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Tax Planning and Working Capital Management Decision of Listed Manufacturing Companies in Nigeria

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Abstract:

Working capital management is identified as assisting in planning of current assets and liabilities and places control in a way to minimize liquidity risk and avoid overtrading. However, managers and investors hardly bother about the implication of tax planning on its adequacy and efficiency. The objective of this study is to investigate the effect of tax planning on working capital management decision of listed manufacturing companies in Nigeria. The adopted research design was ex-post-facto research design. The population of the study is the 54 listed manufacturing companies out of which a sample of 27 companies representing 50% was selected using both purposive and quota sampling techniques. Data was obtained from the financial statement of selected companies through multiple regression. It was discovered that tax planning significantly affects working capital management decision in listed manufacturing companies in Nigeria. ($Adj.R^2 = 0.0418$, $Wald-Stat = 51.75$, $p < 0.05$); financial leverage significantly moderates the impact of tax planning on working capital management decision in listed manufacturing companies in Nigeria ($Adj.R^2 = 0.0399$, $Wald-Stat = 17.09$, $p < 0.05$). The recommendations from the study include that management of listed manufacturing companies should ensure working capital adequacy to avoid overtrading and working capital inadequacy; also tax authorities should keep effective tax rate as low as possible because listed firms pay higher tax than the statutory rate.

Keywords: *Effective tax rate, tax planning, working capital management*

1. Introduction

Investment decision depends on the targeted profit, availability of fund, as well as the required technical know-how that is needed in successful implementation of the decision made (Siyabola, Benjamin, Amuda, & Lloyd, 2020). Investment decision making involves adequate knowledge of associated opportunities within a reasonable time. It is characterized with problems of information overload, inadequate capital, risk, poor diversification and where to invest (Ali Ihsan & Karatas, 2020). On the other hand, several management abuses such as higher operating expenses, poor execution, tax inefficiency and higher brokerage commission as it relates to poor investment decisions, are clogs in the wheel of performance in listed manufacturing companies (Hakim, 2020). The consequence of which include reduction in earning capacity and poor financial ability of these companies as identified by (Akinola & Akinsulere, 2019).

Investment is an efficient allocation of human, material and financial resources for medium-term or long-term benefit with the aim of recouping the cost incurred at a profit. Sabri (2016) says that investment decision is committing capital on items that yield optimum returns in a given period of time. It involves what to buy, when to buy and how to buy in order to maximize value. Listed firms must operate within financial adequacy to avoid mismatch of financing right project with wrong fund or vice versa. Short term investment must not suffer at the instance of the long-term. Investment decision making is a continuous cycle which starts exactly where it ends, money made from an investment must be committed to another so that debt would be reduced, resources efficiently utilized and economic growth would be sustained (Ansari, 2018).

The volume of transactions conducted in stock market daily makes it highly volatile and relatively unstable which exposed investment to various risks (economic, financial, political and technical). The fluctuations in stock market prices are not in line with the true position of the companies (Signe, 2018). The Efficient Market Hypothesis (EMH) assumes that market is efficient which is not in reality, frequent changes in stock prices are accounted for by investors' behavior which are informed by critical factors, like emotion and psychology. This accounts for a sharp deviation from the traditional financial model in decision making.

Government tax policy is an indispensable tool in various firms' investment decision making process, other aspect includes public expenditure and fiscal legislation in force in a given territory (Oloidi, 2014). One of the ways to align with government tax policy is to adopt the strategy which exploits available loopholes in tax administration and regulations to

keep tax due within the acceptable limit, while this is professional and legal, intentional reduction of tax liability through bloated expenditure, or understatement of income and deliberate refusal to pay tax due is criminal (Martin, 2009).

Sarri-Eddy (2017) states that tax planning is an aspect of tax management that involves a legal way of tax savings by correctly fulfilling various tax obligations in a way to keep the tax payment due minimally and raised profitability and liquidity level. It is effective when it benefits the tax payer and does not inflict any hardship or distortionary effect on the economy. Some tax payers see tax payment as part of their corporate social responsibility (CSR) and thus discounting the CSR with the amount of tax paid. This is an aggressive tax planning practice (Ling & Abdul-Wahab, 2018). Aggressive tax planning practice is gaining prominence on the global economic scene, with multinational companies like Apple, Facebook, Google, Starbucks, Microsoft, IKEA, Amazon and GAP, accused of revenue loss amounting to several billion euros, arising from their aggressive tax planning (Chen, Chiu, & Shevlin, 2020). This is against the public interest as non-governmental organizations (NGOs) and several societies were staging agitation against it and demanding better tax management practices (Webber, 2010). Aggressive tax planning is not usually discussed on the ground of legality but rather with moral perception. Tax planning practice should be studied in the context of ethical acceptability and moral justifications alongside the legal acceptance (Hans, Gribnau & Jallai, 2017).

Investment decisions are wide and varied and not often visibly articulated, there is the need to state clearly the direction of investment (Seetharaman, Niranjana, Patwa & Kejriwal, 2017). Investment and financing decision can be on long term organization assets or working capital management (Ali & Ali, 2012). According to Nipa, Pidun and Rubna, (2011), some listed companies are single entities with varying output market portfolio but with limited capital availability. Tax planning role is pivotal in determining the type of investment decision, the effective tax rate and not the statutory rate, is the determinant of tax benefits which will attract various investment (Tatu, Dragota, & Vintila, 2014). Tax avoidance has a far-reaching effect on investment decision because, it was facilitated by free market among various territories across the globe (Evertsson, 2016). The requirement of the tax law to compute taxable income on acceptable format other than the generally accepted accounting principles (GAAP) necessitates the provision for deferred tax (PWC, 2011) while investors need to carefully find a tax saving investment which will provide tax exempt advantage.

Kidochukwu and Ifelunini (2019) discovered a significant positive effect of tax avoidance and evasion on generated revenue in Nigeria but failed to ascertain direct impact on companies' liquidities. Barayandema and Ndizeye (2018) studied the determinant of investment decision in Rwanda, through primary source of data collection thus creating methodological gap. Rasmussen, (2016) investigated the investment process for capital budgeting, apart from using literature review, topical gap was identified in the study. Talpos and Vancu (2009) could not establish the effect of corporation tax on investment decision in European Union, while Muzurura and Sikwila (2018) discovered that taxation revenue expended on infrastructure will stimulate domestic investment in Zimbabwe without considering the possible effect on liquidity. The prevalent working capital inadequacies among listed manufacturing companies resulting from paucity in capital provision without a ready-made alternative, pave way for the need to examine if savings from tax planning can be an alternative source of working capital. This study intends to examine the effect of tax planning on working capital management decision in listed manufacturing companies in Nigeria.

1.1. Objective of the Study

Investigate the impact of tax planning on working capital management decision in listed manufacturing companies in Nigeria.

Other objective includes valuating the moderating effect of financial leverage on the effect of tax planning on capital budgeting decision in listed manufacturing companies in Nigeria.

1.2. Research Hypotheses

- H₀₁: Tax planning does not significantly affect working capital management decision in listed manufacturing companies in Nigeria.
- H₀₂: Financial leverage has no significant moderating effect on tax planning and capital budgeting decision in listed manufacturing companies in Nigeria.

2. Literature Review

Capital that is easily accessed by the organization is called working capital and its management involves efficient determination of its adequacy (Yunos, Gapar Ahmad and Sungip, 2018). This means investment decision undertaken on effective management of current assets and liabilities such as: inventories, account payables, account receivables and cash in order to maintain adequate amount of cash to meet short term financial obligations (Yunos, Ghapar, Ahmad & Sungip 2015).

Working capital management which is ensuring harmony between current assets and liabilities impacts on profitability and liquidity of a business outfit (Knauer & Wöhrmann, 2013). According to Aktas, Croci and Petmezaz, (2015) it enhances the expansion of firms' cashflow in a way to foster developmental opportunity that increase shareholders' return. Working capital management is identified as assisting in planning of current assets and liabilities and places control in a way to minimize liquidity risk and avoid overtrading (Mohamad & Saad, 2010).

The management of working capital is a veritable tool in ensuring business survival, liquidity, profitability, profitability and solvency (Mansoori & Muhammad, 2012). It is so important to manufacturing industries according to Arunkumar and Ramanan (2013) because, inventories and trade receivables are their major assets. The components of working capital include: cash & bank balances, expenses prepaid, short-term investment, inventories and receivables and are directly related to the risk exposed to by the organization (Seetharaman, Niranjana, Patwa & Kejriwal, 2017).

Overtrading in all these components results in declination of profit derivable from long-term investment (Ponsian, Chrispina, Tago & Mkiibi, 2014). The management of working capital effectively is exercising tradeoffs between net working capital management and non-current assets on one hand and networking capital and cost (Ali & Ali, 2012). Effective management of working capital in daily business activities is becoming great focus of research (Korankye & Adarquah, 2013).

The essence of managing working capital is to ensure an effective match between inflow and outflow of cash in the short term. In other words, it compares the cashflow of accounts receivables with that of the account payables in order to prevent corporate insolvency (Brealey et al., 2011). Effective working capital management is determined in different number of ways which include: current ratio, inventory ratio and working capital days. This study will adopt the cash conversion cycle (CCC) which measures the length of days from when the raw material is acquired to when money is collected for sales of goods. This is obtained by removing the days of payable outstanding from the days of debtors and inventory outstanding.

Mathematically, this will be given as:

$$CCC = DDO + DIO - DPO$$

Where CCC represents cash conversion cycle,

DDO represents the days of debtors' owings,

DIO represents day of inventory due and

DPO represents the days of payable accrued.

2.1. Theoretical Framework

This study adopts prospect theory of Loomes and Sugden (1982). Regret theory together with the prospect theory identified deviation from expected satisfaction, in that they agreed that individuals compare their expectations such as investment, returns, consumptions etc. with an identified standard (Zeelenberg, & Pieters, 2007). However, while prospect theory opines that the established criteria is a product of the past, regret theory agrees to the contrary, but it both depends on previous and future activities. The key assumption of the theory is the possibility of making regret on a wrong decision made under risk and uncertainty even if the available information about the future appears to be correct. Regret theory deals with the emotional instability arising from the consequence of a wrong decision (Jagongo & Mutswenje, 2014). When people are faced with numerous investment decisions limited by the paucity of fund, and willing to take debt or equity capital which is subject to certain economic factor, there will be a regret if the decision is minimized or rejected outrightly. However, proceed from efficient tax planning can be employed to finance such a decision and the firm will experience regret from not planning their tax effectively to provide such alternative fund, this makes the theory relevant to the study.

2.2. Tax Planning and Working Capital Management Decision

The study conducted by Salawu and Adedeji (2017) discovered that effective tax rate is significantly related to firm value. Net working capital, capital intensity and growth opportunities are significantly related with the effective tax rate (Fernández & Martínez, 2011; Richardson & Lanis, 2007). In the same vein Fernandez (2004) documented a relationship that is positive between tax burden, effective tax rate and inventory intensity. Yunos, Gapar Ahmad and Sungip, (2018) through panel data analysis discovered that proper working capital management determines performance of listed companies and consequently impact on the tax planning. Elongation of debtors' collection period can decrease an organizational profitability and by extension the tax revenue while firm's profitability is positively related to adequate working capital management (Mohamad & Saad, 2011; Afeef, 2011). However, inventory cycle is negatively related to financial performance. Napompech, (2012) documented an inverse relationship between number of sales inventory day and number of receivable days. The lower the number of day sales inventory the higher the level of performance (Makori, & Jagongo, 2013; Yegon, Kiprono, & Willy, 2014).

It was empirically determined also that when the number of account receivable days is shorter, it will lead to higher profit and the better the possibility of tax planning (Dong & Su, 2010; Nobanee, Abdullatif, & AlHajjar, 2011; Akoto, Awunyo, & Angmor, 2013). Cash conversion cycle is negatively correlated with profitability (Abuzayed, 2012; Asaduzzaman & Chowdhury, 2014). On the contrary, Posian, Chrispina, Tago and Mkiibi, (2014) discovered a positive relationship. The result of Buettner, Overesch, Schreiber and Wamser, (2006) states that investment has higher sensitivity to tax if loan capital is restricted, while Blouin, Huizinga, Laeven, and Nicodème (2014) admitted that leverage ratio is reduced by thin capitalization and impact significantly on the total indebtedness of the firms. This confirms the empirical findings from the work of Overesch and Wamser, (2010) that thin capitalization rules reduce total debts in an organization. Furtherance to this, Companies with higher tax rate have more debt capital than others with low rate and when there is company overturn, low geared companies have decrease in their tax rate (Seida & Wempe, 2004, and Graham 1996). Considering thin capitalization as being related to tax avoidance, thin capitalization has direct positive effect on tax haven and tax avoidance globally (Prastiwi & Ratnasari, 2019; Waluyo & Doktoralina, 2018; Taylor & Richard, 2013).

Empirical findings through descriptive analysis identified a direct relationship between creditors' payment period, profitability and cash conversion cycle, but negative relationship between debtors' collection days, profitability and stock turnover ratio (Ponsian, Chrispina, Tago & Mkiibi, 2014; Ruichao, 2013; Mansoori & Muhammad, 2012; Mekonnen, 2011). However, Gill, Biger and Mathur, (2012) as well as Mathuva (2010) documents negative relationship of profitability with stock turnover in days. Working capital is negatively related to profitability (Mekonnen, 2011).

There is no consensus of opinion on the relationship of profitability with capital management of listed firms. While the relationship established by Gabriel and Nucu (2021) is U-shaped, Ndowabile, and Patricia (2019) reported a

concave relationship. However, researches documented positive relationship between performance and working capital management of companies (Wassie, 2021; Rzeszow, 2021&Morshed. 2020). However, empirical evidence confirmed negative effect of working capital management on performance of manufacturing industries (Akgun & Karatas 2021; Fernandez-Lopez et al. 2020). Working capital management influences profitability of selected firms.

There is dearth of literatures on effective tax rate and working capital management. The study conducted by Richardson and Lanis (2007) as well as Fernández and Martínez (2011) discovered that investment in inventory reduces the effective tax rate and shows direct relationship with tax burden. Also, tax asymmetry has no significant influence on the firms' investment behavior as empirically determined by (Tatu, Dragota & Vintila, 2014).

3. Methodology

The research design adopted for the study was *expost-facto* design. The total population of the study amounted to 54 listed manufacturing companies in the Nigeria Stock Exchange Market which was made up of 5 different sectors as at 31st December, 2020. Using stratified and quota sampling techniques, a sample of 27 companies was selected across the 5 sectors of manufacturing companies. Secondary data were obtained from the financial statement and annual report of selected companies over a period of 16 years from 2004 to 2019. Multiple regression analysis was employed through Prais-Winsten regression, correlated panels corrected standard errors (PCSEs).

3.1. Functional Relationship

The following functional relationship were formulated for the study

$$WCM = f(ETR, TA, TS, DT, TSH) \quad \text{Equation 1}$$

$$WCM = f(ETR, TA, TS, DT, TSH, FL) \quad \text{Equation 2}$$

$y_1 = WCM = \text{Capital Budgeting Decision}$

$X = (x_1, x_2, x_3, x_4, \text{ and } x_5)$

$x_1 = ETR = \text{Effective Tax Rate}$

$x_2 = TA = \text{Tax Avoidance}$

$x_3 = TS = \text{Tax Savings}$

$x_4 = DT = \text{Deferred Taxation}$

$x_5 = TSH = \text{Tax Shield}$

$Z = z_1,$

$Z_1 = FL = \text{Financial Leverage}$

3.2. Model Specification

$$WCM_{it} = \beta_0 + \beta_1 ETR_{it} + \beta_2 TA_{it} + \beta_3 TS_{it} + \beta_4 DT_{it} + \beta_5 TSH_{it} + \mu_{it} \quad \text{Model 1}$$

$$WCM_{it} = \beta_0 + \beta_1 ETR_{it} + \beta_2 TA_{it} + \beta_3 TS_{it} + \beta_4 DT_{it} + \beta_5 TSH_{it} + \beta_6 FL_{it} + \mu_{it} \quad \text{Model 2}$$

4. Results and Discussion of Findings

4.1. Test of Hypotheses

4.1.1. Hypothesis One

4.1.1.1. Research Objective 1

Investigate the impact of tax planning on working capital management decision in listed manufacturing companies in Nigeria.

4.1.1.2. Research Question 1

How does tax planning impact on working capital management decision in listed manufacturing companies in Nigeria?

4.1.1.3. Research Hypothesis 1

Tax planning does not significantly affect working capital management decision in listed manufacturing companies in Nigeria.

4.1.2. Hypothesis Two

4.1.2.1. Research Objective 2

Evaluate the moderating effect of financial leverage on the effect of tax planning on working capital management decision in listed manufacturing companies in Nigeria.

4.1.2.2. Research Question 2

To what extent has the financial leverage moderate the effect of tax planning on working capital management decision in listed manufacturing companies in Nigeria?

4.1.2.3. Research Hypothesis 2

Financial leverage does not significantly moderate the impact of tax planning on working capital management decision in listed manufacturing companies in Nigeria.

	Model One				Model Two (Inclusive of Moderating Variable)			
	Prais-Winsten Regression, independent Panels Corrected Standard Errors				Prais-Winsten Regression, independent Panels Corrected Standard Errors			
Variable	Coeff.	SE	t-test	Prob.	Coeff.	SE	t-test	Prob.
Constant	91.00	42.39	2.15	0.032	61.09	57.89	1.06	0.291
ETR	-.364	.2177	-1.67	0.094	-.3694	.4248	-0.87	0.385
TA	1.8766	1.8583	1.01	0.313	1.8273	.9364	1.95	0.051
TS	-7.98	9.49	-0.84	0.400	5.746	19.28	0.30	0.766
DT	-33.76	19.59	-1.72	0.085	-33.34	14.05	-2.37	0.018
TSH	47.191	9.816	4.81	0.000	38.26	19.83	1.93	0.054
FL	-	-	-	-	-0.1063	4.2964	-0.02	0.980
Adj. R ² ; Prob.(F-Stat)	0.0418; 0.0000				0.0433; 0.0000			
Diagnostics Test	Statistics		Prob.		Statistics		Prob.	
Wald-Stat	51.75		0.0000		17.09		0.0000	
Hausman Test	-38.26		0.0000		-54.95		0.0512	
Breusch-Pagan LM test	21.93		0.0000		21.8		0.0000	
Heteroskedasticity Test	18.43		0.5594		27		0.4640	
Pesaran's test of CSID	-0.81324		0.4062		-0.598515		0.0000	
Durbin-Watson d-statistic	1.032104				1.031254			

Table 1: Test of Hypothesis One and Hypothesis Two
Source: Researcher's Computation (2021)

Notes: Table 4.2.2 reports Prais-Winsten Regression, independent Panels Corrected Standard Errors results of the effect of tax planning on working capital management. The dependent variable is working capital investment decision. The independent variables are: effective tax rate (ETR), tax avoidance (TA), tax savings (TS), deferred taxation (DT) and tax shield (TSH). The moderating variable is the financial Leverage (FL).

4.2. Interpretation

While considering the most suitable model among fixed or random effect and pooled Ordinary Least Square (OLS) to estimate the regression model 1, the result of Hausman test as shown in Table 1 confirmed that, Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) was found to be most appropriate estimator although there is no presence of heteroskedasticity with the *p-value* of 0.5594, we do not reject the null hypothesis of homoscedasticity, but there is autocorrelation according to the Durbin-Watson statistic value (1.032104 < 2) indicating the presence of autocorrelation. However, before choosing Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) as the most appropriate, the fixed effect was the selected estimator based on the *p-value* of Hausman test. Wald-Stat was conducted to confirm if the Hausman test result was valid. The presence of autocorrelation with the fixed effect model as chosen shows that there is need to regress for Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) as assumed by fixed effect, since the number of firms (*n*) is more than the number of years (*t*) (*n* > *t*). The null hypothesis of the Hausman specification test is that there is no correlation between the random effects and fixed effect model, thus the random effect estimates are efficient and consistent, and that the fixed effect estimates are inefficient.

The result of the Hausman test conducted is *p-value* = 0.0000, (*P-value* < 5%), meaning the rejection of the null hypothesis. The Wald-Stat test was conducted to confirm the authenticity of Hausman result, and the result of Wald-Stat indicates a *p-value* = 0.0000 (*p* < 0.05 significant level chosen for the study) which supports the Hausman test. However, the heteroskedasticity test revealed a non-significant *p-value* of 0.5594 which indicates no presence of heteroskedasticity, hence, there is homoscedasticity. Therefore, Prais-Winsten regression, correlated panels corrected standard errors was found to be the most appropriate estimator for the model because the number of firms in the panel is more than the number of years.

In the same vein, the introduction of financial leverage (FL) as control variable, also supported the result of the Hausman test in favor of fixed effect with *p-value* = 0.0000 (*p* < 0.05) significant level chosen for the study). The heteroskedasticity test with *p value* 0.4640 < 0.05 meaning that we reject the null hypothesis of homoscedasticity. Hence there is heteroscedasticity. The Durbin-Watson d statistic of 1.031254 < 2 indicates autocorrelation. Therefore, Prais-

Winsten regression, correlated panels corrected standard errors (PCSEs) was considered the most appropriate estimator in order to correct the problems of both serial correlation and heteroscedasticity.

4.3. Diagnostic Tests

In order to determine the robustness of the models, the following tests were conducted: autocorrelation, heteroskedasticity and cross-sectional dependence. Durbin-Watson d static was employed for autocorrelation, the interpretation of the test is that $DW=2$, no autocorrelation, $DW<2$ means positive autocorrelation while $DW>2$ implies negative autocorrelation. The d -statistic (6, 402) = 1.032104 means there exist autocorrelation of first order among the companies. The null hypothesis of the auto correlation test is that there is no correlation of the residuals of the models over time. The heteroscedasticity test was conducted through the White test for heteroscedasticity, the null hypothesis of the test is homoscedastic and the outcome of the test indicates that p -values= 0.5594 and 0.4640 for both models one and two respectively. The implication of these is that both models are homoscedastic. These imply that the residuals of both models are static over time and its standard errors are correlated over time. Model one being homoscedastic implies that its residuals varies over time and its standard errors are uncorrelated. For the appropriateness of both models one and two, fixed effect from the Hausman test in relation to the presence of heteroskedasticity as well as autocorrelation indicate the need to use Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) to estimate the models. This is because fixed effect assumes that when heteroskedasticity is present, Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) should be used when the number of firms is greater than number of years ($n>t$).

To determine the cross-sectional dependence between the selected listed companies of the study, the Pesaran CSID test was used. The statistic of -0.81324 with a probability value of 0.4062 and -0.598515 with probability value of 0.0000 for models one and two respectively were reported. While the test is not statistically significant at 5% level of significance for model one, it is however statistically significant for model two. The defect of the Pesaran CSID test was equally corrected through the Prais-Winsten regression, correlated panels corrected standard errors (PCSEs). This implies that the selected listed companies are cross sectional dependence.

4.4. Without Moderating Variable (Model One)

The results of the post-estimation tests carried out estimated model one using Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) as shown in Table 4.21.

$$\begin{aligned} WCM_{it} &= \beta_0 + \beta_1 ETR_{it} + \beta_2 TA_{it} + \beta_3 TS_{it} + \beta_4 DT_{it} + \beta_5 TSH_{it} + \mu_{it} \dots\dots\dots \text{Model 1} \\ WCM_{it} &= 91.00 - 0.364ETR_{it} + 1.8766TA_{it} - 7.98TS_{it} - 33.77DT_{it} + 47.191TSH_{it} + \mu_{it} \\ T\text{-test} & \quad 2.15 \quad -1.67 \quad 1.01 \quad -0.84 \quad -1.72 \quad 4.81 \end{aligned}$$

According to the Table 4.2.2 above, the regression results show that tax avoidance and tax shield have positive relationship with working capital management decision of listed manufacturing companies in Nigeria, while effective tax rate, tax savings and deferred taxation demonstrate a negative relationship. In addition, there is evidence that only tax shield has significant relationship with working capital management decision of listed manufacturing companies in Nigeria ($TSH = 47.191$, $t\text{-test} = 9.816$, $p < 0.5$). This implies that tax shield is a significant factor influencing changes in the working capital management decisions of listed manufacturing companies in Nigeria.

On the contrary, effective tax rate, tax avoidance, tax savings and deferred tax do not have significant relationship with the working capital management decision of listed manufacturing companies in Nigeria ($ETR = -0.364$, $t\text{-test} = -1.67$, $p > 0.05$, $TA = -1.8766$, $t\text{-test} = 1.01$, $TS = -7.98$, $t\text{-test} = -0.84$, $p > 0.05$, $DT = -33.766$, $t\text{-test} = -1.72$). This means that effective tax rate, tax avoidance, tax savings and deferred taxation are not significant factors influencing changes in the working capital management decisions of listed manufacturing industries in Nigeria.

Concerning the magnitude of the estimated parameters for the coefficients of the regression analysis, a unit decrease in effective tax rate will lead to 0.36 increase in the working capital management decision of listed manufacturing companies in Nigeria, while a unit increase in tax avoidance will lead to 1.88 increase, in the same vein, one percent decrease in tax savings and deferred taxation will lead to 0.079, and 0.33 unit increase in working capital management decision of listed manufacturing companies in Nigeria respectively. However, one percent increase in tax shield will result into 0.472 increase in working capital management. This implies that while tax avoidance and tax shield have direct relationship with working capital management, effective tax rate, tax savings and deferred taxation have inverse relationship.

F-statistic was employed to determine the total significance of the tax planning (independent variables) on the investment decision (dependent variable) and to confirm further that all the estimated coefficient of independent variables is not zero (0). Model 1 as evident in the Table 1 above has the Probability (F-Stat) equals 0.000, which is lower than the 5% level of significance. This affirms that the independent variables (ETR, TA, DT, TS and TSH) are linearly related to the dependent variable (WCM). The Adjusted R^2 which measure the proportion of changes in the working capital management decision of listed manufacturing companies in Nigeria as a result of changes in effective tax rate, tax avoidance, tax savings, deferred taxation, tax shield and financial leverage explains about 4.2 per cent changes in the working capital management decision of listed manufacturing companies in Nigeria, while 95.8 percent accounted for other factors explaining changes in the working capital management decision of listed manufacturing companies in Nigeria, which were not captured in the model. This implies that tax planning accounts for a very small changes in working capital management decision of listed manufacturing companies in Nigeria.

4.5. Decision Rule

The Wald-Test of 51.75 is statistically significant with $p < 0.05$. At the level of significance 0.05. The Wald-Test recorded 51.75 while the probability of the Wald-Test is 0.0000 which is less than 0.05 adopted level of significance indicating that on the overall, the null hypothesis of Tax planning does not significantly affect working capital management decision in listed manufacturing companies in Nigeria was rejected. Thus, the alternative hypothesis that Tax planning significantly affect working capital management decision in listed manufacturing companies in Nigeria was accepted.

4.6. Model Two Inclusive of Moderating Variable

The model two was estimated using Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) as shown in Table 4.2.1. This is as a result of the post-estimation tests conducted.

$WCM_{it} = \beta_0 + \beta_1 ETR_{it} + \beta_2 TA_{it} + \beta_3 TS_{it} + \beta_4 DT_{it} + \beta_5 TSH_{it} + \beta_6 FL_{it} + \mu_{it}$ Model 2

$WCM_{it} = 61.09 - 0.3694ETR_{it} + 1.8273TA_{it} + 5.746TS_{it} - 33.34DT_{it} + 38.26TSH_{it} - 0.1063FL_{it} + \mu_{it}$

T-test = 1.06 -3.98 1.95 0.30 -2.37 1.93 -0.02

When the financial leverage (FL) was introduced as the control variable to model 1 to form model 2, results show that tax avoidance, tax savings and tax shield have positive relationship with working capital management while the effective tax rate and financial leverage (moderating variable) introduced on the other hand have negative relationship with working capital management decision of listed manufacturing companies in Nigeria. This implies that tax avoidance, tax savings and tax shield increase with the level of working capital while effective tax rate and financial leverage reduce as working capital management decision increases.

Also, the result indicates that only deferred tax has significant relationship with working capital management decision of listed manufacturing companies in Nigeria ($DT = -33.34$, $t\text{-test} = -2.37$, $p < 0.05$). This implies that deferred taxation is a significant factors influencing changes in the working capital management decisions of listed manufacturing companies in Nigeria.

On the contrary, effective tax rate, tax avoidance, tax savings, tax shield and financial leverage do not have significant relationship with the working capital management decision of listed manufacturing companies in Nigeria ($ETR = -0.3694$, $t\text{-test} = -0.87$, $p > 0.05$, $TA = 1.8273$, $t = 1.95$, $p > 0.05$, $TS = 5.746$, $t\text{-test} = 0.30$, $p > 0.05$, $TSH = 38.26$, $t\text{-test} = 1.930$, $p > 0.05$, $FL = -0.1063$, $t\text{-test} = -0.02$, $p > 0.05$). This means that effective tax rate, tax avoidance, tax savings, tax shield and financial leverage are not significant factors influencing changes in working capital management decisions of listed manufacturing companies in Nigeria.

Considering the magnitude of the estimated parameters for the coefficients of the regression analysis, a unit decrease in effective tax rate will lead to 0.3694 while a unit increase in tax avoidance will lead to 1.8273 increase in the working capital management decision of listed manufacturing companies in Nigeria respectively. Also, a percentage increase in tax shield, will result to 0.38% increase in the working capital management decision of listed manufacturing industries in Nigeria. However, a percent increase in tax savings results in 5.746 increase, while a percentage decrease in deferred taxation will lead to 0.3334 increase in working capital management decision of listed manufacturing firms in Nigeria.

F-statistics probability was used to assess the overall significance of the tax planning (independent variables) on the investment decision (dependent variable) and to confirm that all the estimated coefficients of independent variables (Tax planning) are not zero (0). The probability of (F-Stat) for model 5 as shown in the table 4.2.5 is 0.0000, and it is significant at 5 percent. The inference from this is that the independent variables (ETR, TA, DT, TS, TSH and FL) have direct relationship with the dependent variable (WCM). The Adjusted R^2 which measure the proportion of changes in the working capital management decision of listed manufacturing companies in Nigeria as a result of changes in effective tax rate, tax avoidance, tax savings, deferred taxation, tax shield and financial leverage explains about 3.99 per cent changes in the working capital management decision of listed manufacturing companies in Nigeria, while the remaining 96.01 per cent relates to other factors explaining changes in the working capital management decision of listed manufacturing companies in Nigeria, which were not captured in the model.

4.7. Decision Rule

The Wald-Test result is 17.09 while the probability of the Wald-Test is 0.0000 which is less than 0.05 adopted level of significance indicating that on the overall, the statistical significance of the model showed that the null hypothesis of financial leverage does not significantly control the impact of tax planning on working capital management decision in listed manufacturing companies in Nigeria was rejected. Thus, the alternative hypothesis that financial leverage significantly controls the impact of tax planning on working capital management decision in listed manufacturing companies in Nigeria was accepted.

5. Discussion of Findings

Working capital refers to the amount of capital that is readily available for a firm to use in daily transactions (Yunos, Gapar Ahmad and Sungip, 2018). Its management therefore encompasses effective utilization of current assets to cater for the current liability need of the organization. It is a way of ensuring harmony between current assets and liabilities in order to impact positively on profitability and the liquidity position of the organization. Working capital management is a tool in the hands of the management to enhance business survival, liquidity, profitability and solvency

The section of this study discusses the result of the effect of tax planning on working capital management investment decision of listed manufacturing industries in Nigeria. The empirical findings of the study through Prob. (F-Statistics) confirms that tax planning significantly affect working capital management decision in listed manufacturing firms in

Nigeria. This implies that the quantum of investment of sampled firms in working capital is determined with much consideration to tax planning strategies of effective tax rate, tax avoidance, deferred taxation, tax savings and tax shield.

The result also indicates that tax avoidance and tax shield have positive relationship with working capital management investment decision making. This is so because, savings from tax avoidance and tax shield result in increase in cash availability which consequently improves the working capital management situation of the organizations. Effective tax rate on the other hand has a negative relationship with the working capital management decision because, increase in tax rate will consequently results in reduction in cash availability which affect the working capital management. Deferred taxation will have long run effect of reducing cash availability and hence working capital. There is tax planning in working capital management through bulk purchase and mass-payment of creditors in a way to minimize the cost of stamp duties.

The Adjusted R-Squares (4.2) with $p < 0.05$ indicate significant and lower influence of tax planning on working capital management decision of listed manufacturing industries in Nigeria. The result supports the view of Yunos, Gapar Ahmad and Sungip, (2018) that working capital management impacts on tax planning and determines profitability of listed companies. It also confirms the empirical findings of Fernández & Martínez (2011) that net working capital, capital intensity and growth opportunity have significant relationship with the effective tax rate. However, the result also supports the view of Akoto, Awunyo, and Angmor, (2013) which states the shorter the number of account receivable days the higher the profit and the better the possibility of tax planning.

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Specifically, the findings negates the empirical results of Cao, Xu, and Ao, (2019) that tax savings has a significant effect on equity, when return on capital is higher than the cost of capital, there will be increase in investment. The result negates the *a priori* expectation of positive relationship between tax planning and working capital management decision because, only tax shield and tax avoidance have positive relationship with working capital management while effective tax rate, deferred taxation and tax shield depict a negative relationship. The result is consistent with prospect theory because, it states that adequate working capital management is a product of the past and it will lead to regret if it depends on both previous and future activities. It further states that there is going to be a regret if a wrong working capital management decision is made.

6. Conclusion and Recommendation

The study examined the effect of tax planning on working capital management of listed manufacturing companies in Nigeria and concluded that tax planning significantly affects working capital management decision in listed manufacturing companies in Nigeria. Also, financial leverage significantly moderates the impact of tax planning on working capital management decision in listed manufacturing companies in Nigeria.

The study further recommend as follows:

- The results obtained revealed that listed manufacturing companies are experiencing decline in the level of their working capital management. Therefore, management of listed manufacturing companies should ensure working capital adequacy to avoid overtrading and working capital inadequacy which can result to reduction in profitability and investment.
- Tax authorities should keep effective tax rate as low as possible because listed firms pay higher tax than the statutory rate, which is not in line with the recommendation of National Tax Policy (NTP) 2017.

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