ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

International financial reporting standards (IFRS) disclosure and performance of Nigeria listed companies

N Grace Ofoegbu and Ndubuisi Odoemelam

Abstract: The study investigated disclosure practices under IFRS on the performance of firms listed on the Nigerian Stock Exchange for a period of six years, from 2012 to 2017. Data were pooled from 384 firm-year observations across 64 sampled companies listed in the Nigeria Stock Exchange (NSE). We developed disclosure index of both IFRSs mandatory and voluntary by applying content analysis and multiple regression techniques and analyze the association of disclosure and performance of the firms expressed return on capital employed (ROCE) as a performance index. The study also examined the relationship between market-based performance, company attributes, and overall disclosure. The result indicates that the extent of overall disclosure does not associate with the financial performance of the listed Nigerian firms. The result suggests that share price, size, and audit firm size significantly and positively related to the overall disclosure of firms. The association between leverage, company age and overall disclosure index

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PUBLIC INTEREST STATEMENT

International Financial Reporting Standards were adopted by many countries for the presentation of financial information. The use of these standards is expected to improve the quality of financial disclosure, attract more investors, and improve performance. This paper examines the effect of disclosure practices under International Financial Reporting Standard on the performance of quoted companies in Nigeria from 2012 to 2017. This paper is justified because the ability of Nigerian quoted companies in providing reliable and relevant financial information that is comparable across the border to attract national and international investors is necessary. It was found that overall disclosure practice insignificantly associates financial performance. The firms audited by “Big 4” auditors encourage extensive disclosure. The result enables policy makers to formulate policies that would enhance the effective implementation of the Standards. Understanding the effect of overall disclosure of financial information on firms’ performance improves the extent and quality of financial statements disclosures.
negative and insignificant. In the Nigeria context, audit firm size proved to be an important determinant of the extent of IFRSs disclosure.

**Subjects:** Corporate Finance; Accounting; Organizational Studies

**Keywords:** disclosure; IFRS; companies; financial performance; audit firm size

### 1. Introduction

International Financial Reporting Standards (IFRS) are standards by the International Accounting Standard Board (IASB) to serve as a guide to companies for preparation of financial statements that will give true financial and non-financial information (integrated financial reporting) to investors and other stakeholders who use them for economic decisions (Brabec, 2014; de Villiers, Venter, & Hsiao, 2016). IFRS implementation became globally important because of increasing international trade and globalization of the world’s capital market. Many countries of the world including Nigeria have adopted the standards for the preparation of their accounts. The standards aimed to provide a common global rule to business affairs that will increase disclosure and improve the quality of financial information for both current and potential investors. The overall philosophy was to make financial statements understandable, comparable, relevant, and reliable in the financial markets around the world. Specifically noted benefits of implementation of IFRS are improved disclosure, transparency, understandability, and comparability of financial statements for investors leading to a reduction in information asymmetry, greater willingness of investors to invest (Cameran, Campa, & Pettinicchio, 2014; Donnelly, 2016; Matari, Swidi, & Fadzil, 2014). Improved disclosure of quality information yields benefits such like reduction in the cost of capital, more efficient allocation of resources, higher economic growth, higher market efficiency, and improvement in analyst predictions (Matari et al., 2014; Santos, Ponte, & Mapurunga, 2013). Improved disclosure and quality of information enhance investors’ assessment of financial performance of a firm and their willingness to invest more because the more favourable the result of the assessment is the more investments made. Financial performance refers to the improvement in the economic activities of a firm as measured by profit or loss over a given period.

Nigeria adopted IFRS in 2012 because the level and quality of disclosure prior to the adoption of IFRS was poor. The benefits expected to derive from the adoption and implementations include easier access to external capital and an increase in foreign direct investment. Investors and lenders need financial information that is reliable, relevant, and comparable across the border to assess the risks and returns of their investment opportunities (Omobolanle, 2017). More investment leads to higher performance by the company provided the cost of disclosure does not outweigh the profit achieved.

The relationship between disclosure of financial information under IFRS and the firm’s performance has been a concern of contemporary research. Prior researchers in developed and developing economies have provided robust evidence of company disclosure practices under IFRS as they influence performance. Despite the numerous researches done on the topic, there has been no convergent finding on the association between firms’ performance and disclosure practices (Sajad, Rad, & Embong, 2014)). While some authors found a high positive association between profitability index and companies’ level of disclosure (Alfraih & Almutawa, 2014; Iatridis, 2008, 2011; Marfo & Atsunyo, 2014) others established insignificant or no relationship between the variables (Ferrer & Ferrer, 2011; Palmer, 2008; Raffournier, 1995; Uyar, Kilic, & Bayyurt, 2013). Banghøj & Plenborg, 2008) reveal that the relationship between current returns and future earnings does not improve with more voluntary disclosure. Our study contributes to this international debate from the context of Nigerian experience and will either support or disagree with the relationship between IFRS disclosure and company performance.

The authors used various indices as performance indicators to investigate the effect of IFRS disclosure on the performance of firms. While some used profitability, Return on Equity (ROE),
Return on Assets (ROA), Earnings Per Share (EPS) (see Ironkwe & Oglekwe, 2016; Musa & Sanusi, 2017), others used Growth, Leverage, Liquidity (Agyei—Mensah, 2011; Grossman, Smith, & Tervo, 2013; Oluwaremi, 2014; Muhamed, 2012). None of the researchers used ROCE as a performance indicator. In the Nigerian context, none of the researchers covered a period up to 2017. While some covered a period before the introduction of IFRS (see Oluwaremi (2014), some others covered periods up to 2014 (Ironkwe & Oglekwe, 2016; Umobong & Ibanichuka, 2016; Musa & Sanusi, 2017; and Gideon, 2016). Moreover, while some authors used oil and gas, pharmaceutical, food, and beverage firms, others used either manufacturing or banks. Authors express the need to extend the study to other business sectors attributing the differences in results obtained from the studies to a peculiarity in industry characteristics (Umobong & Ibanichuka, 2016).

Our study investigated the association between IFRS overall disclosure practices and sampled nonfinancial firms’ performance for the post-IFRS period 2012–2017, using ROCE to measure the firms’ performance. Company share prices and various company attributes were used as control variables, to investigate the relationships. Return on capital employed (ROCE) is considered as one of the key performance indicators which enables investors to determine the overall financial performance of the firms. It is considered as major variable this study and is calculated by dividing net operating profit or EBIT by the operating capital. ROCE is a more useful ratio to evaluate the longevity of a company. Nonfinancial firms included all the firms quoted in the Nigerian Stock Exchange apart from banks and other financial institutions. The purpose was to examine the sectors together instead of studying them in parts.

Our study aims at documenting the current state of disclosure of financial information under IFRS to assist policy makers to formulate policies that will enhance effective IFRS implementation. It will also build on the previous studies and contribute to the dearth of literature on disclosure practices and performance of firms in emerging economies such as Nigeria.

The paper examined the association between IFRS overall disclosures and the performance of nonfinancial quoted companies in Nigeria by answering the question: To what extent has the overall (ODI) disclosure in the financial statements of Nigerian nonfinancial companies under IFRS associated with their ROCE?

The remainder of this study is structured as follows. The next section provides a review of related literature and development of research hypotheses. The third section deals with the methodology of the study. The results and discussion of findings are presented in section four. Finally, section five concludes the article.

2. Review of related literature and research hypotheses

2.1. Review of related literature

According to Glautier, Underdown, and Morris (2011),

"Attempts to develop non-financial measurements for providing information about the wider social effect of business activities have been frustrated to some extent by the inability to integrate financial and non-financial measurements in a coherent manner, where business survival is the ultimate criterion and profitability the ultimate condition"

Glautier et al. (2011) viewpoints signify the importance of extensive disclosure in a convergent approach that will aid stakeholders to make an informed decision about firms’ performances. There exist an evidence that extensive disclosure adds value to the capital of public companies. Higher economic growth and quality financial reporting are expected from the adoption of IFRS (Okoye & Ofoegbu, 2011).
2.1.1. Challenges of IFRS disclosure

Despite elaborate expectations from disclosure under IFRS by many countries, there are apparently concerns about financial statement manipulation (Xu & Lei, 2011), related party transactions (RPTs) disclosure (Lo & Wong, 2016) and lack of transparency in the presentation and disclosure of financial positions of entities (Odoemelam, 2016). Barth, Landsman, and Lang (2008) pointed out that IFRS are principle-based aimed at eliminating the challenge of accounting alternatives to having earnings that are true and fair in representing the firm’s economic performance. Accountants and managers of companies, on one hand, have been accused of not disclosing material facts that are capable of influencing investors and other segments of the society's economic decisions. Financial manipulation of figures defeats the aims of disclosure to investors who need reliable accounting information to enable them to determine a firm's financial performance among others. On the other hand, the International Accounting Standards Board (IASB) and Financial Accounting Standard Board (FASB) have been blamed for not having adequate standards (Pelger, 2016). Some other authors have attributed all these problems to corporate governance failures (Norwani, Mohamad, & Tamby, 2011), economic instability, and financial crisis (Qiong, 2010). In cognizance of these inherent problems associated with disclosure of vital information in the financial statements, IASB has continued to several International Financial Reporting Standards (IFRS) aimed at enhancing the quality of information contained in the published accounts of entities and to make firms financial statements comparable (Iatridis, 2008; Ofoegbu & Okaro, 2014; Santos et al., 2013). More so, IASB and FASB have continued to embark on projects designed to significantly improve the decision usefulness of financial instrument reporting for users of financial statements (Hassan, 2015; Whittington, 2005).

2.1.2. Adoption of IFRS in Nigeria

The dawn of globalization and increased demand for transparent, comparable, reliable financial information in the markets caused by the high-profile corporate scandal in the U.S. triggered the quest for IFRS. As part of the globe, Nigeria also started yearning for a legal authority that seeks to improve investors’ confidence by tightening government regulation of accounting and inspection of some areas of financial reporting (Ofoegbu & Okaro, 2014). Before the adoption of IFRS in 2012, Nigeria’s regulatory framework consisted mainly of the Companies and Allied Matters Act of 1990, the Securities and Exchange Commission Act, the Banks and Other Financial Institutions Act and Insurance Act of 2003. The Local Accounting Standards on which preparation of financial statements was based was the Statement of Accounting Standards (SAS) prepared and by the Nigerian Accounting Standards Board (NASB). The local GAAP was said to comply with the International Accounting Standards (IAS). However, the number of local standards in then was less than the number of IAS in. Moreover, the local standards were not in alignment with the requirement of IFRS. The implication was that the local standard was out of date and was not sufficiently comprehensive enough to form a basis for preparation of high-quality financial statements that would enhance the relevance of Nigeria’s report in the international arena (Impey, 2017). The local standards were not based on modern principles and concepts that are applied in the global market.

All these led to the adoption of IFRS in Nigeria which started in 2009 when a bill was presented to the National Assembly for the establishment of Financial Reporting Council of Nigeria. This bill was signed into law in 2010 by the Federal Government to support the adoption of IFRS in Nigeria. The new act replaced the Nigerian Accounting Standard Board (NASB) Act of 2003 which was the Act establishing the NASB, a body responsible for the issuance of the local standard called Statement of Accounting Standards. The new legislation changed the name of NASB to Financial Reporting Council of Nigeria. The migration from the local standard to the IFRS has not been an easy task for companies especially those listed in Nigerian Stock Exchange because IFRS is to provide a single set accounting standard that would ensure high quality, transparent, and comparable financial statements. To provide transparent financial statements that will assist local and international investors to make a better investment decision requires diligence in accounting processes and reporting. Investment involves capital outlay which is a global commodity according to Impey (2017), and investors and lenders need financial information that is reliable, relevant, and comparable across the border to assess the risks and returns of their investment opportunities.
One of the benefits Nigeria hoped to derive from the adoption of IFRS was easier access to external capital and an increase in foreign direct investment. Successful implementation of IFRS means that Nigeria will gain from seeming distressed global economy which will help her receive a boost in foreign direct investment. Application of IFRS is expected to increase disclosure in the financial statements. This research is designed to investigate how the level of financial information disclosure affects the performance of listed nonfinancial companies in Nigeria to the extent that would attract foreign investors.

### 2.2 Mandatory disclosure and voluntary disclosure (Overall Disclosure) and firm performance and their link

Prior researchers have documented the link between IFRS disclosure and firm performance (Tatiana, Georgakopoulos, Sotiropoulos, & Vasileiou, 2013; Iatridis, 2008, 2012; Lin, Chang, & Dang, 2015; Ironkwe & Oglekwe, 2016; Musa & Sanusi, 2017; Gideon, 2014; Agyei—Mensah, 2011; Grossman et al., 2013; Muhamed, 2012; Oluwaremi, 2014). Tatiana et al. (2013) in the study of UK companies aimed at investigating the association between mandatory disclosure and company value using a sample of 20 companies for a period of 5 years and found that the extent of mandatory disclosure significantly correlated with firm market-based performance (share price), leverage and company age. Also, the study revealed an insignificant association between mandatory disclosure and listing status, earnings, and size. The study sample size was small. Li and Yang (2015) proposed and tested three possible ways in which IFRS adoption could alter an organization's disclosure incentives. Among these are improved earnings qualities. In the UK, Ali, Akbar, and Ormrod (2016) document higher profit because of reporting under IFRS. Also, that such firm is characterized by higher size, growth, and leverage measures.

Iatridis (2012) investigated the effect of voluntary IFRS disclosures in the pre-adoption on the value relevance of accounting numbers. The study adopted logistic and linear regressions and constructed a disclosure index. The study reported that firms that provided voluntary IFRS disclosures pre-IFRS period showed a higher positive change in equity and earnings. On the other hand, non-voluntary IFRS disclosers revealed a greater change in leverage and a decrease in liquidity. Iatridis (2012) further documented that voluntary IFRS firms are audited by a big auditor and are tending to be cross-listed. Earlier, Iatridis (2008) revealed that extensive disclosure of accounting information significantly associated with higher size, growth, and leverage measures. The study agrees that firms that provide informative disclosure show evidence of higher profitability.

Charitou, Floropolis, Karamanu, and Loizides (2018) answered a study question whether the decision to disclose non-GAAP earnings is related to the firm’s financial performance. The study provided evidence firstly that better-governed firms and those with weaker financial performance tend to disclose more. Also, that disclosure is associated with higher levels of market liquidity. Chavent, Ding, Fu, Stolowy, and Wang (2006) reported that disclosure pattern is associated with provision intensity, company size, and leverage and market expectation while profitability, return, and industry do not associate with disclosure.

In summary, none of the researchers used ROCE as a performance indicator and there is no clear consensus between IFRS disclosure and firm's performance. In the Nigerian context, none of the researchers studied the association between IFRS disclosure and ROCE as well as covered a period up to 2017. Moreover, while some authors used oil and gas, pharmaceutical, food, and beverage firms, others used either manufacturing or banks. The authors express the need to extend the study of post-IFRS adoption to other business sectors attributing the differences in results obtained from the studies to a peculiarity in industry characteristics (Umobong & Ibanichuka, 2016).
2.3. Development of hypotheses

2.3.1. Firms performance and overall disclosure

2.3.1.1. Firms performance. Incognizant of the research aims to investigate the impact of overall disclosure on a firm's performance, specifically on the level of ROCE. ROCE is one of the profitability ratios that enable investors to determine the efficiency with which management of a firm generates profit on the investment made by shareholders and creditors. It is equally used by managers for various financial decisions. ROCE is measured by expressing net operating income after interest and tax or before interest and tax as a percentage of capital employed (Accountingformanagement, 2017; efinancialManagement, 2017). An increase in ROCE signifies satisfactory engagement of capital employed in the business. Accurate assessment of the company's ROCE by investors depends significantly on the extent of information disclosed in the financial statements. Several prior kinds of literature have found that the value relevance of accounting information has declined in recent years. According to PwC (2013), an assessment of ROCE is a crucial part of investors' analysis of company performance and stewardship. Often investors meet with challenges in trying to assess the ROCE of target companies. These challenges hinge on inadequate disclosure of relevant accounting information. Problem areas include fair value measurement, investment involving the acquisition of another business especially on the disclosure of the amount and composition of consideration paid to former owners of the acquired business; consistency with information disclosure, transparency on how management compute their ROCE; segmental information about capital employed (PwC, 2013). Investors believe that companies that generate a ROCE above their cost of capital on a consistent basis outperform their counterparts and will attract investment. Hence, the more the disclosure of financial information, the more ROCE increases provided the cost of disclosure does not increase above the profit. Profitability is a fundamental element for the Total Disclosure Index but not for the Financial Disclosure Index (Celik, Ecer, & Karabacak, 2006).

2.3.1.2. Overall disclosure index (ODI). For the purpose of this study, the overall disclosure index includes both IFRS mandatory and voluntary disclosure among the study firms. IFRS mandatory disclosure is aimed at conveying or communicating the information as required by regulatory bodies to the investors and other stakeholders. Mandatory disclosure is saddled on the regulatory organizations (e.g. IASB, FASB); on the other hand, voluntary disclosure is the responsibility of managers (Tatiana et al., 2013). Owusu-Ansah (1998) robust regression analysis shows that company size, ownership structure, business age, multinational corporation affiliation, and profitability have a significant positive effect on mandatory disclosure and reporting practices. Barako, Hancock, and Izan (2006) documented that board leadership structure, liquidity, profitability, and type of external audit firm do not have a significant influence on the level of voluntary disclosure. Thus, it is expected that overall disclosure is related to ROCE, therefore, the first research hypothesis is:

Hypothesis 1: Higher Return on Capital Employed (ROCE) is positively associated with the extent of overall disclosure.

In line with prior researchers (e.g. Barako et al., 2006; Charitou et al., 2018; Iatridis, 2012; Owusu-Ansah, 1998; Tatiana et al., 2013) to mitigate spurious result, we include share price, company size, audit firm size, leverage, and age as control variables that are expected to associate with the level of disclosure.

2.3.1.3. Share price and overall disclosure. Palea (2013) pointed out that a firm with a credible policy of high-quality information is expected to enjoy higher share price and a lower cost of capital and invariably, impact positively on the organizational financial performance. Iatridis
(2008) from the UK documented that disclosure of accounting information serves as an assurance to investors that accounting principles and rules are in line with the accounting regulation. The study provided evidence that with the motive of raising capital in the stock market companies always provides extensive accounting disclosures. Voluntary communication in the annual reports does potentially affect the market capitalization (Alhazimeh, Palaniappan, & Almsafir, 2014). Better disclosures of accounting information tend to reduce adverse selection problems in the share markets thereby improving the market returns (Daske, Hail, Leuz, & Verdi, 2008). Adelopo (2011) also documents the significant positive correlation between the market-based definition of firm performance and voluntary disclosure. While Tatiana et al. (2013) provided evidence that mandatory disclosure is positively associated with share prices.

**Hypothesis 2a:** Share prices are positively associated with the extent of overall disclosure.

### 2.3.1.4. Company size and overall disclosure

Previous research findings connote that larger firms have the resources to disclose their social and economic activities extensively. Andrikopoulos and Diakidis (2007) showed that firm size has the only significant explanatory variable for Internet reporting practices among the listed firms. Raffournier (1995) investigated the relationship between company size, leverage, profitability, ownership structure, internationality, auditors’ size, the percentage of fixed assets, and industry type as independent variables and disclosure practices of firms as the dependent variable. The author examines 1991 annual report of 161 industrial and commercial firms using the Fourth and Seventh EU Directives as disclosure index. The univariate analyses and multiple regressions adopted suggest that size and internationality have a significant impact on extensive disclosure practices of firms. Adelopo (2011) study on voluntary disclosure among listed companies in Nigeria used disclosure index comprising 24 disclosure items. The study found a significant positive relationship between voluntary disclosure and firm size, measured as the natural logarithm of total asset. Raffournier (1995), Palmer (2008); Santos et al. (2013) also documents the significant positive relationship between the size and extent of disclosure among study companies. Voluntary disclosure is significantly related to company size according to Depoers (2000) while Tatiana et al. (2013) documented an insignificant association between mandatory disclosure and firm size in a study of UK companies. This study states the second hypothesis:

**Hypothesis 2b:** Company Size is positively associated with the extent of overall disclosure.

### 2.3.1.5. Audit firm size and overall disclosure

Prior research argues that audit characteristics that enhance the credibility of financial reporting are associated with stronger earnings-return associations (Chen, Krishnan, Sami, & Zhou, 2012). The empirical evidence is needed to either support or disagree with this argument. The result of the study carried out by Mohd, Takiah, and Norman (2009) provided evidence among others that quality, external auditor type, and effective audit committee enhances firms’ financial performance. Wieczynska (2015) found a significant relationship between switching from small to global audit firms in the years of adoption of IFRS especially firms listed in a highly regulated environment otherwise not so. The study also found audit firm size has an advantage because of their perceived IFRS expertise. Santos et al. (2013), Palmer (2008) and Raffournier (1995) found a significant correlation between disclosure compliance level and “Big 4” audit firms (i.e. Ernest Young, Deloitte, KPMG, and PwC). Santos et al. (2013) in their analyses, company size and “Big 4” auditing were positively associated with the dependent variable, independent of the model employed to determine the compliance disclosure index. Making it possible to conclude that these factors produce a significant positive impact on compliance with the IFRS disclosure requirement levels of Brazilian firms. Also, Palmer (2008) reported that quality of disclosure of 150 Australian listed firms is related to firm size, leverage and auditor
firm size and that auditor firm size was most significant. A study in Zimbabwe reported the insignificant relationship between the quality of audit and mandatory disclosure of sample companies (Owusu-Ansah, 1998). While Scaltrito (2016) indicated that auditors positively affect the total amount of voluntary information disclosed by Italian listed companies.

**Hypothesis 2c:** Audit firm size is positively associated with the extent of overall disclosure.

2.3.1.6. Leverage and overall disclosure. Leverage is perceived as an important accounting variable that is determined by a company's total liabilities divided by total assets (Tatiana et al., 2013). Ali et al. (2016) found that leverage does not significantly determine the level of disclosures. On contrary, Tatiana et al. (2013) reported a significant correlation between mandatory disclosures and leverage. Agency cost theory explains the linkage between leverage and disclosure. According to Lopez and Rodrigues (2007), an increase in leverage induces more agency-related costs and is associated with more IFRS disclosure compliance. Moreover, higher disclosures by managers reduce information asymmetry and agency costs between owners of fund and managers.

**Hypothesis 2d:** Leverage is positively associated with the level of disclosure.

According to Tatiana et al. (2013), company age is an important factor when investigating the extent of the company's disclosure. Some authors have provided evidence that older firms tend to be extensive in information disclosure to maintain their leading position in the market. Tatiana et al. (2013) found that age positively associates with disclosure. We followed Tatiana et al. (2013) approach in determining the age of the companies. In this study, we also adopt the Age dummy variable firms. For instance, we categorize the companies into two groups. The first group (mature with leverage greater than 20%) scored 1 and the second group (younger with the leverage of less than 20% leverage) scored 0.

**Hypothesis 2e:** Company age is positively associated with the level of overall disclosure.

3. Methodology

3.1. Population and selection of sample

The population of the study constitutes 173 quoted companies on the flow of the Nigerian Stock Exchange (NSE) as at 21 September 2018. Out of this number, the study purposively excluded 55 financial companies from the initial population of 173 listed companies because of incomplete data availability leaving a new total population of 118. The study then adopted the sampling technique of Taro Yamane formula \(n = \frac{N}{1 + N (0.05)^2}\) using 95% confidence level and an error margin of 0.05 and selected sample size of 82 (69%) of 118 non-financial companies. Importantly, the selected companies met the following criteria: i) listed in the Nigeria Stock Exchange on or before 2011, ii) adoption of IFRS on or before 2012 and iii) complete data for the period of 2012 to 2017 financial reports.

The study pooled data from 492 firms-year observation from the annual reports of the companies for six years (2012–2017) in the first leg of data gathering. We dropped 18 companies that did not meet the criteria to be included in the final sample. Hence, 64 listed nonfinancial companies were used in the final analysis.

In line with Santos et al. (2013), each IFRS required, and voluntary disclosure items scored 1 if disclosed and 0 if not disclosed. The study employed content analysis of IFRS required and voluntary information disclosure in the annual reports which have been widely used by previous studies to investigate the extent of IFRS disclosure by firms (e.g. Tatiana et al., 2013).
In line with prior studies (e.g. Tatiana et al. 2013; Wang, O, & Claiborne, 2008), we developed a checklist. Hundred checklist items were used to measuring the extent of disclosure by the sample companies. The annual report of the sample companies for the years 2012 to 2017 were used for the investigation. It is the most recent data based on the annual reports which are the secondary source of data collection that is widely accepted as credible.

Coding of the items to generate a data set is in line with, e.g.Gray, Kouhy, and Lavers (1995) based on a measure of disclosure volume by the scoring system. Despite the criticism that un-weighted index (dichotomous scores) of the 1 if the item is disclosed and 0, if not disclosed, negate the possibility that all the elements are not equally important (Barako et al., 2006). The unweighted index is accepted for measuring the number of disclosures (Bozzolan, Trombetta, & Beretta, 2009) and previous studies have used dichotomous score. Hence, we used the equation (1) for the computation of the overall disclosure quantity for each company:

\[
ODI_{Quantity} = \frac{\sum_{i=1}^{n} Quantity_i}{MAX \ Quantity}
\]  

(1)

Where:

ODI Quantity = Overall Disclosure Quantity Index,

Quantityi = 1 if item i is disclosed; 0 if item i is not disclosed,

MAX Quantity = maximum applicable disclosure quantity score,

n = number of items disclosed.

### 3.2. Regression model

Following the model of Tatiana et al. (2013) our statistical model for this study is a modified Tatiana et al. (2013). Instead of the key independent variable stock return (Returns\textsubscript{it}), a primary measure of performance of firms in the context of this study is a return on capital employed (ROCE\textsubscript{it}) which is the variable of interest.

Therefore, the Tatiana et al. (2013) modified regression formula employed to test the research hypotheses is:

\[
ODI_{it} = \beta_0 + \beta_1 \times \text{Roce}_{it} + \beta_2 \times \text{Share price} + \beta_3 \times \text{Audit firm size} + \beta_4 \times \text{Size} + \beta_5 \times \text{Leverage} + \beta_6 \times \text{Age} + \epsilon
\]

Where;

ODI = Overall Disclosure Index (mandatory and voluntary disclosures, dichotomous disclosure index approach, each disclosure item receives equal weighting)

Roce = Measures financial Performance

Share prices = Share price

Size = Assets (Logarithm of Total Assets)

Audit firm size = Audit firm size (1 if the company is audited by Ernest & Young, Deloitte, PwC or KPMG and 0 otherwise)

Leverage = Leverage is the company’s total liability divided by total assets
Age = \text{Age (1 if the company’s leverage is equal or greater than 20\% and 0 otherwise)}

\beta: \text{coefficients of the parameter estimates}

\varepsilon: \text{error term or residual.}

4. Presentation of results and discussion of findings

4.1. Descriptive statistics

The descriptive statistics of the dependent and independent variables are presented in Table 1. For a clearer picture, we used Tables 3 and 4 to report dependent variable and independent variables, respectively. Table 3 indicates overall disclosure per year, 2012 to 2017 and Table 4 reports all variables for the six-year period. Table 4 shows that the average overall disclosure index for the six-year period is 82.04\% (with a minimum 36\% and maximum 99\%), compared to previous studies (e.g. Tatiana et al., 2013), the nonfinancial listed firms in Nigerian Stock Exchange show 10\% and 33.31\% lower in terms of the average minimum and maximum disclosure, respectively. The overall disclosure index of this study outperformed the one documented by Owusu-Ansah (1998) in Zimbabwe (mean 74.43\%). Considering firms audited by the “Big 4” audit firms, 60\% of the sample companies were audited by either of the four big auditors.

Surprisingly, Table 3 shows that in 2013 a year after IFRS adoption in Nigeria, the disclosure compliance was highest in regards to minimum, maximum, and average disclosure (40\%, 99\%, and 84\%). The result contradicts Tatiana et al. (2013) report on the adoption of the IFRSs in the EU. Perhaps, the factor that could be explained by the audit firm size positive influence on extensive disclosure due to their experience. These findings support the agency theory and that the extent of compliance with accounting standards is related to auditor type Abd-Elsalam & Weetman (2003).

2. Summary statistics (number of observations 384)

4.2. Correlation (univariate) analysis results

The Pearson product-moment correlation matrix of the dependent and independent variables is presented in Table 2. The results in Table 2 revealed a very weak insignificant positive association between ROCE and overall disclosure index (ODI) (p-value = 0.200; correlation coefficient (r) = 0.066). On the other hand, the Pearson correlation coefficient between overall disclosure index and age and leverage are negative, and insignificant at 5\% level (p-value = 0.421 and 0.385; correlation coefficient (r) = -0.041 and -0.045), respectively. The results in Table 2 also indicate a significant positive association between share price (SP) and ODI (p-value = 0.000; correlation coefficient (r) = 0.207). Company size (SIZE) and ODI (p-value = 0.000; correlation coefficient (r) = 0.212). Further revealed in

<table>
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<tr>
<th>Table 1. Overall Disclosure Checklists</th>
<th>No of Items</th>
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<tr>
<td>General Disclosure Items</td>
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<tr>
<td>Corporate Governance Items</td>
<td>10</td>
</tr>
<tr>
<td>Directors Reports Items</td>
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<tr>
<td>Corporate Social Environmental Report</td>
<td>4</td>
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<tr>
<td>Independent Audit Report Items</td>
<td>5</td>
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<tr>
<td>Financial Highlight Items</td>
<td>4</td>
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<tr>
<td>Statement of Financial Position Items</td>
<td>8</td>
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<tr>
<td>Accounting Policies Items</td>
<td>32</td>
</tr>
<tr>
<td>Overall Disclosure</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Annual Reports.
Table 2. Summary statistics (number of observations 384)

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
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<tr>
<td><strong>Descriptive statistics for the dependent variable Overall Disclosure Index (ODI)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ODI2012</td>
<td>36.00</td>
<td>98.00</td>
<td>81.0000</td>
<td>15.96027</td>
</tr>
<tr>
<td>ODI2013</td>
<td>40.00</td>
<td>99.00</td>
<td>84.1406</td>
<td>14.68707</td>
</tr>
<tr>
<td>ODI2014</td>
<td>36.00</td>
<td>98.00</td>
<td>81.3594</td>
<td>16.94563</td>
</tr>
<tr>
<td>ODI2015</td>
<td>38.00</td>
<td>99.00</td>
<td>83.4063</td>
<td>16.66259</td>
</tr>
<tr>
<td>ODI2016</td>
<td>36.00</td>
<td>98.00</td>
<td>81.3594</td>
<td>16.94563</td>
</tr>
<tr>
<td>ODI2017</td>
<td>36.00</td>
<td>98.00</td>
<td>81.0000</td>
<td>15.96027</td>
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<tr>
<td><strong>Descriptive Statistics for all variables for the Six-year period</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>odi</td>
<td>384</td>
<td>36</td>
<td>99</td>
<td>82.04</td>
</tr>
<tr>
<td>roce</td>
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<td>181.000</td>
<td>17.38101</td>
</tr>
<tr>
<td>sp</td>
<td>384</td>
<td>.42</td>
<td>1555.99</td>
<td>44.1503</td>
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<tr>
<td>afs</td>
<td>384</td>
<td>0</td>
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<td>.60</td>
</tr>
<tr>
<td>size</td>
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<td>68.47</td>
<td>1,573,481.00</td>
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<td>169.00</td>
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<tr>
<td>age</td>
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<td>1</td>
<td>.97</td>
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<tr>
<td>Valid N (listwise)</td>
<td>384</td>
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</tr>
</tbody>
</table>

Table 2 is a higher, and significant positive association between audit firm size (AFS) and ODI (p-value = 0.000; correlation coefficient (r) = 0.375). It shows a higher correlation coefficient between disclosure index and audit firm size than every other independent variable.

In contrary to the expectation that the extent of disclosure is positively associated with the ROCE, which is not supported in the case of this study (p-value = 0.200; correlation coefficient (r) = 0.066) and thus, hypothesis 1 is rejected. This result is in line with the findings of Tatiana et al. (2013) and Chavent et al. (2006) and others. The result provided empirical support to the views of Owusu-Ansah (1998), Tatiana et al. (2013), and Charitou et al. (2018) that it is possible that unprofitable organizations will extensively disclose more information to justify their poor performance.

Thus, our hypothesis 2a support that a significant positive association between SP and ODI (p-value = 0.000; correlation coefficient (r) = 0.207) exist in our study setting. The result agrees with the findings reported by Daske et al. (2008), Iatridis (2008), Palea, (2013), and Tatiana et al. (2013). A significant positive association between company size and disclosure (p-value = 0.000; correlation coefficient (r) = 0.212) is documented which corresponds to the results from the prior studies (Palmer, 2008; Raffournier, 1995; Santos et al., 2013). Hypothesis 2b is supported. There is also a significant positive association between audit firm size and the extent of overall disclosure (p-value = 0.000; correlation coefficient (r) = 0.375). The implication of this finding is that “Big4” audit firms encourage extensive disclosure practices among corporate entities. Therefore, we accept hypothesis 2c. This finding is tandem with other studies Chen et al. (2012); Santos et al. (2013), Scaltrito (2016), and others. Our finding on the link between leverage and disclosure in the context of this study reveals an insignificant negative association/correlation between LEVERAGE and ODI (p-value = 0.385; correlation coefficient (r) = -0.045). Hypothesis 2d is not supported, hence, the result agrees with that Ali et al. (2016) in terms of significance. The finding contradicts the study of Tatiana et al. (2013) and not consistent with agency theory that aimed at mitigating information asymmetry. Furthermore, an insignificant negative association exist between AGE and ODI (p-value = 0.421; correlation coefficient (r) = -0.041). Hence, hypothesis 2e is rejected.
Table 3. Pearson correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>Odi</th>
<th>roce</th>
<th>Sp</th>
<th>afs</th>
<th>size</th>
<th>leverage</th>
<th>age</th>
</tr>
</thead>
<tbody>
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<td>Odi</td>
<td>Pearson Correlation</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td>N</td>
<td>384</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>roce</td>
<td>Pearson Correlation</td>
<td>0.066</td>
<td>1</td>
<td></td>
<td>*</td>
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<tr>
<td></td>
<td>Sig. (2-tailed)</td>
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<td></td>
<td></td>
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<td></td>
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<td>384</td>
<td>384</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sp</td>
<td>Pearson Correlation</td>
<td>0.207*</td>
<td>0.245**</td>
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<td></td>
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<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.000</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>384</td>
<td>384</td>
<td>384</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>afs</td>
<td>Pearson Correlation</td>
<td>0.375**</td>
<td>0.155**</td>
<td>0.190**</td>
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<td>Sig. (2-tailed)</td>
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<td>0.002</td>
<td>0.000</td>
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<td></td>
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<tr>
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<td>384</td>
<td>384</td>
<td>384</td>
<td></td>
<td></td>
</tr>
<tr>
<td>size</td>
<td>Pearson Correlation</td>
<td>0.212**</td>
<td>0.009</td>
<td>0.209**</td>
<td>0.241**</td>
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<tr>
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<td>Sig. (2-tailed)</td>
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<td>0.867</td>
<td>0.000</td>
<td>0.000</td>
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<td></td>
</tr>
<tr>
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<td>384</td>
<td>384</td>
<td>384</td>
<td>384</td>
<td></td>
</tr>
<tr>
<td>leverage</td>
<td>Pearson Correlation</td>
<td>−0.045</td>
<td>0.139**</td>
<td>0.122*</td>
<td>−0.078</td>
<td>0.024</td>
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<td>Sig. (2-tailed)</td>
<td>0.385</td>
<td>0.006</td>
<td>0.117</td>
<td>0.129</td>
<td>0.646</td>
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<td>384</td>
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<tr>
<td>Age</td>
<td>Pearson Correlation</td>
<td>−0.041</td>
<td>0.030</td>
<td>0.013</td>
<td>0.048</td>
<td>−0.006</td>
<td>0.178**</td>
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<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>0.421</td>
<td>0.560</td>
<td>0.799</td>
<td>0.350</td>
<td>0.904</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
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<td>384</td>
<td>384</td>
<td>384</td>
<td>384</td>
<td>384</td>
<td>384</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
Table 4. OLS regression results $ODI_{it} = \beta_0 + \beta_1 x Roce_{it} + \beta_2 x Sp_{it} + \beta_3 x Afs_{it} + \beta_4 x Size_{it} + \beta_5 x Leverage_{it} + \beta_6 x Age_{it} + \varepsilon$

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Collinearity Statistics</th>
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<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>76.740</td>
<td>2.316</td>
</tr>
<tr>
<td></td>
<td>Roce</td>
<td>-0.009</td>
<td>0.034</td>
</tr>
<tr>
<td></td>
<td>Sp</td>
<td>0.015</td>
<td>0.006</td>
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<tr>
<td></td>
<td>afs</td>
<td>10.784</td>
<td>1.635</td>
</tr>
<tr>
<td></td>
<td>Size</td>
<td>9.32E-006</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Leverage</td>
<td>-0.017</td>
<td>0.032</td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>-1.526</td>
<td>1.377</td>
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**ANOVA**

<table>
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<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F.</th>
<th>Sig.</th>
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<tr>
<td>1</td>
<td>Regression</td>
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<td>6</td>
<td>2908.916</td>
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<td></td>
<td>Residual</td>
<td>82,504,750</td>
<td>377</td>
<td>218.845</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>99,958,247</td>
<td>383</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Model Summary**

<p>| | |</p>
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Observation</td>
<td>384</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.175</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.161</td>
</tr>
<tr>
<td>F-Value</td>
<td>13.292</td>
</tr>
<tr>
<td>P-Value</td>
<td>0.000</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>1.098</td>
</tr>
</tbody>
</table>
4.3. Regression (multivariate) analysis results

Table 4 presents the results of the OLS regression model for all variables to investigate the impact of each variable on the overall disclosure. The multiple regression model is statistically significant. The adjusted R2 shows that 16.1% of the variation of the dependent variable is explained by the variations of the independent variables.

Multiple regression was used, and the results include the adjusted R square (0.161), ANOVA ($p < 0.05$) and the standardized $\beta$ coefficient of each component variable ($\beta = -0.012, p > 0.05$; $\beta = 0.129, p < 0.05$; $\beta = 0.327, p < 0.05$; $\beta = 0.106, p < 0.05$; $\beta = -0.026, p > 0.05$; $\beta = -0.053, p > 0.269$). Observe that, relative to each other, AFS exerted the greatest influence on ODI, that ROCE, LEVERAGE, and AGE exerted a small and statistically insignificant influence on ODI. In using multiple regression technique, one has to ensure that the of multicollinearity is avoided, hence, the coefficients table above show a VIF of 1.101 for both ROCE and SIZE, 1.141 for SP, 1.125 for AFS, 1.080 for LEVERAGE, and 1.038 for AGE which is less than 5, and indicate that there is no multicollinearity problem in the multiple regression model stated above.

5. Discussion of findings

Our finding (hypothesis 1) in the context of listed non-financial companies in Nigeria surprisingly shows insignificant relationship between overall disclosure and companies’ financial performance which supports the view of Banghøj & Plenborg, (2008). This finding is not out of literature, the result agrees with Barako et al. (2006) and Tatiana et al. (2013) who reported an insignificant association. The result provided empirical support to the view of Owusu-Ansah (1998) that it is possible that unprofitable organizations will extensively disclose more information to justify their poor performance. This finding although not significant, is contrary to Iatridis (2008); Iatridis (2011); Marfo and Atsunyo (2014) findings that higher profitability is associated with extensive accounting disclosure with the motive of raising capital in the stock market. The implication of the result is that information disclosed is not attractive enough to investors’ whose more investments guarantees more profit. A further implication is that extensive disclosure involves higher cost but should not be a reason for poor performance. One of the options a company can adapt to improve financial performance is cost reduction by disclosing required and vital information to aid investors and other segments of the society in taking economic decisions.

The result revealed a positive significant association between share price and overall disclosure. The finding agrees with the view of Iatridis (2008) that disclosure of accounting information serves as an assurance to investors that accounting principles and rules are in line with the accounting regulation. The study provided evidence that with the motive of raising capital in the stock market companies always provides extensive accounting disclosures.

Based on hypothesis 2b, we document that company size positively associate with the effect of overall disclosure. This finding agrees with other results that larger companies intend to disclose more information (Andrikopoulos & Diakidis, 2007; Iatridis, 2008; Marfo & Atsunyo, 2014; Owusu-Ansah, 1998; Palmer, 2008; Santos et al., 2013). The implication of the result is that the increase in company increases leads to disclosure increases, and cost also increases thereby affecting the financial performance of the firm. A further implication is that big company are capable of cushioning the effect of the high cost of extensive disclosures.

In hypothesis 2c, the audit firm size is found in our study as the most determinant of the overall disclosure. The finding is supported by Abd-ElSalal and Weetman (2003), Mohd et al., (2009), and Scaltrito (2016). Our finding is also in contrary to Barako et al. (2006); Owusu-Ansah (1998) who documented an insignificant relationship between audit quality and extent of disclosure practices. Audit firm size or reputation intends to balance the interest of both the fund owners and managers of the entities. These findings support the agency theory and that the extent of compliance with accounting standards is related to auditor type Abd-ElSalal and Weetman (2003).
It is quite interesting that virtually all the sample companies are highly leveraged but there is no association between leverage, age, and overall disclosure. The result implies that gap exists between fund owners and managers of these companies in terms of information. This negates the agency theory.

6. Conclusion, limitations, and recommendations
This study investigates the relationship between ODI and financial performance in the context of listed nonfinancial companies in the Nigerian Stock Exchange (NSE) using a combination of cross-sectional, time-series data, and OLS regression techniques. Rigorously, we demonstrate that a company disclosure practices under post-IFRS have no significant association with profitability (return on capital employed).

The finding in this paper indicates that the extent of corporate disclosure does not significantly associate with financial performance. This result suggests that companies should be concerned with the disclosure of relevant information at a possible minimal cost to stabilize the possible negative effect of extensive mandatory and voluntary disclosure on financial performance. Our result provides an excellent insight for the likely use of quality audit firm in improving and mitigating the possible negative effect of disclosure practices on firms’ profitability. The study also reveals the need for the Financial Reporting Council of Nigeria as a regulatory body to continuously encourage training and retraining of the companies’ staff on preparation of financial statements under IFRS without incurring so much cost that would eat into their profitability. The council should also ensure that the information disclosed is value relevant so that irrelevant information will be eliminated to reduce cost.

The study has contributed to knowledge: In Nigeria context, it is the first to empirically investigate the impact of overall disclosure practices of listed nonfinancial companies’ ROCE. Secondly, it has added knowledge to the existing literature on mandatory and voluntary disclosures of firms.

However, some limitations are to be taken into cognizance to foster further research. Firstly, the variable of industry type and another profitability index (ROA, ROE, etc.) was not included in the model to know whether the result varies among the various sectors. The study is also limited to non-financial sectors of the economy and is based on a single country evidence. Finally, the approach of content analysis using a dichotomous unweighted method which is based on subjectivity did not evaluate the quality of information disclosed.

Therefore, future research should cover some of these. Future research should use more refined content analysis methods; voluntary and mandatory taken individually and compare disclosure practices by listed companies in Nigeria with foreign counterparts.

Supplementary material
Supplemental data for this article can be accessed here.

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