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ABSTRACT

The Nigerian financial reporting environment is characterized by a mix of regulatory requirements and corporate governance challenges that can lead to significant delays in the release of financial statements. This study examined the firm characteristics and financial reporting timeliness of quoted industrial goods companies in Nigeria, covering, 2012 to 2023. The population consists all the 13 quoted industrial goods firms in Nigeria as at 31st December, 2023 while filtering criteria was used to arrive at a sample size of ten (10) industrial goods firms in Nigeria. The study hypotheses were tested using the random effect regression model after conducting some diagnostics tests. The study found that non-debt tax shield (NDTS) has a significant negative effect on financial reporting lag of quoted industrial goods companies in Nigeria. However, the results further revealed that earnings volatility (EVT) and firm liquidity (FLQTY) have insignificant positive effects on financial reporting lag of quoted industrial goods companies in Nigeria. The study recommends among others that quoted industrial goods companies should adopt effective risk management practices to reduce earnings volatility. By managing risks better, firms can achieve more stable earnings, which in turn would reduce the complexities associated with financial reporting and minimize reporting lag. The study also recommended that quoted industrial goods companies should strategically leverage non-debt tax shields such as depreciation and investment tax credits to enhance their financial efficiency. By increasing non-debt tax shield components, firms can streamline their taxable income calculations and simplify the financial reporting process, reducing reporting delays.

Keywords: *Earning Volatility; Firm Liquidity; Financial Reporting Lag and Non-Debt Tax Shield*

INTRODUCTION

The timeliness of financial reporting has become increasingly significant in the global corporate landscape as stakeholders demand more transparent and prompt financial disclosures. Financial reporting timeliness refers to the speed at which a company finalizes and publishes its financial statements after the end of its fiscal year. This aspect of financial reporting is crucial because timely financial information enables investors, regulators, and other stakeholders to make informed decisions (Chen *et al.*, 2021). Delays in financial reporting can lead to inefficiencies in capital markets, erode investor confidence, and increase the risk of information asymmetry.

In Africa, the context of financial reporting timeliness is shaped by unique challenges, including weaker regulatory environments, lower levels of market development, and varying degrees of corporate governance practices. These factors contribute to a diverse landscape where financial reporting timeliness can vary significantly across countries and industries. Studies in African markets have shown that firm characteristics such as earnings volatility, tax planning strategies like non-debt tax shields, and firm liquidity are critical determinants of financial reporting timeliness (Asafo-Adjei & Gyapong, 2023).

In Nigeria, the industrial goods sector plays a vital role in the economy, and the timeliness of financial reporting in this sector is of particular interest to regulators, investors, and policymakers. The Nigerian financial reporting environment is characterized by a mix of regulatory requirements and corporate governance practices that influence how quickly firms release their financial statements. Financial reporting timeliness is a crucial aspect of corporate governance that reflects the speed at which firms release their financial information to stakeholders. Timely financial reporting is essential for maintaining investor confidence, ensuring transparency, and supporting the efficient functioning of capital markets (Adeyemi & Olowookere, 2021). In recent years, the timeliness of financial reports has gained increased attention, particularly in emerging economies like Nigeria, where market participants rely heavily on timely financial information to make informed decisions.

Earnings volatility, defined as the degree of fluctuation in a company's earnings over time, has been identified as a significant factor influencing financial reporting lag. Companies with high earnings volatility may experience delays in their financial reporting due to the complexities involved in accurately reflecting their financial performance (Egbunike & Abiahu, 2022). The

uncertainty and unpredictability associated with volatile earnings can lead to extended periods of audit and financial statement preparation, thereby increasing the financial reporting lag.

Another important factor that may impact financial reporting timeliness is the non-debt tax shield, which refers to deductions that reduce taxable income without the need for incurring debt. Firms with significant non-debt tax shields may face less pressure to hasten their financial reporting, as these shields reduce their taxable income and the urgency to report taxable earnings (Onuorah & Egbunike, 2020). However, the effect of non-debt tax shields on financial reporting lag is an area that requires further empirical investigation, particularly in the context of Nigerian industrial goods companies.

Firm liquidity, which reflects a company's ability to meet its short-term obligations, is another critical determinant of financial reporting timeliness. Firms with higher liquidity are generally more stable and may have better internal controls and financial reporting processes in place, leading to shorter financial reporting lags (Okoro & Okoroafor, 2023). On the other hand, firms with low liquidity might delay their financial reporting due to resource constraints or financial distress, which can complicate the preparation and audit of financial statements.

One of the key motivations for this study is the growing concern over the impact of firm characteristics on financial reporting timeliness within the Nigerian industrial goods sector. This sector is a cornerstone of the Nigerian economy, and the quality of financial reporting in this sector has significant implications for investors, regulators, and policymakers. Yet, existing research on the factors influencing financial reporting lag in this context remains limited. Specifically, the effects of earnings volatility, non-debt tax shields, and firm liquidity on financial reporting timeliness have not been extensively explored in the Nigerian context, despite their potential to significantly influence reporting practices.

The motivation for this study also stems from the broader implications of financial reporting timeliness for Nigeria's economic development. As Nigeria seeks to attract foreign investment and strengthen its capital markets, the reliability and timeliness of financial information become increasingly important. By examining the factors that influence financial reporting timeliness in a key sector of the Nigerian economy, this study aims to contribute to the ongoing efforts to improve corporate governance and financial transparency in the country.

Timely financial reporting is a cornerstone of effective corporate governance and a critical factor in ensuring the transparency and efficiency of capital markets. However, despite the global emphasis on the importance of timely financial disclosures, delays in financial reporting remain a significant issue across various markets, including both developed and emerging economies. The problem of financial reporting lag is particularly pronounced in emerging markets like Nigeria, where a combination of regulatory challenges, economic instability, and firm-specific factors contribute to delays in the release of financial statements (Chen *et al.*, 2021).

Globally, financial reporting timeliness has been linked to various firm characteristics, such as earnings volatility, tax planning strategies, and liquidity. Earnings volatility, which reflects the degree of fluctuation in a company's earnings over time, is recognized as a major factor contributing to financial reporting delays. Firms with high earnings volatility face greater challenges in accurately preparing and auditing their financial statements, leading to increased reporting lag (Wang & Li, 2022). This issue is relevant across various industries worldwide, but it is especially pertinent in sectors with significant operational risks, such as industrial goods.

In Africa, the issue of financial reporting lag is worsened by weaker regulatory frameworks, varying levels of corporate governance practices, and economic volatility. Studies have shown that African firms, particularly those operating in volatile environments, often struggle to meet reporting deadlines due to the complexities associated with fluctuating earnings (Asafo-Adjei & Gyapong, 2023). Additionally, the use of non-debt tax shields, such as depreciation and investment tax credits, can influence the timeliness of financial reporting, as firms may face less pressure to report earnings promptly when these tax shields are significant (Osei & Mensah, 2021). The impact of non-debt tax shields on reporting timeliness is an area that requires further exploration, especially in the African context where tax planning plays a crucial role in corporate financial strategies.

In Nigeria, the problem of financial reporting lag is particularly acute in the industrial goods sector, a key component of the economy. The Nigerian financial reporting environment is characterized by a mix of regulatory requirements and corporate governance challenges that can lead to significant delays in the release of financial statements. Earnings volatility is a major concern for Nigerian industrial goods companies, as economic fluctuations and operational uncertainties contribute to reporting delays (Egbunike & Opara, 2022). Moreover, the role of non-debt tax shields in influencing financial reporting lag has not been thoroughly examined in the Nigerian context, despite its potential impact on corporate reporting practices (Onuorah & Egbunike, 2020).

Another critical issue is firm liquidity, which reflects a company's ability to meet short-term obligations. In Nigeria, firms with higher liquidity are generally better positioned to manage their financial reporting processes efficiently, while those with lower liquidity may experience significant delays due to financial constraints or distress (Okoro & Okoroafor, 2023). The relationship between firm liquidity and financial reporting timeliness is crucial for understanding the broader challenges facing the Nigerian industrial goods sector in meeting reporting deadlines.

The persistence of financial reporting lag in Nigeria, particularly in the industrial goods sector, poses significant challenges for investors, regulators, and policymakers. Delayed financial reports can undermine investor confidence, create inefficiencies in capital markets, and increase the risk of information asymmetry. Despite the importance of timely financial reporting, there is a lack of comprehensive research addressing the specific factors that contribute to reporting delays in Nigeria. This study seeks to fill this gap by examining the effects of earnings volatility, non-debt tax shields, and firm liquidity on the financial reporting lag of quoted industrial goods companies in Nigeria. By addressing these issues, the study aims to contribute to the development of more effective corporate governance practices and enhance the transparency and efficiency of Nigeria's financial reporting environment.

For example, the review of empirical studies by Abdullah and Omar (2023); Chen and Zhang (2024); Rahman and El-Sayed (2024); and Sadeghi Hassanabadi (2023) shows that most recent works in this area were done more outside the country than in the Nigerian environment. Even the few studies, for instance Aigienohuwa and Ogbodo (2022), conducted in Nigeria combined data from both pre- and post-IFRS implementation in Nigeria, which can affect the reliability of their findings due to the changes brought into financial reporting courtesy of the IFRS implementation in Nigeria. These gaps identified in the literature call for further study in this area; hence, the need for this study: firm characteristics and financial reporting timeliness of quoted industrial goods companies in Nigeria. This is aimed at updating the data up to 2023, applying the appropriate panel regression technique, and covering only the periods of IFRS implementation in Nigeria.

The main objective of this study is to examine firm characteristics and financial reporting timeliness of quoted industrial goods companies in Nigeria. The study specifically intends to: (i) determine the effect of earning volatility on financial reporting lag of quoted industrial goods companies in Nigeria; (ii) evaluate the effect of non-debt tax shield on financial reporting lag of quoted industrial goods companies in Nigeria; and (iii) assess the effect of firm liquidity on financial reporting lag of quoted industrial goods companies in Nigeria. Based on the above stated specific objectives, these hypotheses are formulated thus: H₀1: Earning volatility has no significant effect on financial reporting lag of quoted industrial goods companies in Nigeria. H₀2: Non-debt tax shield has no significant effect on financial reporting lag of quoted industrial goods companies in Nigeria. H₀3: Firm liquidity has no significant effect on financial reporting lag of quoted industrial goods companies in Nigeria.

REVIEW OF RELATED LITERATURE

Financial Reporting Timeliness

Financial reporting timeliness refers to how quickly a firm prepares and releases its financial statements after the end of the fiscal period (Chen et al., 2021; Asafo-Adjei & Gyapong, 2023). It enhances the relevance and usefulness of financial information, supports informed decision-making, and reduces information asymmetry among stakeholders (Wang & Li, 2022). Delays in reporting may indicate weaknesses in governance and create uncertainty, particularly in emerging markets like Nigeria, where timeliness reflects transparency and accountability (Okoro & Okoroafor, 2023). In this study, financial reporting timeliness is defined as the interval between the end of a financial period and the date financial statements are released to the public.

Firm Characteristics

Firm characteristics refer to the various attributes and financial information disclosed in a company's financial statements that signal its performance, behavior, and operational structure (Lang & Lundholm, 1993; Stainer, 2006). They represent the unique features of firms, including their strategies, resources, and competitive advantages, which influence their ability to achieve organizational objectives. Scholars such as Moh'd (2005), Wiklund and Shepherd (2005), and Dean et al. (2000) emphasize that firm characteristics play a key role in determining performance and competitive success, particularly when aligned with environmental conditions. In this study, firm characteristics include variables such as firm age, firm size, firm growth, earnings volatility, profitability, liquidity, ownership structure, and non-debt tax shield.

Earnings Volatility

Earnings volatility refers to the degree of fluctuation in a firm's earnings across accounting periods, reflecting the uncertainty and variability of financial performance (Chen et al., 2021; Wang & Li, 2022). It is influenced by factors such as market conditions, operational risks, cost structures, and economic changes, and serves as an important indicator of a firm's risk and financial stability (Asafo-Adjei & Gyapong, 2023). High earnings volatility can hinder financial planning, reduce forecasting accuracy, and

affect the reliability of financial reporting, particularly in unstable economic environments like Nigeria (Egbunike & Opara, 2022). In this study, earnings volatility is defined as the fluctuations in a firm's reported earnings over time.

Non-Debt Tax Shield

Non-debt tax shields refer to tax-deductible expenses that reduce a firm's taxable income without involving debt financing, such as depreciation, amortization, and investment tax credits (Osei & Mensah, 2021; Wang & Li, 2022). These mechanisms enable firms to minimize tax liabilities and improve financial performance without increasing leverage (Asafo-Adjei & Gyapong, 2023). In emerging markets like Nigeria, non-debt tax shields are important tools for corporate tax planning and can influence financial reporting practices (Okoro & Okoroafor, 2023). In this study, non-debt tax shields are defined as mechanisms that reduce taxable income through deductions not related to debt.

Firm Liquidity

Firm liquidity refers to a company's ability to meet its short-term obligations using readily available or easily convertible assets (Okoro & Okoroafor, 2023; Wang & Li, 2022). It reflects the firm's capacity to convert assets into cash to sustain operations and settle liabilities, serving as a key indicator of financial stability and flexibility (Asafo-Adjei & Gyapong, 2023). Adequate liquidity enhances a firm's ability to withstand economic shocks and respond to unexpected financial needs or investment opportunities (Chen et al., 2021). In this study, firm liquidity is defined as the availability of liquid assets used to settle short-term obligations.

Theories underpinning the study

Agency Theory, first articulated by Jensen and Meckling (1976), posits that a principal-agent relationship exists between shareholders (principals) and company management (agents). The theory suggests that conflicts of interest may arise because management may not always act in the best interests of shareholders. This conflict is particularly relevant in the context of financial reporting, where management may delay financial disclosures to manipulate earnings, manage perceptions, or conceal financial instability, leading to financial reporting lag. According to Agency Theory, management may have incentives to delay financial reporting in periods of high earnings volatility to smooth earnings or avoid disclosing bad news. High volatility increases uncertainty and the risk of misaligned interests between shareholders and management, prompting delays in reporting as management attempts to align reported earnings with stakeholder expectations (Wang & Li, 2022).

Non-debt tax shields such as depreciation or investment tax credits reduce a firm's taxable income without incurring debt. Agency Theory suggests that management might strategically use these tax shields to influence reported earnings. When significant non-debt tax shields exist, management may delay financial reporting to optimize the firm's tax position or to mask operational inefficiencies (Osei & Mensah, 2021). Agency Theory also explains how liquidity influences financial reporting timeliness. Firms with lower liquidity may experience greater financial distress, which can motivate management to delay financial reporting as they attempt to manage short-term pressures and obligations. In contrast, firms with higher liquidity are better positioned to report promptly, as they face less pressure from short-term financial constraints (Okoro & Okoroafor, 2023).

Empirical Review

Earnings Volatility and Audit Report Lag

Recent empirical studies provide evidence on the relationship between earnings volatility and audit reporting timeliness across different contexts. Sadeghi Hassanabadi (2023), using data from firms listed on the Tehran Stock Exchange (2015–2019), finds that earnings volatility and financial distress significantly increase audit report lag, while factors such as large shareholders and contingent liabilities further extend delays. Similarly, Kurniawati and Rahardja (2023), examining firms in Indonesia, Malaysia, and Singapore (2017–2021), report that high earnings volatility leads to longer audit delays across countries. In the Saudi market, Alshammari et al. (2021) also find a positive relationship between earnings volatility and audit report lag, attributing this to increased complexity in audit judgments. Consistent evidence is also reported in developed markets. Bryan and Mason (2020), using U.S. data (2016–2019), show that higher earnings volatility significantly delays financial reporting due to more complex audit procedures. Although these studies employ robust analytical techniques, most are conducted outside Nigeria or rely on relatively dated datasets, limiting their generalizability. This highlights the need for more recent and Nigeria-specific studies to better reflect current economic conditions and institutional realities.

Non-Debt Tax Shields on Financial Reporting Lag

Recent studies on non-debt tax shields and financial reporting timeliness provide mixed evidence across regions. Rahman and El-Sayed (2024), using data from Egyptian industrial firms (2019–2023), find that non-debt tax shields significantly reduce reporting lag, as higher depreciation and amortization improve tax efficiency and facilitate quicker reporting. Similarly, Garcia and Soto (2023) report that firms with substantial non-debt tax shields in Spain experience shorter reporting delays, particularly those

with high capital intensity. Chen and Liu (2021) also find a significant negative relationship in China, suggesting that tax shields reduce the need for extensive verification, thereby improving reporting timeliness. However, contrary findings exist in other emerging markets. Ali and Patel (2023) find that non-debt tax shields have an insignificant effect on reporting timeliness in India due to complex regulatory and tax structures, while Khan and Mahmoud (2022) report similar insignificant results in Pakistan. Although these studies employ robust methodologies and relatively recent data, most are conducted outside Nigeria, limiting their applicability. This underscores the need for context-specific studies within Nigeria to better understand how non-debt tax shields influence financial reporting timeliness under local institutional conditions.

Firm Liquidity and Financial Reporting Lag

Empirical evidence on liquidity and financial reporting timeliness shows mixed results across different contexts. Chen and Zhang (2024), using Chinese firms (2020–2023), found that liquidity constraints significantly increase reporting lag, indicating that financially constrained firms experience delays in issuing reports. Similarly, Abdullah and Omar (2023) reported a significant negative relationship between liquidity and reporting lag in Saudi Arabia, while Smith and Johnson (2021) found that higher liquidity improves reporting timeliness among U.S. manufacturing firms. In Nigeria, Ibrahim and Yusuf (2023) and Aigienohuwa and Ogbodo (2022) also documented a significant relationship, showing that firms with higher liquidity tend to release financial reports faster due to better resource availability and audit efficiency.

However, some studies present contrasting findings. Nguyen and Le (2022) found an insignificant relationship between liquidity and reporting lag in Vietnam, suggesting that regulatory factors may override liquidity effects. Although most studies employed robust methodologies and relatively recent data, many were conducted outside Nigeria, limiting generalizability. Additionally, some Nigerian studies used older datasets or mixed pre- and post-IFRS periods, which may affect their relevance. This highlights the need for updated, context-specific evidence on how liquidity influences financial reporting timeliness in Nigeria.

METHODOLOGY

This study adopts an ex post facto research design, which is appropriate for examining the relationship among variables using historical data. The population comprises thirteen (13) quoted industrial goods firms listed on the Nigerian Exchange Group as at 31st December 2023, while a filtered sample of ten (10) firms covering the period 2012–2023 was selected. The selection criteria required that firms be listed at least one year prior to IFRS implementation in 2012 and have complete financial statements for the study period. The study utilized secondary panel data sourced from the annual reports and accounts of the sampled firms. Data were analysed using a robust random effects regression model with the aid of STATA 13 to examine the influence of earnings volatility, non-debt tax shield, and firm liquidity on financial reporting timeliness. In addition, diagnostic tests such as Pearson correlation, heteroskedasticity test, Breusch–Pagan Lagrangian Multiplier test, and Hausman specification test were conducted to ensure the reliability of the results.

Model Specification

Financial reporting timeliness is proxied by financial reporting lag (FRL) which is measure through the different between financial year end and the date external auditor sign the financial statements and is a function of three explanatory variables such as earning volatility (EVT), non-debt tax shield (NDTS) and firm liquidity (FLQTY).

Therefore;

$$\text{FRL} = f(\text{EVT}, \text{NDTS}, \text{FLQTY}) \dots \dots \dots (1)$$

The expression in equation one is express econometrically as follows:

$$\text{FRL}_{it} = \alpha + \beta_1 \text{EVT}_{it} + \beta_2 \text{NDTS}_{it} + \beta_3 \text{FLQTY}_{it} + e_{it} \dots \dots \dots (2)$$

Where:

β_1 , β_2 and β_3 are parameters to be estimated with a priori expectations.

FRL= Financial Reporting Lag

EVT = Earnings Volatility

NDTS = Non-Debt Tax Shield

DER = Firm Liquidity

α = Constant

e = Error term

i = Firms

t = Periods

Table 1 below explains the variables under study.

Variable	Acronym	Type of variable	Measurement	Justification
Financial Reporting Lag	FRL	Dependent	This is measure through the different between financial year end and the date external auditor sign the financial statements.	Bryan and Mason (2020), Chen and Liu (2021) and Ibrahim and Yusuf (2023).
Earnings Volatility	EVT	Independent	Earning volatility measured the dispersion of returns for firms' securities or market indexes and is calculated using variance and standard deviation.	Bryan and Mason (2020), Kurniawati and Rahardja (2023) and Sadeghi Hassanabadi (2023).
Non-Debt Tax Shield	NDTS	Independent	Depreciation and Amortization/Total Assets.	Ali and Patel (2023), Garcia and Soto (2023) and Rahman and El-Sayed (2024).
Firm Liquidity	FLQTY	Independent	Current Assets/Current Liabilities.	Abdullah and Omar (2023), Aigienohuwa and Ogbodo (2022) and Chen and Zhang (2024).

Source: Researcher's compilation, 2024.

DATA PRESENTATION AND ANALYSIS

The data were used to examine firm characteristics and financial reporting timeliness of quoted industrial goods companies in Nigeria, for twelve (12) years (2012-2023). The data analysis was carried out using descriptive statistics, Shapiro-Wilk normality test, Pearson correlation, Heteroskedasticity test, Breusch Pagan Lagrangian multiplier test, Hausman specification test and robust Random effect regression model.

Descriptive Statistics

Table 2 below is the descriptive statistics that summarises the entire data sets.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
FRL	120	79.217	21.670	17	170
EVT	120	1.241	1.098	0.032	5.919
NDTS	120	0.055	0.031	0.005	0.157
FLQTY	120	2.402	4.351	0.024	36.410

Source: Researcher's Computation (2023) Using Stata 15

The minimum value of FRL is 17, the maximum value is 170, while the mean value of 79.217 within the period studied as shown on Table 2 above. This table showed that the standard deviation of FRL below the mean was 21.670, indicating that it skewed left away from the mean. Table 2 above also showed that EVT has a minimum value of 0.032 and a maximum value of 5.919 with a mean value of 1.241 within the period studied. Another thing extracted from the table is that EVT has a standard deviation of 1.098, less than its mean, indicating that it's skewed left from the mean. Table 2 above also shows that the non-debt tax shield has a minimum of 0.005, a maximum of 0.157, and a mean of 0.055 within the period studied. The Table also revealed that NDTS has a small standard deviation of 0.031, less than the mean, which implies that it skewed left from the mean. From the above Table 2, the minimum value for firm liquidity stands at 0.024, while the maximum value is 36.410, having a mean value of 2.402 within the period studied. The table also indicates that FLQTY has a standard deviation of 4.351 that is higher than the mean implies that it skewed to the right of the mean.

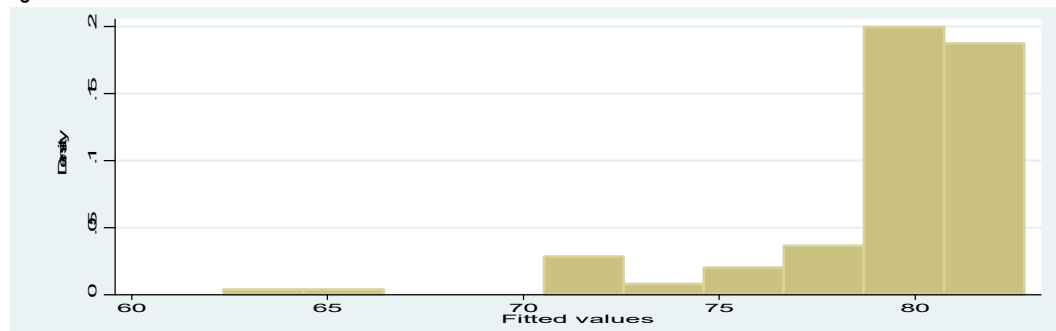
Shapiro-Wilk Normality Test

Table 3 and figure 2 below presents the results of the normality test conducted with the use of Shapiro-Wilk normality test and normal distribution curve. The decision rule is if P-Value > 0.05, the residual is normally distributed but if P-Value is equal to or < 0.05, the residual is not normally distributed.

Variable	Obs	W	V	Z	Prob>Z
Residual	120	0.71710	27.223	7.402	0.00000

Source: Researcher's Computation using STATA 15 software

Figure 2: Normal Distribution Curve



From Table 3 above, the residual and Z-value of 7.402 and the corresponding probability of value of 0.000 that is less than 0.05 which signifies that the residual is normally distributed around the mean. This result is further collaborated by the normal distribution curve presented in figure 2 above. This means that one of the basic assumptions of linear regression technique which allows only normally distributed residual has been satisfied.

Correlation Matrix

Table 4 below is the Pearson correlation matrix for the data set to show the extent of interdependent variables. The decision rule is that if a pair or more of the independent variables is equal to or above 0.85, there is a presence of multicollinearity in the model but if the independent variables is less than 0.85, there is no presence of multicollinearity in the model.

Table 4: Correlation Matrix

Variable	FRL	EVT	NDTS	FLQTY
FRL	1			
EVT	-0.0957	1		
NDTS	-0.0820	0.1329	1	
FLQTY	-0.1100	0.0023	0.2544	1

Source: Researcher's Computation (2023) Using Stata 13

Above table 4 shows a correlation matrix of the variables of the study. The correlation matrix shows the relationship between the proxies of independent variables themselves and their relationships with the dependent variable FRL. The result in the above correlation matrix table reveals negative associations between earnings volatility of -0.0957 with financial reporting lag. Also, non-debt tax shield has an association of -0.0820 with FRL. In this regard, the findings imply that it will negatively affect the financial reporting lag. Regarding non-debt tax shield, there is a negative association of -0.1100 with FRL. From table 4 above, the multicollinearity problem does not exist in the model since the correlational coefficients among the independent variables are less than as explained by Hair et al. (2005), indicate that there is no multicollinearity problem in the model. Variance Inflation Factor shown in table 5 below was used further to test for the absence of a multicollinearity problem in the model.

Variance Inflation Factor (VIF)

Table 5 below is the variance inflation factor for the data set.

Table 5: Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
NDTS	1.09	0.917751
FLQTY	1.07	0.934248
EVT	1.02	0.981275
Mean VIF	1.06	

The decision rule is that if the values of VIF and 1/VIF are up to 10 and 1 and above, there is a presence of multicollinearity in the model but if the values of VIF and 1/VIF are less than 10 and 1 respectively, there is no presence of multicollinearity in the model. Table 5 above shows the results of Variance Inflation Factor (VIF) values of less than 10 which indicates that there is no multicollinearity problem in the model.

Heteroskedasticity Breusch-Pagan Test

Heteroskedasticity Breusch-Pagan test which tests whether the estimated variance of the residuals from regression is dependent on the values of the independent variables. The decision rule is that if the P-value ≤ 0.05 , there is a problem of heteroscedasticity but if the P-value > 0.05 , there is no problem of heteroscedasticity.

Table 6 below shows the diagnostic test results using Heteroskedasticity Breusch-Pagan

Table 6: Heteroskedasticity Breusch-Pagan Test

Type of test	F-Test	P-Value
Heteroskedasticity Breusch-Pagan	9.04	0.0026

Source: Researcher's Computation (2023) Using Stata 15

The Breusch-Pagan heteroskedasticity test is a statistical test conducted to determine if residual variance of a variable is constant-i. e., heteroscedastic-or not constant-homoskedastic-over time. Table 6 showed that the null hypothesis of no constant variance, homoskedasticity, in the model could not be rejected. This is because the F-statistic of 9.04 with a probability value of 0.00 for the model is statistically significant at 1% level (p-value < 0.05). Hence, there is the presence of heteroscedasticity in the model. To resolve this problem of heteroscedasticity, a robust random effect regression technique was used to estimate the model.

Breusch and Pagan Lagrangian Multiplier Test

In view of the result from the Random Effect Model (REM) regression, the Breusch and Pagan Lagrangian Multiplier test was carried out to give insight into an actual test to be carried out between REM and Pooled OLS regression. The decision rule of Breusch-Pagan Lagrangian Multiplier Test is that if the P-value is equal to and less than 0.05, the random effect model is appropriate if otherwise, the pooled ordinary least square regression is appropriate. The chibar2 value of 27.42 and the probability of 0.00 from the Breusch and Pagan Lagrangian Multiplier test suggest that REM is preferred instead of Pooled Ordinary Least Square Regression. Table 7 below presents the result of the Breusch and Pagan Lagrangian Multiplier test conducted.

Table 7: Breusch and Pagan Lagrangian Multiplier Test

Variable	Chibar2	P-Value
FRL	27.42	0.00

Source: Researcher's Computation (2023) using STATA 15 software

Hausman Specification Test

Table 8 below is the result of a Hausman specification test conducted to determine which of the model, Fixed effect or Random effect would be used for estimation.

Table 8: Hausman Specification Test

Type of test	Chi2	P-Chi2
Hausman Test	8.14	0.0932

Source: Researcher's Computation (2023) Using Stata 15

The decision rule of Hausman specification test is that if the prob. Chi2 is equal to and less than 0.05, the fixed effect model is appropriate if otherwise, the random effect model is more appropriate. The result from Table 8 depicts a probability $> \chi^2$ of 0.09 a value that is more than 0.05. This result implies that the null hypothesis which states that difference in coefficient not systematic is accepted and so the random effect estimation is the most appropriate model for this study.

Estimation Based on Robust Random Effect Regression Model

Table 9 below is the robust random effect regression model conducted which was used for the estimation of this model.

Table 9: Robust Random Effect Regression Results

Variable	Coefficients	z-value	Prob.
Cons.	0.5659095	15.71	0.00
EVT	0.0009587	0.08	0.936
NDTS	-1.625247	-4.01	0.000
FLQTY	0.0039262	1.28	0.200
Overall R-squared	0.5801		
Ward Chi2	116.77		
Prob. >Chi2	0.000		

Source: Researcher's Computation (2023) using STATA 13 software

Table 9 above indicated that 58% variation of financial reporting lag is predicted by the joint effect of earnings volatility, non-debt tax shield and firm liquidity (R-square = (0.5801). This indicates that the independent variables are properly selected, combined and used. The Ward Chi2 value of 116.77. with a P-value of 0.00 signified that the model is fit for the study.

Test of Hypotheses

To examine firm characteristics and financial reporting timeliness of quoted industrial goods firms in Nigeria, the formulated null hypotheses were tested using a random effect regression model.

H₀₁: Earning volatility has no significant effect on financial reporting lag of quoted industrial goods firms in Nigeria.

The results in Table 9 above shows the z-value of 0.08 and the corresponding probability value of 0.936 indicating that earnings volatility (EVT) has an insignificant positive effect on financial reporting lag of quoted industrial goods companies in Nigeria. Based on this, the null hypothesis one which states that earning volatility has no significant effect on financial reporting lag of quoted industrial goods companies in Nigeria is accepted.

H₀₂: Non-debt tax shield has no significant effect on financial reporting lag of quoted industrial goods companies in Nigeria.

The results in Table 9 above shows the z-value of -4.01 and the corresponding probability value of 0.000 indicating that non-debt tax shield (NDTS) has a significant negative effect on financial reporting lag of quoted industrial goods companies in Nigeria. Based on this, the null hypothesis two which states that non-debt tax shield has no significant effect on financial reporting lag of quoted industrial goods companies in Nigeria is rejected.

H₀₃: Firm liquidity has no significant effect on financial reporting lag of quoted industrial goods companies in Nigeria.

The results in Table 9 above shows the z-value of 1.28 and the corresponding probability value of 0.200 indicating that firm liquidity (FLQTY) has an insignificant effect on financial reporting lag of quoted industrial goods companies in Nigeria. Based on this, the null hypothesis three which states that firm liquidity has no significant effect on financial reporting lag of quoted industrial goods companies in Nigeria is accepted.

Discussion of Findings

This study revealed that earnings volatility (EVT) has an insignificant positive effect on financial reporting lag of quoted industrial goods companies in Nigeria. This means that an increase in earnings volatility will increase financial reporting lag of quoted industrial goods companies in Nigeria, by 0.0010. The finding is in line with the agency theory because the theory asserted that

the management may have incentives to delay financial reporting in periods of high earnings volatility to smooth earnings or avoid disclosing bad news. High volatility increases uncertainty and the risk of misaligned interests between shareholders and management, prompting delays in reporting as management attempts to align reported earnings with stakeholder expectations. This finding is in line with the finding of Kurniawati and Rahardja (2023). However, the finding is not in line with the findings of Bryan and Mason (2020) and Sadeghi Hassanabadi (2023).

The study also revealed that non-debt tax shield (NDTS) has a significant negative effect on financial reporting lag of quoted industrial goods companies in Nigeria. This means that an increase in non-debt tax shield will reduce financial reporting lag of quoted industrial goods companies in Nigeria, by -1.625. The finding is not in line with the agency theory because the theory asserted that management might strategically use these tax shields to influence reported earnings. When significant non-debt tax shields exist, management may delay financial reporting to optimize the firm's tax position or to mask operational inefficiencies. This finding is in agreement with the findings of Garcia and Soto (2023) and Rahman and El-Sayed (2024). However, the finding is not in agreement with the findings of Ali and Patel (2023) and Khan and Mahmoud (2022).

The study finally revealed that firm liquidity (FLQTY) has an insignificant positive effect on financial reporting lag of quoted industrial goods companies in Nigeria. This means that an increase in firm liquidity will increase financial reporting lag of quoted industrial goods companies in Nigeria, by 0.004. The finding is in line with the agency theory because theory explains how liquidity influences financial reporting timeliness. Firms with lower liquidity may experience greater financial distress, which can motivate management to delay financial reporting as they attempt to manage short-term pressures and obligations. In contrast, firms with higher liquidity are better positioned to report promptly, as they face less pressure from short-term financial constraints. This finding is in consonance with the finding of Nguyen and Le (2022). However, the finding is not in line with the findings of Abdullah and Omar (2023), Aigienohuwa and Ogbodo (2022) and Chen and Zhang (2024).

CONCLUSION AND RECOMMENDATIONS

Firms experiencing greater fluctuations in their earnings are likely to face more difficulties in preparing accurate and timely financial statements due to the complexities and uncertainties associated with volatile financial performance. The relationship suggests that as earnings volatility increases, financial reporting processes may become more cumbersome, leading to extended timeframes before the release of financial reports. This delay could hinder stakeholders' ability to make timely decisions based on financial information, potentially affecting investor confidence and the firm's market reputation.

Non-debt tax shields, such as depreciation and other tax-deductible allowances that do not arise from debt financing, reduce the taxable income of firms and can simplify the financial reporting process. Companies with higher non-debt tax shields may experience smoother financial reporting because these tax benefits lead to more predictable and manageable cash flows, thereby making it easier for firms to meet their financial reporting deadlines. This reduction in reporting lag ensures that stakeholders receive timely information, which is crucial for decision-making and maintaining the firm's transparency and credibility.

The high liquidity is generally considered beneficial for a firm's financial health, it leads to complacency in financial reporting, as companies with strong liquidity positions may not feel the same urgency to complete financial statements quickly compared to less liquid firms. The increased cash flow and resource availability may reduce the perceived pressure to meet reporting deadlines promptly, contributing to delays. This finding indicates that higher liquidity might lead to inefficient reporting processes, potentially affecting the timeliness of financial disclosures and limiting stakeholders' ability to access timely information for decision-making.

Based on the above conclusion, the following recommendations are made:

- i. Quoted industrial goods companies should adopt effective risk management practices to reduce earnings volatility. By managing risks better, firms can achieve more stable earnings, which in turn would reduce the complexities associated with financial reporting and minimize reporting lag.
- ii. Quoted industrial goods companies should strategically leverage non-debt tax shields such as depreciation and investment tax credits to enhance their financial efficiency. By increasing non-debt tax shield components, firms can streamline their taxable income calculations and simplify the financial reporting process, reducing reporting delays.
- iii. Firms with high liquidity should implement strict financial reporting timelines to prevent complacency. Management must emphasize the importance of timely financial disclosures, ensuring that liquidity does not lead to delays in preparing and finalizing financial statements.

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