

THE ROLE OF DEPRECIATION TAX SHIELD IN SHAPING EARNINGS MANAGEMENT PRACTICES OF NIGERIAN BANKS

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Abstract

This study determined the effect of corporate tax shield of depreciation on earnings management of deposit money banks in Nigeria. Ex Post Facto research design was adopted for the study. Data were extracted from the sampled thirteen banks in Nigeria from 2013 to 2023. Regression analysis was employed to test the hypothesis; the study revealed that depreciation has a significant effect on earnings management of deposit money banks in Nigeria at 5% level of significance. Conclusively, the findings indicated that tax shield of depreciation has significant effect on earning management in Nigeria. Based on the findings, the study recommended that tax authorities should ensure that depreciation to be deducted must be associated with an asset used in a business or income-generating activity, and have an expected lifespan of more than one year.

Keywords: Corporate tax shield, Depreciation and Earnings management

Introduction

Collectively, corporate organizations view these operational concerns that contribute to under sheltering as non-tax costs. Graham, Hanlon, Shelvinm and Shroff (2017) stated that beyond these non-tax costs, under-sheltering can arise from the financial reporting considerations of tax avoidance. A large literature has investigated the book-tax trade-off where banks must balance the incentive to minimize taxes (by lowering taxable income) and to maximize book income (that is, the income reported on the income statement). Engaging in significant tax shield can also increase tax authority scrutiny through more frequent audits or greater penalties (Bozanic, Hoopes, Thornock & Williams, 2017).

Earnings management is the deliberate interference in financial reporting practice to achieve private gains (Goel, 2016). This means that earnings management is the manipulation of financial statement by managers, using accounting choices, estimates and methods, to achieve some objectives that are largely in conflict with the underlying financial position of the firm. Moreover, earnings management is used as a mechanism for companies to avoid taxes. This is because in a certain accounting period, discretionary accruals may be adjusted by accounting manipulations, which results in modifications in amount of tax paid by the company.

More studies, such as these conducted by Setiawati and Na'im (2021), Hidayati and Zulaikha (2018) earnings management with discretionary accrual approach failed to prove the existence of earnings management by the companies in response to tax rate reduction. On the other hand, the studies done by Subagyo and Oktavia (2010) have successfully verified that earnings management performed by firms is

influenced by tax incentive and non-tax incentive in response to the tax rate changes. Wijaya and Martanis (2011) study and results indicated that earnings management was affected by tax incentives, such as tax planning, net deferred tax liability, as well as non-tax incentive (earnings pressure). There have been several previous studies regarding the tax shield and earnings management but they are not without inconsistent findings. While studies by Guenther (1994) in United States, Setiawati and Na'im (2021), Hidayati and Zulaikha (2018) in Indonesia obtained evidence of non-association between tax rate changes and earnings management. However, there is a limited research on the tax shield of depreciation on earnings management over three financial years now, means there is no recent study on the subject matter in Nigeria. While earnings management conducted by loss firms were motivated by non-tax incentive, this study sought determines the effect of tax shield depreciation on earnings management of deposit money banks in Nigeria.

Conceptual Review

Tax shields according to Murray (2019) involved investments and purchases that are tax deductible. Some common examples include: businesses can take a depreciation expense on the purchase of business property, including equipment, furniture and fixtures, and vehicles (but not land). Depreciation is basically a way to spread out the expense of buying a business asset over the life of that asset. Accelerated depreciation allows you to depreciate more of the asset in the first year or two, and it's a great example of a tax shield. The two types of accelerated depreciation are Section 179 expenses and bonus depreciation. Depreciation is what happens when assets lose value over time until the value of the asset becomes zero, or negligible. Depreciation can happen to virtually any fixed asset, including office equipment, computers, machinery, buildings, and so on. One fixed asset that is exempt from depreciation is the value of land, which appreciates (increases) over time. There are three main depreciation methods that anyone trying to find out how to calculate depreciation should familiarize them with. We'll explore these different types of depreciation in the next section. But before you can start to work out depreciation, you'll need to know a couple of key pieces of information:

Useful life – This is essentially the length of time that an asset is considered to be productive. Beyond its useful life, it's no longer cost-effective to continue using the asset.

Salvage value – After the useful life of the asset has concluded, you may wish to sell the asset at a reduced rate. This is referred to as the salvage value of the asset.

Cost of asset – This is the full cost of the asset, including taxes, setup expenses, and shipping.

By including depreciation in your accounting records, your business can ensure that it records the right profit on the balance sheet and income statement. As depreciation is a highly complex area, it's always a good idea to leave it to the experts. Ensure that your company's accountant handles all calculations relating to depreciation. In addition, accounting software like Xero can do the maths automatically.

There are a couple of different depreciation methods that you can use. Here's a quick rundown of the three main types of depreciation:

Units of production depreciation

In some cases, it makes more sense to calculate depreciation by measuring the work the asset does, rather than the time it serves. So, in this depreciation method, equal expense rates are assigned to each unit of production, meaning that depreciation is based on output capacity rather than number of years. There are two steps you'll need to go through to calculate units of production depreciation.

Firstly, you need to calculate the per-unit depreciation:

Per-Unit Depreciation = (Asset Cost – Residual Value) / Useful Life in Units of Production Then, you'll need to calculate the total depreciation, based on the actual units that have been produced:

Total Depreciation = Per-Unit Depreciation x Units Produced

Double declining depreciation

Double declining depreciation is an accelerated form of depreciation, where a higher percentage of value is lost in the early stages of the asset's useful life. This is particularly useful when assets are consumed more rapidly during the first few years. You can calculate double declining depreciation as follows:

Depreciation = 2 x Straight-Line Depreciation Rate x Book Value at the Beginning of the Year

Ultimately, depreciation accounting gives you a much better understanding of the true cost of doing business. To gain a more accurate picture of your company's profitability, you'll need to know depreciation, because as assets wear down and become less valuable, they'll need to be replaced. Depreciation helps you understand how much value your assets have lost over the years, and if you don't factor it into your revenue, it could mean that you're underestimating your costs.

Earnings management

Several studies provide evidence that firms manage their earnings around events when there is a change in the corporate tax revenue. In their studies, firms are observed to defer earnings from high to low tax rate periods. Hanlon and Heitzman (2010) looked at more work to help understand the reporting behavior of privately held firms overall and especially with respect to taxation, more recent studies observe that private firms act according to the proposed incentive around tax reforms, even more than publicly listed firms (Lin, Mills, & Zhang, 2014). Hanlon and Heitzman (2010) also encouraged the use of private firms in research where they are used not just as a comparison group for publicly held firms. The events of investigation are recognized as strong incentives for earnings management and reforms both in a single-country context and with an international perspective are analyzed (Sundvik, 2016).

Empirical Reviews

Ochoku (2021) examined the determinants of earnings management. The study employed data from 77 in non-financial firms listed on the Nigeria Stock Exchange (now Nigeria Exchange Group) for the period 2013 to 2019. The results showed a strong evidence of an incentive to manage earnings. Profitability (Return on Assets-ROA) and the size of a firm have a strong positive impact on earnings management. The study suggests that external stakeholders should observe a firm's factors influencing its assets, non-debt tax shield and operating cash flows (such as accelerating / delaying cash receipts/ payment through the use crediting sales and granting discounts), these being the crucial factors influencing earnings management

even when the firm is increasing in size. Ofurum, Okoye, and Ezejiofor (2021) ascertained the effect of corporate tax shield on earnings management: An empirical analysis of commercial banks in Nigeria. Ordinary Least Square was used for the analysis. Findings revealed that medical expenses and amortization have a positive relationship with and significant effect on earnings management of commercial banks in Nigeria. Blessing (2020) evaluated the effect of tax shield on earnings management in Nigeria banks. *Ex post facto* research design was adopted. The population consisted of seven banks quoted on the Nigeria exchange limited. Data were extracted from audited annual reports and accounts of the sampled banks from 2013 to 2019. Hypotheses were tested, using regression analysis. The analysis showed that debt level has a positive effect on earnings management while effective tax rate, has a negative effect on earnings management. Trung, Liem, and Thuy (2020) examine the impact of short-term debt on accruals-based earnings management: Evidence from Vietnam. The study sought to examine the relationship between short-term debt maturity and accruals-based earnings management, using a sample of listed firms in Vietnam from 2010–2017. The findings provided evidence suggesting that short-term debt maturity is likely to exert a desirable impact on lowering earnings management at low levels of short-term debt, while at high levels it tends to increase earnings manipulation, demonstrating a U-shaped relationship. Furthermore, it is revealed that growth opportunities moderate the impact of short debt maturity on earnings management. Prabowo, Winarna, Aryani, Falikhatun, and Gantjowati (2020) assessed debt and earnings management in Indonesia: An issue of free cashflow or covenant? Their paper investigated the effect of corporate debt on the pattern of earnings management in Indonesia. Analysis was based on a sample set consisting of 497 firms engaging in manufacturing operations listed in Indonesia Stock Exchange during the period of 2009 to 2014. The results revealed that corporate debt is an important determinant of earnings management as it was statistically significant. Further tests revealed that the interaction between liquidity and specification of corporate debt shapes different pattern of the directions of earnings management. Giulia and Andualem (2019) investigated corporate ETRs in Ethiopia. It was also too assessed whether the distributional effects in practice are in line with the corporate tax policy design. The researchers calculated ETRs in line with the literature in this field, using profit tax at the numerator and gross profit at the denominator. The result showed that despite a proportional tax rate, small firms face a higher effective tax burden than larger firms, while middle sized firms face the lowest burden of all. They highlight that tax systems can have practical implications that differ largely from their policy design, due to compliance costs and imperfect enforcement. Tarek (2017) investigated firm-specific and country-level determinants of accruals-based earnings management and real activities-based earnings management of 802 non-financial firms listed on the stock exchanges of Bahrain, Egypt, Jordan, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, and the United Arab Emirates in the MENA region over the period 1996-2014. The results showed that GDP growth, the country-level index variables, leverage, profitability, the operating cycle, Altman's Z-Score, and earnings management flexibility are positively associated with discretionary accruals while firm size, growth opportunities, the dividend payout ratio, and asset tangibility are negatively associated with discretionary accruals. Further, industry membership is found to impact upon

discretionary accruals. Aries (2015) determined the effect of leverage and firm size on earnings management. Sampling was done by purposive sampling method with the criteria listed on the Indonesian Stock Exchange and has a complete set of financial statements. The study sample consisted of 30 manufacturing companies, used multiple regression, F-test and T-test analyses techniques and to test the research hypothesis. Results showed that operating leverage at coefficient of 0.215, significantly affects earnings management. Uwalomwa, Uwuigbe, Olubukunola, and Okorie (2015) assessed the effects of firms' characteristics on earnings management of listed firms in Nigeria for the period 2006-2010 were used in presentation of data and analysis used both descriptive statistics and econometric analysis, using the pooled ordinary least square regression for the listed sampled firms. Findings from the study revealed that while firm size and firms' corporate strategy have a positive relationship with and significant impact on earnings management (proxied by discretionary accruals), the relationship between firm financial leverage and discretionary accruals of the sampled firms in Nigeria was not significant. Harnovinsah and Lisya (2014) examined whether companies that earn profits will indulge in earnings management in response to corporate tax changes, according to tax incentives or non-tax incentives. The research sampled 50 companies in manufacturing sector listed in Indonesia stock exchange from 2008-2010. The method of analysis used was multiple regression analysis. One sample t-test was used as a means of testing these differences. Multiple regression analysis was used to test whether companies that earn profit with earnings management do respond to corporate tax rate changes. Furthermore, Ttest was used to test the level of discretionary accrual between before and after the reduction income tax rate corporation. The result proves that the companies make earnings management in order to respond to corporate tax changes, and that earnings management performed by profit firm is influenced by tax incentives (tax planning). Paiva and Lourenço (2013) examined the relationship between sizes of firm with earnings management in family firms. The earning management was dependent variable and discretionary accruals as a proxy and computed by using the Jones model. Independent variables were size of family firms. Family firm was defined as the firm whose 25% equity is owned by the family and one representative is officially concerned with the authority of an organization. Secondary data from 2006 to 2010 were collected from the non-financial sector. Findings revealed that the family firms that are large in size have the lower level of earning management while on the other hand the small family firms have the large level of earning management.

Methodology

The study used *ex-post facto* research design. This design is considered appropriate because the study aims at measuring the relationship between one variable and another in which the variables cannot be manipulated, hence the adoption of the design. The population of the study consists of twenty one (21) deposit money banks quoted on the Nigeria Exchange group from 2013-2023. Thirteen (13) quoted deposit money bank on the Nigeria Exchange Group were selected from twenty one banks stated in the study. Data were extracted from the annual reports and audited accounts of the banks under study.

Model Specification

The model for this study was adapted from the study of Ofurum, Okoye, and Ezejiofor (2021) which was modified to suit the variables under study. The adapted model is presented as thus: $EAMGT = f(MDE, CHD, AMT, DEP)$.

In the course of modifying the model a variable such as Effective Tax Rate (ETR) was added to make the model conformed to the earlier stated specific objectives. Thereafter the newly modified model of this study is presented in functional form as stated below.

$EAMGT = f(ETR, MDE, CHD, AMT, DEP)$Model1

The econometric form of the model is stated in the equation below.

$EAMGT_{it} = \beta_1 DEP_{it} + \sum_{it} \dots\dots\dots i$

Where: EAMGT = Earnings Management

DEP = Depreciation β_1 =

Constant/Intercepts β_1 = Regression

Coefficient

$\sum$ = Error Term i = Cross
section

t = Time Period

Measuring Dependent Variable (Earnings Management)

This study employed the modified Jones's model (Dechow et al., 1995) to measure the level of earnings management or discretionary accruals (DTAC). This model used total accruals (TAC) that are classified as discretionary components (DTAC) and non-discretionary components (NDTAC). Thus, defined as follows:

$TAC = NDTAC + DTAC$

Where:

TAC = Total accrual period t

NDTAC = Value of non-discretionary accruals

DTAC = Discretionary accrual

Method of Data Analysis

In order to investigate corporate tax shield and earnings management, the study used descriptive statistics, correlation and simple regression analysis. Other diagnostic tests were also conducted out, test like Johansen cointegration rank test and pairwise granger causality test.

Decision rule:

The study's hypotheses were tested at 5% level of significance. In view of that, when the pstatistics is less than 0.05, the null hypotheses is rejected and the alternate hypothesis is accepted. But when the P-statistics is higher than the critical level of 0.05, the null hypotheses is not rejected.

Data Analysis Descriptive Statistics

The descriptive statistics provides evidence on the mean distribution, maximum, minimum, standard deviation, median and the count of the data collected which span from 2013 to 2023.

Table 1 Descriptive Statistics

	TACC	DEP
Mean	-2.70E+08	11977377
Median	-3.79E+08	8578274.
Maximum	4.14E+09	22813359
Minimum	-5.50E+09	6801646.
Std. Dev.	3.09E+09	6451190.
Skewness	-0.164774	0.902460
Kurtosis	2.004286	2.127342
Jarque-Bera	0.458353	1.674696
Probability	0.795188	0.432857
Sum	-2.70E+09	1.20E+08
Sum Sq. Dev.	8.59E+19	3.75E+14
Observations	26	26

Source: E-view 9 Output

The above table revealed the mean of each variable, their maximum values, minimum values, standard deviation and Jarque-Bera (JB) statistics (normality test).The result provided some perception into the nature of the Nigeria quoted banks that were used in this study.

It was observed that on the average over the ten eleven year period (2013-2023), the sampled quoted banks in Nigeria were characterized by negative average TACC (-2.70E+08). The average of depreciation (DEP) is 11977377.0, with the minimum value of 22813359.0 and minimum value of 6801646.0. The Jarque-Bera (JB) which test for normality or the existence of outlier or extreme values among the variables indicates that all our variables are normally distributed and significant at 5% level and the result could be generalized. This also implies that a least square regression can be used to estimate the regression models.

Correlation Analysis

In examining the association among the variables, we employed the Pearson correlation coefficient (correlation matix) and the results are presented in table 4.2.

Test of Hypothesis

H₀₁: Effective tax rate has not significantly affected earnings management of deposit money banks in Nigeria.

In order to examine the effect of TACC on the variable (DEP) and to also test the formulated hypotheses, a pooled multiple regression analysis was used. The interaction based on regression results are presented and discussed in table below.

Table 2: Regression Analysis Result

Dependent Variable: TACC

Method: Least Squares

Date: 05/28/24 Time: 11:55

Sample: 2013 2023

Included observations: 26

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.67E+09	2.50E+09	-3.865690	0.0181
DEP	94.23517	47.1454	2.764210	0.0052
R-squared	0.989669	Mean dependent var	-	2.70E+08
Adjusted R-squared	0.976667	S.D. dependent var		3.09E+09
S.E. of regression	1.138912	Akaike info criterion		42.78121
Sum squared resid	5.067488	Schwarz criterion		42.63416
Log likelihood	-218.0431	Hannan-Quinn criter.		44.60945
F-statistic	22.89700	Durbin-Watson stat		1.528744
Prob(F-statistic)	0.000150			

Table 2 above indicates that the regression analysis was conducted to test the significant effect between tax shield and earnings management. The result showed that depreciation had positive and no significant effect on earnings management of deposit money banks in Nigeria. From the findings in the table 2, the value of adjusted R squared was 0.98. This implies that only 98% changes in earnings management of banks could be accounted for by independent variable, DEP, while 2% was explained by unknown variables that were not included in the model.

The Durbin-Watson Statistic of 1.528 suggests that the model does not contain serial correlation. The F-statistic of the regression is equal to 22.897 and the associated F-statistical probability is equal to 0.000, so the alternative hypothesis was accepted and the null hypothesis was rejected. The probability of the slope coefficients indicate that; $P\text{-value} = 0.005 < 0.05$). The co-efficient value of; $\beta_1 = 94.23517$; $t = 2.764210$ for TAC implies that depreciation is positively affect earnings management, and also not statistically significant at 5%.

Since the P-value of 0.005 is less than the critical value of 5% (0.05), then, it would be upheld that depreciation has a significantly effect on earnings management of deposit money banks in Nigeria at 5% level of significance.

Conclusion

This study determined the effect of corporate tax shield of depreciation on earnings management using thirteen deposit money banks in Nigeria. Data were extracted from the sampled banks in Nigeria from 2013 to 2023. Regression analysis was employed to test the hypothesis; the study revealed that depreciation has a significant effect on earnings management of deposit money banks in Nigeria at 5% level of significance. Conclusively, the findings indicated that tax shield of depreciation has significant effect on earning management in Nigeria. Based on the findings, the study recommended that tax authorities should ensure that depreciation to be deducted must be associated with an asset used in a business or income-generating activity, and have an expected lifespan of more than one year.

References

- Aries, V. (2015). The influence of leverage and its size on the earnings management. *Research Journal of Finance and Accounting*, 6(8), 413-425.
- Blessing, N. N. (2020). Tax shield and earnings management in Nigeria banks. *International Journal of Advances in Engineering and Management*. 2(12); 798-808.
- Bozanic, Z., Hoopes, J. L., Thornock, J. R., & Williams, B. M. (2017). IRS Attention. *Journal of Accounting Research*, 55(1), 79–114.
- Graham, J. R., Hanlon, M., Shevlin, T., & Shroff, N. (2014). Incentives for tax planning and avoidance: Evidence from the field. *The Accounting Review*, 89:991-1023.
- Hanlon, M., & Heitzman, S., (2010). A review of tax research. *Journal of Accounting and Economics* 50: 127–178.
- Harnovinsah, A. & Lisya, C. (2014). The influence of corporate tax rate changes toward earnings management. *International journal of business, economics and law*, 5(1) (Dec.) ISSN 2289-1552.
- Hidayati. S. M. & Zulaikha V. (2018), *Analisis Perilaku Earning Management: Motivasi Mininialisasi Income Tax*, Simposium Nasional Akuntansi VI, Surabaya, 16-17.
- Lin, K. Z., Mills, L. F. & Zhang, F., (2014). Public versus private firm responses to the tax rate reduction in China" *The Journal of the American Taxation Association* 36: 137–163.
- Murray, J. (2019). How tax shields can be used to reduce income tax. Available at <https://www.thebalancesmb.com/how-tax-shields-can-reduce-income-tax-4155788>.
- Ochuko B. E. (2021). Determinants of earnings management: the study of Nigeria nonfinancial companies. *Ekonomski Horizonti*, 23(2), 139 – 155.

- Ofurum, D. I., Okoye E. I. & Ezejiofor R. A. (2021). Effect of corporate tax shield on earnings management in Nigeria commercial banks. *African Journal of Business and Economic Development*. 1(12); 1-12.
- Okerekeoti, C. U. (2022) Effect of firm complexity on effective tax rate of quoted consumer goods manufacturing firms in Nigeria, *International Journal of Research in Education and Sustainable Development* 2(5); 1-12.
- Paiva, I. C. & Lourenco, I. (2013). The effect of size on the level of earnings management in family firms. Available at SSRN 2286757.
- Prabowo, M. A., Winarna, J., Aryani, Y. A., Falikhhatun, & Gantowati, E. (2020). The level of debt and earnings management in Indonesia: An issue offree cash-flow or covenant? *Jurnal Keuangan dan Perbankan*, 24(2), 142-55.
- Setiawati, L., & Na'im, A. (2021). Bank health evaluation by Bank Indonesia and earnings management in banking industry. *Gadjah Mada International Journal of Business*, 3, 159-176.
- Stiglitz, J. E. (1986). The general theory of tax avoidance Cambridge. *National Bureau of Economics Research*. 4(2), 16-35.
- Sundvik, D., (2017a). Book-tax conformity and earnings management in response to tax rate cuts. *Journal of International Accounting, Auditing and Taxation* 28: 31-42.
- Sundvik, D., (2017b). Tax-induced fiscal year extension and earnings management. *Journal of Applied Accounting Research*, 18. 356-374.
- Tarek, E. (2017) *An empirical investigation of earnings management in the MENA Region*. (A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy University of the West of England).
- Uwalomwa, U., Uwuigbe, O. R., Olubukunola, A. & Okorie, B. (2015) Assessment of the effects of firms' characteristics on earnings management of listed firms in Nigeria. *Asian Economic and Financial Review*, 5(2), 218-228.
- Wijaya, M., & Martani, D. (2011). Corporate earnings management practices in responding to tax tariff reduction in accordance with Law No. 36, Year 2008.