in scale type of data which is the highest form of data compared to interval, ordinal and categorical data format (Gujarati, 2003). For the purpose of this study, mean, standard deviation, minimum and maximum values were used to analyse the descriptive statistical characteristics of the data. The study also adopted panel least square regression technique as a tool of inferential analysis. This approach of regression suits the research questions since the data collected were in a panel form, that is, have cross-sectional and time series dimensions. For this reason, a regression technique such as panel data regression, is appropriate for estimation of the regression coefficient (Andreß, Golsch & Schmidt, 2013).

Panel regression technique has three approaches: Pooled Ordinary Least Square Regression, Fixed Effect Regression and Random Effect Regression. Pooled OLS assumes that all unit-specific heterogeneity can be controlled for by the independent variables in the model, so that the remaining unexplained variance is simply "white noise". However, in the presence of correlated unobserved heterogeneity, pooled OLS estimates are often biased. Feasible Generalized Least Squares estimator was applied in the hypothesis testing.

The model used in the study was adapted from the study conducted by Onoja, MAdediran and Ude (2020) which modelled the effect of book tax differences on financial distress thus:

$$Z\text{-}Score_{it} = \beta_0 + \beta_1 TEBTD_{it} + \beta_2 PBTD_{it} + \beta_3 TOBTD_{it} + \beta_4 DBTD_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 ROA_{it} + \beta_8 CFO_{it} + \varepsilon_{it} \quad \ldots\ldots 1$$

The model above was modified by removing two control variables (ROA and CFO) to avoid having the same number of control variables as the main independent variables. Thus, the modified model used in the study is stated below as:

$$Z_Score_{it} = \beta_0 + \beta_1 TEBTD_{it} + \beta_2 PBTD_{it} + \beta_3 TOBTD_{it} + \beta_4 DBTD_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \quad \ldots\ldots 2$$

Whereby,

$Z\text{-}Score_{it}$ = Altman Z-Score for firm i in year t

$TEBTD_{it}$ = Temporary book tax differences Z-Score for firm i in year t

$PBTD_{it}$ = Permanent book tax differences Z-Score for firm i in year t

$TOBTD_{it}$ = Total book tax differences Z-Score for firm i in year t

$DBTD_{it}$ = Discretionary total book tax differences Z-Score for firm i in year t

$SIZE_{it}$ = Size of firm i in year t

LEV_{it} = Leverage for firm i in year t

β_1-6 = Coefficient of predictors

β_0 = Constant

ε = Error term

The operational measurement of the variables is shown in Table 3 below.

Table 3 Operationalization of Variables

Dependent variable		
Altman Z-Score	$1.2*X_1 +1.4*X_2 +3.3*X_3 +0.6*X_4 +1.0*X_5$ Where: X_1 = working capital to total assets ratio X_2 = retained earnings to total assets ratio X_3 = Profit before interest & tax to total assets X_4 = market value of equity to book value of total liabilities X_5 = Revenue to total assets	Altman (1968)
Independent variables:		
Total BTD	Profit Before Tax – $\frac{\text{current tax expense}}{\text{Statutory tax rate}}$	Wahab & Holland (2015)
Temporary BTD	$\frac{\text{Deferred tax expense}}{\text{Statutory tax rate}}$	Onoja, Adediran & Ude (2020)
Permanent BTD	Total BTD – Temporary BTD	Wahab (2016)
Discretionary Total BTD	Error term from the following regression: $\text{Total BTD}_{i,t} = \alpha + \beta*\text{Total Accruals}_{i,t} + \varepsilon_{i,t}$ This is part of Total BTD that can be attributed to tax avoidance and not earnings management; residual from regression of Total BTD on Total Accruals (Operating income - Net Cash from operating activities).	Evers, Meier & Finke (2016)
Control variables:		
SIZE	Firm size: Natural log of total assets	Hanlon, Krishnan & Mills (2012)
LEV	Leverage: total liabilities divided by total assets	Hanlon, Krishnan & Mills (2012)

Source: Researcher's Compilation (2022)

The Altman Z-score model predicts a company's health status based on a functional expression calculated using the formula: Z-Score = $1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$ When calculation is done, the variables are joined to realize the Z-score for the firm. The model classifies firms into three zones: Financial Distress $< 1.81 \leq$ Grey Area $\leq 2.99 >$ Safe Zone (No Financial Distress). Note: The measures of book-tax differences were all scaled to

the total assets of the firms while TOBTD was transformed to its centred values in order to avoid a near-singular matrix result and perfect collinearity with other regressors.

4. RESULT AND DISCUSSION

4.1 Descriptive Analysis of Data

The descriptive statistical analysis of the data as obtained from Stata 14 computation is shown below in Table 4.

Table 4 Descriptive Analysis of Data

Variable	Obs	Mean	Std. Dev.	Min	Max
Z_score	160	.7048273	12.20661	-78.38056	17.63356
TEBTD	160	191074.6	6934851	-4.44e+07	4.39e+07
PBTD	160	-293251.7	8855208	-4.68e+07	5.75e+07
TOBTD	160	-102177.1	4732922	-2.39e+07	2.02e+07
DBTD	160	-102177.1	843661.8	-3898077	2582952
SIZE	160	7.502439	.915136	4.758056	8.683623
LEV	160	1.470989	3.595673	.1936196	20.01988

Source: Analysis Output of Stata 14 (2023)

The average value of Z-Score = .7048273, showing that, on average, the sampled firms are under financial distress since the average value of their Z-score is less than 1.80. However, the standard deviation of 12.20661 implies that this mean value may not apply to all the firms individually and also the firms that were not sampled. This was because the standard deviation was very high. The minimum and maximum values of Z-score also attest to this heterogeneity. In other words, there are firms that are more financially distressed than other firms. Temporary Book-Tax Difference (TEBTD) averaged 191074.6 with a standard deviation of 6934851. The average values of Permanente Book-Tax Difference (PBTD), Total Book-Tax Difference (TOBTD), Discretionary Book-Tax Difference (DBTD), Firm Size (SIZE) and Leverage (LEV) are -293251.7, -102177.1, -102177.1, 7.502439, and 1.470989, respectively with respective standard deviations of 8855208, 4732922, 843661.8, .915136, and 3.595673. The descriptive statistical analysis indicates that the sampled firms have relatively unhealthy

leverage position. This was deduced from the mean value of 1.47 for Leverage which means that the sampled firms have ₦1 worth of asset to match against ₦1.47 of every debt they owe. The maximum value of Leverage (20.01988) equally suggests that there are firms with extreme debts in their capital structure so much so that 100% of asset financing were through debts.

4.1.1 Model Diagnostics

In a panel data, regression analysis that is aimed at estimating valid coefficients must comply with a set of assumption, chiefly of which are: heteroskedasticity, autocorrelation and cross-sectional dependence (Parsons & Naghshpour, 2022; Renzhi & Baek, 2020). Therefore, the researcher carries out a set of model diagnostic tests to ascertain whether or not the regression analysis carried out comply with the assumptions of panel data regression.

4.1.2 Heteroskedasticity

Heteroskedasticity is a condition whereby the residuals in a regression model do not have a constant variance (Aderemi & Israel, 2022). It is the opposite of homoscedasticity which is the preferred condition. Heteroskedastic model produces invalid or spurious regression estimates which often affect the rejection or acceptance of the null hypothesis. Thus, the researcher tested for groupwise heteroskedasticity using Modified Wald test.

Table 5 Modified Wald test for groupwise heteroskedasticity

```
H0: sigma(i)^2 = sigma^2 for all i

chi2 (16)  =   87412.03
Prob>chi2 =      0.0000
```

Source: Analysis Output of Stata 14 (2023)

The null hypothesis of Modified Wald test for groupwise heteroskedasticity is that the residuals have constant variance. The researcher failed to accept this null hypothesis because the *Prob>Chi2* = 0.0000 is less than 0.05. Having failed to accept the null hypothesis, the use

of the classical Fixed Effect Model, Pooled OLS model or Random Effect Model would produce regression estimates with spurious standard errors. Therefore, the use of Feasible Generalized Least Squares is most appropriate in this scenario (Aderemi & Israel, 2022).

4.1.3 Autocorrelation

Autocorrelation is a condition whereby the residuals in a regression model are related with each other (Singh & Singh, 2022). When the observations of the error term are correlated with each other, the assumption of OLS that the observations are independent is violated. To assess this condition in the model, Wooldridge test was applied as shown in Table 6.

Table 6 Wooldridge test for autocorrelation in panel data

```
H0: no first order autocorrelation
    F(  1,      15) =     21.584
           Prob > F =      0.0003
```

Source: Analysis Output of Stata 14 (2023)

In Wooldridge Test for autocorrelation, the null hypothesis is that the observations of the error term are uncorrelated with each other. Acceptance of this null hypothesis depends on whether the *Prob>F* is greater than 0.05. In Table 6, evidence of autocorrelation was inferred since the *Prob>F* = 0.0003 is less than 0.05. Thus, the alternate hypothesis of autocorrelation was accepted. Therefore, the use of the traditional FEM, REM and Pooled OLS is faulted in that the observations are not significantly independent in themselves.

4.1.4 Cross-Sectional Independence Test

Cross-sectional independence test is carried out to find out whether data from different cross-sectional firms are associated due to an unobserved factor or spillover effect. Cross-sectionally dependent panel data impairs the effectiveness of regression model (Pesaran, 2021). The study deployed Pesaran CD test to assess the extent of cross-sectional independence in the model.

Table 7 Pesaran's test of cross sectional independence

```
. xtcsd, pesaran

Pesaran's test of cross sectional independence =     4.450, Pr = 0.0000
```

Source: Analysis Output of Stata 14 (2023)

The Pesaran CD tests the null hypothesis of zero cross-sectional dependence. However, the null hypothesis was rejected on the basis that the Pr = 0.000 is less than 0.05. Since the model diagnostics tests showed a significant deviation from the assumption of panel regression approach, the researcher utilised FGLS technique which accounts for the identified shortfalls of the model (Rocha & Miranda, 2022).

4.2 Test of Hypotheses

Feasible Generalized Least Squares was used in testing the hypotheses of the study since the panel data failed the three major assumptions of classical panel data regression, viz: autocorrelation, heteroskedasticity and cross-sectional dependence. The approach for panel regression that would yield the most valid regression coefficients is FGLS regression. The result of the model estimation is shown below in Table 8.

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Table 8 Result of the Feasible Generalized Least Squares Test

```
Coefficients:  generalized least squares
Panels:        heteroskedastic with cross-sectional correlation
Correlation:   panel-specific AR(1)

Estimated covariances      =       136         Number of obs      =       160
Estimated autocorrelations =        16         Number of groups   =        16
Estimated coefficients     =         7         Time periods       =        10
                                               Wald chi2(6)       =    522.45
                                               Prob > chi2        =    0.0000
```

Z_score	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
TEBTD	13.93972	1.852892	7.52	0.000	10.30812	17.57132
PBTD	6.525954	.8457356	7.72	0.000	4.868343	8.183565
TOBTD	1.92e-08	1.45e-08	1.33	0.184	-9.15e-09	4.76e-08
DBTD	3.283649	3.687176	0.89	0.373	-3.943082	10.51038
SIZE	-.8422401	.2167246	-3.89	0.000	-1.267013	-.4174677
LEV	-3.71615	.1734576	-21.42	0.000	-4.056121	-3.376179
_cons	11.47996	1.669771	6.88	0.000	8.207271	14.75265

Source: Analysis Output of Stata 14 (2023)

The FGLS estimator shows that the combination of TEBTD, PBTD, TOBTD, DBTD, SIZE and LEV have a joint significant effect on Altman's Z-score of listed consumer goods firms in Nigeria at 1% alpha level (Wald chi2 = 522.45; Prob > chi2 = 0.0000). Therefore, the model is good enough to be useful since the joint coefficients of the explanatory variables are significantly different from zero. The control variables made significant contribution to the model. More explicitly, firm size significantly but negatively affects Altman's Z-scores (p<0.01); leverage also has a negative and significant influence on Altman's Z-scores of the firms (p<0.01). More negative values of Altman's Z-scores imply there is high likelihood of financial distress. Thus, as the leverage and size of the firms increase, the likelihood of financial distress also increase by 3.71615 and .8422401, respectively.

4.2.1 Hypothesis I

H_o: Temporary Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria.

The test of hypothesis I was to determine the effect of Temporary Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria. The magnitude and the direction of the effect were assessed using the coefficient of TEBTD (13.93972) while the significance of the effect was assessed using P>|z| for TEBTD (0.000). They showed that TEBTD has a positive effect on Altman's Z-scores of the listed consumer goods firms. An increase in TEBTD by 1 unit increases Z-Score by 13.93972.

More positive values of Altman's Z-Score mean that the firms are less financially distressed. Since TEBTD increases Altman's Z-Score, it therefore implies that Temporary Book Tax Differences have a positive effect on Altman's Z-score and a negative effect on financial distress.

4.2.1.1 Decision Rule: If the *p*-value of the t-statistic < .01 (the chosen alpha level) the null hypothesis is rejected; and, the variable is postulated to have a significant effect. Thus, the effect of TEBTD on Altman's Z-score is significant at 1% alpha level, having seen that P>|z| for TEBTD = 0.000. Therefore, the alternate hypothesis was accepted, with the conclusion that Temporary Book Tax Differences have a significant and positive effect on the Altman's Z-Score of listed consumer goods firms in Nigeria (P>|z| = 0.000). Similar finding was realised by Onoja, Adediran and Ude (2020)

4.2.2 Hypothesis II

H_o:: Permanent Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria.

The test of hypothesis II was to determine the effect of Permanent Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria. The magnitude and the direction of the effect were assessed using the coefficient of PBTD (6.525954) while the significance of the effect was assessed using P>|z| for PBTD (0.000). They showed that PBTD

has a positive effect on Altman's Z-scores of the listed consumer goods firms: an increase in PBTD by 1 unit increases Z-Score by 6.525954.

More positive values of Altman's Z-Score mean that the firms are less financially distressed. Since PBTD increases Altman's Z-Score, it therefore implies that Permanent Book Tax Differences have a positive effect on Altman's Z-score and a negative effect on financial distress.

4.2.2.1 Decision Rule: If the *p*-value of the t-statistic < .01 (the chosen alpha level) the null hypothesis is rejected; and, the variable is postulated to have a significant effect. Thus, the effect of PBTD on Altman's Z-score is significant at 1% alpha level, having seen that P>|z| for PBTD = 0.000. Therefore, the alternate hypothesis was accepted, with the conclusion that Permanent Book Tax Differences have a significant and positive effect on the Altman's Z-Score of listed consumer goods firms in Nigeria (P>|z| = 0.000). The finding above disagreed with the findings in Onoja, Adediran and Ude (2020) whose result was not significant.

4.2.3 Hypotheses III

H_o: Total Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria.

The test of hypothesis III was to determine the effect of Total Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria. The magnitude and the direction of the effect were assessed using the coefficient of TOBTD (1.92e-08) while the significance of the effect was assessed using P>|z| for PBTD (0.184). They showed that TOBTD has a positive effect on Altman's Z-scores of the listed consumer goods firms: an increase in PBTD by 1 unit increases Z-Score by 1.92e-08.

More positive values of Altman's Z-Score mean that the firms are less financially distressed. Since TOBTD increases Altman's Z-Score, it therefore implies that Total Book Tax Differences have a positive effect on Altman's Z-score and a negative effect on financial distress.

4.2.3.1 Decision Rule: If the *p*-value of the t-statistic < .01 (the chosen alpha level) the null hypothesis is rejected; and, the variable is postulated to have a significant effect. Thus, the

effect of TOBTD on Altman's Z-score is not significant at 1% alpha level, having seen that P>|z| for TOBTD = 0.184. Therefore, the null hypothesis was accepted, with the conclusion that Total Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria (P>|z| = 0.184). However, this result countered the findings by Rahiminejad (2022) but corroborated the result found by Onoja, Adediran and Ude (2020).

4.2.4 Hypotheses IV

H_o: Discretionary total Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria.

The test of hypothesis IV was to determine the effect of Discretionary Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria. The magnitude and the direction of the effect were assessed using the coefficient of DBTD (3.283649) while the significance of the effect was assessed using P>|z| for DBTD (0.373). They showed that DBTD has a positive effect on Altman's Z-scores of the listed consumer goods firms: an increase in DBTD by 1 unit increases Z-Score by 3.283649.

More positive values of Altman's Z-Score mean that the firms are less financially distressed. Since DBTD increases Altman's Z-Score, it therefore implies that Discretionary Book Tax Differences have a positive effect on Altman's Z-score and a negative effect on financial distress.

4.2.4.1 Decision Rule: If the *p*-value of the t-statistic < .01 (the chosen alpha level) the null hypothesis is rejected; and, the variable is postulated to have a significant effect. Thus, the effect of DBTD on Altman's Z-score is not significant at 1% alpha level, having seen that P>|z| for DBTD = 0.373. Therefore, the null hypothesis was accepted, with the conclusion that Discretionary Book Tax Differences have no significant effect on the Altman's Z-Score of listed consumer goods firms in Nigeria (P>|z| = 0.373). However, Onoja, Adediran and Ude (2020) and Noga and Schnader (2013) found a different result that Discretionary Book Tax Differences have a negative association with Altman Z-score while Aditya (2017) found similar result of positive effect.

CONCLUSION AND RECOMMENDATIONS

Firms whose financial conditions are not stable enough often embark on aggressive techniques to enable them reduce their tax expense. This process starts with manipulating the earnings of the company in such a way that the lowest amount of tax can be paid while making the financial stance of the firm look stable. The aftermath of the earnings manipulation is that the firm's taxable profits calculated by tax authority will be different from the pre-tax profits calculated by the firm. This difference is termed boot tax differences (BTDs): a large BTDs are often one of the key indicators of financially-distressed companies. This study was carried out to assess the influence of temporary Book Tax Differences, permanent Book Tax Differences, total Book Tax Differences and discretionary total Book Tax Differences on the Altman's Z-Score of listed consumer goods firms in Nigeria.

The analysis carried out indicated that increases in Temporary Book Tax Differences and Permanent Book Tax Differences make the financial conditions (measured by Altman's Z-score) of the firms look better. However, neither the changes in total Book Tax Differences nor those in discretionary Book Tax Differences alter the financial conditions (measured by Altman's Z-score) of the firms. Therefore, Book Tax Differences contribute to the financial condition of listed consumer goods firms in Nigeria only when such differences are either temporary or permanent. The study recommends the following:

1. Managers of consumer goods firms should engage in tax planning that increases their permanent book tax difference using legal means that yield tax savings in order to enhance the firms' financial conditions.
2. In order to combat tax evasion that comes from permanent book tax differences, tax regulatory agencies should focus on the tax-aggressiveness of consumer goods firms while also supporting proper tax-saving techniques to guarantee tax compliance.
3. Consumer goods firms should deemphasize the use of discretionary Book Tax Differences as means of tax saving since they do not do any good to the financial conditions of the firm.
4. Corporate managers should deploy tax planning strategies that do not result in a huge total Book Tax Difference because it cannot be sustained in the long-run.

REFERENCES

Aderemi, A. O., & Israel, L. D. (2022). Modeling of Some Economic Growth Determinants In Ecowas Countries: A Panel Data Approach. *Journal of Mathematical Sciences & Computational Mathematics*, *3*(3), 377-385.

Aditya, R. F. (2017). *Book-Tax Differences sebaga Indikator Financial Distress* (Doctoral dissertation, Universitas Gadjah Mada).

Agbo, I. S. P., & Gina, O. O. P. (2022). Effect of tax planning on cash flow activities of companies quoted in Nigeria. *Research Journal of Management Practice, 2*(9), 1-11.

Akintoye, I. R, Adegbie, F.F & Onyeka-Iheme, C.V (2020) Tax planning strategies and profitability of quoted manufacturing companies in Nigeria. *Journal of Finance and Accounting, 8*(3), 148-157.

Altman, E. I. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. *Journal of Finance,* 23, 589 – 609.

Altman, E. I., Danovi, A., & Falini, A. (2013). Z-Score Models' application to Italian companies subject to extraordinary administration. *Journal of Applied Finance (Formerly Financial Practice and Education), 23*(1).

Amoa-Gyarteng, K. (2019). Financial characteristics of distressed firms: an application of the Altman algorithm model. *Journal of Corporate Accounting & Finance*, *30*(1), 63-76.

Andreß, H. J., Golsch, K., & Schmidt, A. W. (2013). *Applied panel data analysis for economic and social surveys*. Springer Science & Business Media.

Apua, L. O. P. (2019). *Effect Of Tax Avoidance On Value Of Financial Firms Listed At The Nairobi Securities Exchange* (Doctoral dissertation, University of Nairobi).

Balakrishnan, K., Blouin, J., & Guay, W. (2012). Does tax avoidance reduce corporate transparency? *Social Science Research Network Working Paper*

Brummer, S. (2017). *Book-tax differences as a proxy for tax-induced earnings management: Evidence from Finnish private firms* (Hanken School of Economics Helsinki).

Chukwudi, U. V., Okonkwo, O. T., & Asika, E. R. (2020). Effect of tax planning on firm value of quoted consumer goods manufacturing firms in Nigeria. *International Journal of Finance and Banking Research*, *6*(1), 1-10.

Chytis, E. (2015, February). Deferred tax assets from unused tax losses under the prism of financial crisis. In *International Conference on Business & Economics of the Hellenic Open University, Athens. Retrieved from http://193.108* (Vol. 160).

Chytis, E. (2019). The informative value of taxes: The case of temporal differences in tax accounting. *Journal of Accounting and Taxation*, *11*(8), 130-138.

Dang, V. C., & Tran, X. H. (2021). The impact of financial distress on tax avoidance: An empirical analysis of the Vietnamese listed companies. *Cogent Business & Management*, *8*(1), 1953678.

Dridi, W., & Boubaker, A. (2016). Corporate governance and book-tax differences: Tunisian evidence. *International Journal of economics and Finance*, *8*(1), 171-186.

Evangelos, C., Stergios, T., & Nikolaos, G. (2018). Tax avoidance and corporate governance attributes: evidence from listed companies in Greece. *Corporate Ownership and Control*, *16*(4), 77-86.

Evers, M., Meier, I., & Finke, K. (2016). The implications of book-tax differences: A meta-analysis. *ZEW-Centre for European Economic Research Discussion Paper*, (17-003).

Fredrick, I. & Eboiyehi, C. O. (2018). Capital structure and corporate financial distress of manufacturing firms in Nigeria. *Journal of Accounting and Taxation*, *10*(7), 78-84.

Fredrick, I. (2019). Firm specific determinants of financial distress: Empirical evidence from Nigeria. *Journal of Accounting and Taxation*, *11*(3), 49-56.

Guenther, D. A. (2014). Measuring Corporate Tax Avoidance: Effective Tax Rates and Book-Tax Differences. Available at SSRN: https://ssrn.com/abstract=2478952 or http://dx.doi.org/10.2139/ssrn.2478952

Gujarati, D. (2003). *Basic Econometrics* (4 Edition). New Delhi, DN: McGraw Hill.

Hanlon, M. & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, 127-178.

Hanlon, M., Krishnan, G. V., & Mills, L. F. (2012). Audit fees and book-tax differences. *The Journal of the American Taxation Association*, *34*(1), 55-86.

Hashemi T. M., Tootian, E. S., & Soltanipanah, S. (2018). Investigating the effect of financial distress on tax avoidance during the global financial crisis in companies listed on Tehran stock exchange. *International Journal of Finance & Managerial Accounting*, *3*(9), 41-51.

Huang, D. F., & Wang, C. L. (2013). Book-tax differences and earnings quality for the banking industry: evidence from Taiwan. *Pacific Accounting Review*, *25*(2), 145-164.

Kothari, C. R. (2004). Research methodology: Methods and techniques (2nd Edition): New Delhi, India: New Age International (P) Limited.

Koubaa, R. R., & Anis, J. (2015). Book-tax differences: relevant explanatory factors. *International Journal of Accounting and Economics Studies*, *3*(2), 95-104.

Koubaa, R. R., & Jarboui, A. (2017). Direct and mediated associations among earnings quality, book-tax differences and the audit quality. *Journal of Financial Reporting and Accounting*.

Lucky, L. A., & Michael, A. O. (2019). Leverage and corporate financial distress in Nigeria: A panel data analysis. *Asian Finance & Banking Review*, *3*(2), 26-38.

Marques, M. T., Nakao, S. H., & Costa, P. de S. (2017). Book-tax differences and capital structure. *Revista de Administração Mackenzie*, *18*(6), 177-200. doi 10.1590/1678-69712017/ administracao.v18n6p177-200.

Martinez, A. L., & Souza, T. B. T. d. (2016). Book-tax differences, earnings persistence and tax planning before and after the adoption of IFRS in Brazil. *Advances in Scientific and Applied Accounting, 9*(2), 162-180.

Miiller, D. L., & Martinez, A. L. (2016). Book-tax difference, earnings management and bond ratings in the Brazilian Market. *Revista Universo Contábil*, *12*(3), 91-109.

Mugenda, O. M., & Mugenda, A. G. (1999). *Research methods: Quantitative and qualitative approaches*. Acts press.

Noga, T. J., & Schnader, A. L. (2013). Book-Tax Differences as an Indicator of Financial Distress. *Accounting Horizons*, *27*(3), 469-489.

Aggreh, M., Nworie, G. O., Ejimadu, A. R. & Ikuemonisan, S. S. (2021). Determinants of corporate failure in Nigerian banking. *Management Science Review*, *12*(1), 251-261. https://www.researchgate.net/publication/364860712

Ofor, T. N. & Akaegbobi, T. N. (2022). Book Tax Difference, Effective Tax Rate and Corporate Performance of Selected Quoted Consumer Goods and Industrial Goods Manufacturing Companies in Nigeria. *Journal of Accounting and Financial Management*, *8*(2), 1-23.

Olaniun, I., Jimoh, N., Shuaibu, H., & Ibrahim, Y. K. (2022). Tax aggressiveness and financial performance of listed industrial goods firms in Nigeria. *Gusau Journal of Accounting and Finance*, *3*(2), 16-16.

Omesi, I., & Appah, E. (2021). Corporate tax planning and firm value of listed consumer goods companies in Nigeria. *IOSR Journal of Business and Management (IOSR-JBM)*, *23*(02), 42-51.

Onoja, M. L., Adediran, S. A. & Ude, A. O. (2020). Book tax differences and financial distress of listed consumer goods firms in Nigeria. *International Journal of Advanced Finance and Accounting, 1*(2), 31-51.

Onomuhara, O. G. (2021). *Corporate tax saving strategy and the value of listed non-financial firms in Nigeria* (Doctoral dissertation, Igbinedion University, Okada).

Osegbue, I. F., Nweze, A., Ifurueze, M., & Nwoye, C. M. (2018). Effects of tax sheltering on earnings management in Nigeria. *Research Papers in Economics and Finance*, *3*(2), 45-69.

Osho, A. E., & Orisamika, O. (2022). Tax Variances and Financial Performance of Deposit Money Banks Multinational Companies in Nigeria. *Journal of Accounting and Financial Management*, *8*(7), 208-224.

Panjaitan, I. (2017). The Effect of Book Tax Differences and Corporate Governance Disclosure on the Quality of Earnings Using Accounting Conservatism as Moderating Variables. *International Journal of Business and Law*, *13*(1).

Parsons, B., & Naghshpour, S. (2022). Panel Data Analysis on Income Tax Progressivity and Gini Coefficient. *Journal of Applied Business & Economics*, *24*(2).

Pesaran, M. H. (2021). General diagnostic tests for cross-sectional dependence in panels. *Empirical Economics, Springer*, 60(1), 13-50.

Rahiminejad, R. S. (2022). *Large book-tax differences: Alternative Perspectives* (Unpublished Thesis, University of Calgary).

Renzhi, N., & Baek, Y. J. (2020). Can financial inclusion be an effective mitigation measure? Evidence from panel data analysis of the environmental Kuznets curve. *Finance Research Letters*, *37*, 101725.

Rocha, A., & Miranda, M. C. (2022). A Robust Version of the FGLS Estimator for Panel Data. In *Recent Developments in Statistics and Data Science: SPE2021, Évora, Portugal, October 13–16* (pp. 325-335). Cham: Springer International Publishing.

Sadjiarto, A., Hartanto, S., & Octaviana, S. (2020). Analysis of the Effect of Business Strategy and Financial Distress on Tax Avoidance. *Journal of Economics and Business*, *3*(1), 238-246.

Sani, A. B., Ka'Oje, N. A., & Musa, U. M. (2022). Corporate Tax Avoidance among Deposit Money Banks in Nigeria: Effect of Audit Size and Investment in Property, Plant and Equipment. *Fuoye Journal of Accounting and Management*, *5*(1), 91-120.

Saunders, M. L., Lewis, P. & Thornhill, A. (2009). *Research Methods for Business Students. London: UK,* Financial Times Prentice Hall Inc.

Singh, P., & Singh, S. (2022). Autocorrelation of an Econometric Model. In *Smart Trends in Computing and Communications: Proceedings of SmartCom 2022* (pp. 289-297). Singapore: Springer Nature Singapore.

Suleiman, S. & Barnabas, M. (2021). Effect of tax avoidance on accounting conservatism of listed non-financial firms in Nigeria. *Journal of Economics and Sustainability*, 3(2), 46-55.

Tang, T. (2006). *Book-tax differences, a function of accounting-tax misalignment, earnings and tax management* (Doctoral dissertation, PhD dissertation, The Australian National University, Canberra).

Tang, T. Y. (2015). Does book-tax conformity deter opportunistic book and tax reporting? An international analysis. *European Accounting Review*, *24*(3), 441-469.

Tang, T., & Firth, M. (2011). Can book–tax differences capture earnings management and tax management? Empirical evidence from China. *The International Journal of Accounting*, *46*(2), 175-204.

Tye, W. L., & Wahab, N. S. A. (2018). Roles of tax planning in market valuation of corporate social responsibility. *Cogent Business & Management*, *5*(1), 1482595.

Wahab, N. S. A. (2016). Malaysian multinational companies (MNC): Permanent and temporary nature of tax planning. *Cogent Business & Management*, *3*(1), 1248644.

Wahab, N. S. A., & Holland, K. (2015). The persistence of book-tax differences. *The British Accounting Review*, *47*(4), 339-350.

Wangige, G. J. (2016). *Effect of firm characteristics on financial distress of non-financial firms listed at Nairobi securities exchange, Kenya* (*Unpublished MBA Project*, Kenyatta University).

Widiatmoko, J. & Indarti, M. G. K. (2019). Book tax differences, operating cash flow, leverage and earning persistence in Indonesia manufacturing companies. *Journal Dinamika Akuntansi*, *11*(2), 151-159.

Yusuf, A. M., & Abudulkarim, A. S. (2021). Determinants of Financial Distress of Listed Consumers Goods Companies in Nigeria. *Fudma Journal of Management Sciences*, *2*(2), 470-481.