ISSN: 2006-1013

The Nigerian Accounting Horizon
Department of Accounting, University of Jos
Website: https://nahjournal.org.ng Volume 10, No. 1, 2025

Determinants of Integrated Reporting Practices among Listed Agricultural Firms in Nigeria.

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ABSTRACT
Accounting profession has continued to face challenges on how to enhance the decision usefulness of financial reports. The profession has risen to this challenge by trying to provide additional information in what are more generically referred to as sustainability reports, but which are gradually being integrated with "traditional" reports. The foremost goal of integrated reporting (IR) is to increase transparency and accountability by communicating in a clear and straightforward manner h ow a firm's strategy, governance, performance, and forecasts within the context of its external environment contribute to the creation of value over short, medium, and long terms. Though, integrated reports are not yet mandatory, yet some entities have begun preparing them, this study examined what firm level determinants are associated with IR practices of agricultural firms in Nigeria. Through the use of correlational research design as well as analyses of all 5 agricultural firms listed Nigerian Group (NGX) for a period of five years (5); from 2019-2023 was conducted. Results show that firm size is a significant variable that facilitates integrated reporting practices of agricultural firms in Nigeria.

Keywords: firm level determinant, integrated reporting, voluntary disclosure

1.0 INTRODUCTION
Integrated reporting (IR) is becoming increasingly significant due to two interrelated issues: the growing significance of voluntary disclosure models and the critical role that stakeholder connections play in ensuring a project's success over the medium and long durations of a corporation. Concerning the first component, a number of elements, including globalization, the concern of the public with regard to monetary impropriety, social and environmental matters, and human rights, etcetera has significantly changed the environment in which businesses run. The environment in which businesses operate has evolved, necessitating new

ways of thinking about new business models as well as redefining the procedures, equipment, and management structures that will enable organizations to fulfill their financial, social and environmental objectives. This in addition to the increased need to accommodate company's stakeholders' concerns has significantly affected how organization communication activities are managed and is essential for medium and long-term outcomes that are favorable (Vitolla et al., 2020).

Consequently, the introduction of Integrated Reporting (IR) has brought a shift in the understanding and use of previous sustainability reporting practices (Global Reporting Initiative [GRI], 2013). Organizations formerly produced a distinct sustainability report, in accordance with the guidelines furnished by bodies such as the GRI. Still, these did not properly align the purposes of sustainability reporting. It is widely acknowledged that sustainability pertains to the economic, environmental and social sustainability of an organization. For an organization to be viable over the long run, each of these three components must be incorporated into its business strategy and procedures (GRI, 2013). Therefore, the goal of sustainability reporting is to inform a wide range of stakeholders on how the company is fostering a sustainable society and environment (GRI, 2013). IR on the other hand, while being a report primarily intended for providers of capital, reports on how organizations generate value over the short, medium, and long term by interrelating with their internal and external environment (International Integrated Reporting Council [IIRC], 2013). Thus IR, connects both financial and non-financial elements; entwining sustainability issues with organization strategy and achieving better communication than what the separate financial and non-financial reports could achieve (Ajekwe, 2019).

Integrated reporting attempts to integrate substantial quantitative and qualitative information about the past, present, and future that may be extracted from the sustainability and intangibles (or intellectual capital) report and the financial statements in a concise and voluntary document. It is built on a multi-capital view in order to present a holistic picture of a firm's value generating process. In so doing, integrated reporting strives to increase the quality of information given to financial capital providers, resulting in better and more efficient decision-making and fund allocation. Furthermore, it offers a set of data that can help all stakeholders, other than shareholders and investors, understand how organizations create value.

Accounting profession has continued to face challenges on how to enhance the decision usefulness of financial reports. The profession has risen to this challenge by trying to provide additional information in what are more generically referred to as sustainability reports, but which are gradually being integrated with "traditional" reports. The foremost goal of integrated reporting (IR) is to increase transparency and accountability by communicating in a clear and straightforward manner h ow a firm's strategy, governance, performance, and forecasts within the context of its external environment contribute to the creation of value over short, medium, and long terms. Though, integrated reports are not yet mandatory, yet some entities have begun preparing them, this study examined what firm level determinants are associated with IR practices of agricultural firms in Nigeria.

Considering the novel and somewhat ambitious objective of IR, many scholars have begun to pay attention to this phenomenon and investigate its subsequent application as well as motivations. To date, however, the literature on this new type of reporting is primarily concerned with the benefits that can be garnered from it (Barth et al., 2017) and, in general, on its adoption in different organizational settings; and is accomplished primarily using qualitative and interpretive methodologies (Feng et al., 2017; Girella et al., 2019). While IR may be contingent not only on individual firm level determinants but also on the values and institutional characteristics of the society (Khlif, 2016; Maroun, 2015; de Villiers et al., 2017), we favor an examination of corporate characteristics because they have internal and external impact on the decision making of a firm and can thus provide the base of reporting information on the financial statement of the company.

Regarding the more specific literature on associations between firm level determinantsand IR, we note that majority of such research have been conducted outside of Nigeria (e.g. Haji & Anifowose, 2017; Feng et al., 2017; Kilic & Kuzey, 2018), in countries which are more economically developed and have more advanced institutional and legal backgrounds than Nigeria. Few ones (e.g. Adelowotan & Udofia, 2021; Iredele, 2019) can be found regarding the Nigerian clime. Iyoha et al, 2017 and Ajekwe (2019), had earlier drawn attention to this dearth of Nigeria specific literature, calling on researchers to provide "local" evidence. Therefore, in order to provide context, and due to the relevance of IR to the socio-economic environment of Nigeria, we examine the association between three firm level determinants and IR. These variables are: firm age, firm size and liquidity. Most of the studies had been concentrated on financial firms but we chose agricultural firms for study on the premise that financial firms are highly regulated compared to non-financials and as such it is known that they are quick to adopt new practices. Also, majority of Nigeria's listed oil and gas and manufacturing companies have multinational parent firms with headquarters in jurisdictions where IR is required, leading them to create reports in line with IR framework (Alade & Odugbemi, 2022). Furthermore, According to Tebrake and O'Hagan (2017), agricultural sector is a significant sector of the economy in most countries. It invests, provide raw materials, and directly or indirectly employ a sizable portion of the labor force in a nation. Nearly every economic activity demonstrates their significance to the economy. The non-financial designation merely indicates that their primary focus is on the creation of non-financial goods and services and not on financial services. Therefore, a wide range of industry classifications are covered by the non-financial classification part of which is agricultural firms.

The primary objective of this paper is therefore to examine the effect of firm level determinant of integrated reporting practices among listed agricultural firms in Nigeria. The study examines data for a five (5) year period; from 2019 -2023. The period takes into cognizance the fact that the introductory guide to Integrated Reporting in the public sector was only published in September 2016 by The International Integrated Reporting Council (IIRC) and the Chartered Institute of Public Finance and Accountancy (CIPFA). The study contributes to the literature by providing evidence that enhances researchers' understanding of the association between firm level determinants and integrated reporting practices in developing nations along with documenting results from several sectors of the Nigerian firms. Furthermore, investors, regulators, standard setters and other stakeholders will find the results insightful for their decision making.

The paper is in five parts. Section two provides a review of literature and puts forth the hypotheses of the study. The research methodology is discussed in section three while the results are both presented and discussed in section four. Section five which is the final section, concludes by providing a summary and suggestions for further research.

2.0 LITERATURE REVIEW

This section discusses related literature on firm level determinants and integrated reporting practices of non-financial service firms. Specifically, it discusses concepts, reviews empirical studies and puts forth the theoretical framework underpinning this study.

2.1 Conceptual Issues

An integrated report (IR), according to the IIRC, is a succinct explanation of an organization's strategy, governance, performance, and prospects, in the backdrop of its external environment and how it causes value to be created, maintained, or diminished over the short, medium, and long terms. IIRC considers IR as a means of communication with numerous benefits, i.e. creating a more unified and effective corporate reporting strategy; improving accountability and stewardship for the wide range of capitals (financial, manufactured, intellectual, human, social and relationship, and natural) and revealing an awareness of their interdependencies; supporting integrated thinking whilst taking into account the interlinks among the organization's various operating and functional units and the capitals it uses or impacts. Seven Guiding Principles underpin the composure and presentation of an integrated report, informing the content of the report and how information is presented: strategic focus and future orientation, connectivity of information, stakeholder relationships, materiality, conciseness, reliability and completeness, consistency and comparability. Furthermore, an integrated report consists of eight content elements that are basically connected to each other and are not mutually exclusive: organizational overview and external environment, governance, business model, strategy and resource allocation, performance, outlook, basis of presentation.

Specifically, integrated reporting illustrates how well businesses can generate value over time (Vitolla et al., 2019). By revealing the prevailing linkage amid non-financial and financial information and among the six different capitals it is comprised of, integrated reporting accentuates inclination to the future, succinctness, and tactical focus (Vitolla et al, 2019). Critics have, for example, questioned whether IR can result in significant changes to corporate reporting practices (Stubbs & Higgins 2014) and to enhance sustainability (Flower 2015; Thomson 2015). In addition, several writers contend that IR is not helping to promote or contribute to sustainability (Alexander & Blum 2016; Flower 2015).

Some literature recommends that when writing an integrated report, attention must be taken to harmonize the IR framework and the principles of sustainability and accountability that frequently seem to disagree with each other (Cheng et al., 2014; Flower, 2015; Thomson, 2015). Furthermore, Flower (2015) contends that integrated reporting cannot satisfy the requirements of all stakeholders. The author asserts that some stakeholder categories' interests are significant only to the extent as they affect the success of the corporation. Ultimately, integrated reporting enables the business and its stakeholders to make more informed decisions when it is carried out with the necessary rigor (Deloitte, 2011).

Zou and Stan (1998) defined firm level determinants as managerial and demographic factors encompassing a portion of the internal environment of the firm. While Kogan and Tian (2012) defined company characteristics as comprising of company size, leverage, liquidity, sales growth, asset growth and turnover. Others comprise ownership structure, board characteristics, company age, dividend pay-out, profitability, access to capital markets and growth opportunities. Also, firm level determinants are factors that influence decisions made by the company both internally and externally (Shehu & Farouk, 2014).

The number of years the company has been in existence is referred to as the firm's age; even though some believe that listing age, should define the age of the company (Shumway, 2001). However, a company is created through incorporation to become a legal entity (Gitzmann, 2008; Pickering, 2011). Therefore, we favor using the company's incorporation year to determine the company's age. The company's age showcases its longevity and is sometimes used as support for the legitimacy theory (Pratama et al, 2021). Furthermore, from the legitimacy theory viewpoint, a company's age affects its drive to take social and environmental action and for availing considerable disclosure of non-financial information together with financial ones to strengthen its reputation and further consolidate its legitimacy.

Firm size, which possesses a huge influence on determining the quantity of disclosures in annual reports, is one element that determines the amount of disclosure practices (Dima et al., 2019). Jiang (2003) defined firm size as the employees per establishment, employees per company, sales per firm and value added per firm while Shi (2014) pointed out that firm size is the carrier of output and commercial activities. According to Sritharan (2015), firm size refers to a firm's ability, as well as the variety and number of production capabilities or the quantity and range of services it can provide to its clients. Certain factors set large organizations aside from small ones, one of such factors is the need for more capital. Large enterprises must consequently disclose enough information about the organization to the capital providers. This is accomplished with the yearly integrated reports, which ought to be thorough enough to meet the informational requirements of the financiers. This supports the agency theory (Iredele, 2019). In accordance with the theory, as a company grows, it needs more external funding which raises the possibility of conflicts of interest amid shareholders, creditors, and managers (Frías-Aceituno et al., 2014).

A company's liquidity determines its capacity to pay its existing maturing liabilities (Okwoli & Kpelai, 2006). Liquidity refers to the company's ability to transform its short-term assets into cash with a view to carry out its daily business (Douglas *et al.*, 2022). According to Katchova and Enlow (2013), Liquidity ratios gauge an organization's capacity to settle its short-term debts. Instances are the current and quick ratio, which quantifies a company's heath in the short run. Liargovas and Skandalis (2008) proposed that businesses can use liquid assets to fund their operations and investments in the absence of external financing. To reassure shareholders, businesses that have greater liquidity ratios may release more data about integrated reporting and value creation.

2.2 Review of Empirical Studies

Introduction

Empirical works on the effect of firm level determinants on integrated reporting practices have been mostly carried out over the last decade. This is because the idea of integrated reporting is relatively novel; striving to encompass reporting the social, environmental and economic sustainability variables that are crucial to a company's long-term financial success, mainly to aid in guiding the investment choice taken by long-term investors (Humphrey O'Dwyer & Unerman**,** 2017, Adegbie, & Fakile, (2021).). The first corporate IR only appeared in 2002 and the practice itself was poorly applied. In 2010, the International Integrated Reporting Council (IIRC) started work on building the first IR framework, which was published in December 2013.

Eccles et al. (2015) highlight two primary reasons for corporations to implement IR. The first is that IR is a critical component of sustainability, as it employs a strategy for managing the risks and opportunities of a sustainable society. The second is that putting the message for all stakeholders into a single report would improve corporate disclosure transparency.

Firm Age and Integrated Reporting

Regarding firm age and Integrated reporting practices**,** Dhananjaya and Nadeesha (2018) studied if firms' characteristics influence the extent of IR adoption in Colombo Stock Exchange-listed companies. (CSE). Data for 2016 and 2017 were gathered from the annual reports of 61 selected companies. Regression analysis was used to determine the effect of company characteristics on IR adoption level. Findings revealed that firm age has a substantial impact on the amount of IR adoption. There is a gap in the currency of this research and the scope is short.

Nurkholis (2020) studied the effects of financial health and company characteristics on Integrated Reporting utilizing secondary data retrieved from published annual financial statements of 20 state owned businesses from 2012-2018. This study presents empirical evidence that firm age has no effect on the degree of Integrated Reporting disclosure using descriptive and inferential statistics. There is a gap in the currency of the data used for this research.

Pathiraja and Priyadarshanie (2020) found the corporate characteristics that influence IR adoption in companies registered on the Colombo Stock Exchange (CSE). For this study, 50 firms that have implemented IR were considered at random from a sample of 61 IR-adopted firms and 50 non-IR-adopted firms. Data was gathered from selected firms' annual reports for 2016. The findings revealed that firm age has a significant impact on IR adoption. The scope of this research is short.

Yulyan and Maharanny (2021) assessed the effect of effective corporate governance and the firm's age on integrated reporting implementation. Several mining businesses listed on the Indonesia Stock Exchange (IDX) from 2016 to 2018 were chosen as the study's population. The study results showed that company's age and size as control variables impact integrated reporting implementation. The study only considered two firm level determinants for a short period of two years.

Senani et al., (2022) analyzed data from 39 listed non-financial corporations in Sri Lanka that have implemented an IR disclosure framework between 2011 and 2018. Results show that Firm age is a significant determinant of IR disclosure. The results obtained might not be applicable in Nigeria.

For firm age and Integrated Reporting**,** Lai et al. (2016) studied whether the choice to implement an IR is motivated by a desire to repair legitimacy threats. They rejected the hypothesis of firms adopting IR as a response to a poor rating. Additionally, they showed that firm size was insignificant. There is a gap in the currency of this study.

Firm Size and Integrated Reporting

Vaz et al., (2016) investigated the factors that influence the usage of IR as a corporate reporting mechanism for sustainability information. Their results confirmed the effect of firm size and revealed that firm size is not a determinant. This study examined only one firm characteristic.

Taufiq and Fuadah (2018) examined the effect of the composition of the independent board of directors, the independent audit committee, and company characteristics (firm size and profitability) on the integrated reporting disclosure of agricultural firms listed on the Indonesian Stock Exchange. The population consisted of 51 firms from 2015 to 2017. The result showed that firm size had positive impact on the integrated reporting disclosure. Only one firm characteristic was examined and the result obtained may not be applicable to Nigeria.

Putu and Made (2018) investigated the factors influencing the company's ability to undertake integrated reporting. Results reveal firm size a has positive and significant connection in performing integrated reporting. This study only considered one firm characteristic.

Marrone and Oliva (2019) investigated some determinants of the alignment level of IR. The results showed a positive and significant effect of the firm size on the level of alignment. The study considered only one firm characteristic.

Girella et al. (2019) investigated the impact of firm- and country-specific variables on international voluntary adoption of integrated reporting. To accomplish this, they examined a sample of 71 worldwide listed businesses that used this reporting format in 2016. Firm size was found to be significant variable. The scope of the study is only for a year which is extremely short.

Liquidity and Integrated Reporting

Madhuhansi and Karunarathne (2022) used evidence from listed companies in Sri Lanka to investigate the impact of firm-specific variables on the quality and level of adoption of integrated reporting. Secondary data were acquired from 53 selected companies' annual reports from 2017 to 2020. The Panel data regression model found that liquidity has a significant impact on the quality and adoption level of integrated reporting. The results of this study might not applicable to Nigeria.

Alade and Odugbemi (2022) empirically investigated the impact of company characteristics on the implementation of the integrated reporting framework in Nigerian listed oil and gas enterprises. The population consisted of eleven (11) oil and gas enterprises registered on the Nigerian Stock Exchange as at 31st December 2020. Data was gathered from yearly reports retrieved from the firms' websites. from the period of 2011 – 2020. This data was analyzed using panel least square regression technique which disclosed a significant and positive effect of liquidity on integrated reporting frameworks. This study examined only two firm level determinants and only oil and gas firms consisting of 11 firms were examined. The results obtained may not be applicable to other sectors of the Nigerian Exchange group.

Bhatia et al. (2023) evaluated 31 Bombay Stock Exchange enterprises for five fiscal years ending in 2020. Logistic regression was performed, and their results showed liquidity affects IR adoption. This study was conducted in India; hence the results may not be applicable to Nigeria. Also, only one firm characteristic was examined.

Maheswari and Sufiyati (2023) analyzed the factors that influence the implementation of IR of a company. The study documented that liquidity has a negative and insignificant Influence on the implementation of integrated reporting. This study analyzed one two firm characteristics. The result of this study is consistent with Nurkholis (2020) who also reported a negative effect while Pathiraja & Priyadarshanie (2020), Yulyan and Maharanny (2021) and Senani et al, (2022) revealed a significant effect of liquidity on integrated reporting practices.

Also regarding liquidity and Integrated Reporting, Barth et al., (2017) and Al Amosh *et al.,* (2022) revealed a positive association between IR and liquidity while Ghani *et al.,* (2018) and Mawardani et al., (2021) found that liquidity has no significant association with the level of integrated reporting disclosure.

2.2 Theoretical Framework

IR is part of voluntary disclosure (VD) which has tended to be examined using several frameworks, either separately or in fusion. To this end, we situate the study within the ambits of two VD research frameworks: agency and legitimacy theory.

2.2.1 The agency theory

Agency theory, as put forward by Jensen and Meckling (1976) focuses on the dynamics amongst principals (owners) and agents (management), where the former hire the latter to operate a company in their stead so as to maximize the firm. The managers engaged to run a company on behalf of the shareholders are considered as agents of the owners (referred to as principal). As long as the interests of the agents and the principal are aligned, conflicts among the two parties are rare. However, there are times when their business objectives are not in sync, which can result in conflicts of interest. Each shareholder's purpose is to maximize their wealth, which may be different from the manager's goal, which could be primarily self-aggrandizing. According to the agency theory, managers are inclined to have impulses toward self-aggrandizement by utilizing company resources for actions that are likely to help them more than owners. In agreement with the above, Eisenhardt (1989) asserted that the theory acknowledges the two main agency issues as the existence of information imbalance between the agent and principal which is due to the divergence in purposes as well as the divergence in how both entities respond to risk. Consequently, there is a propensity for a void in the information that both parties have access to. Alternately, from the Integrated Reporting viewpoint, it assumes that in order to overcome this disparity, information must be made widely accessible. Furthermore, the elements influencing management's motivation for IR practice are partially explained by agency theory. Due to information asymmetry issues and the necessity for external funding, large businesses must pay greater agency charges (Inchausti, 1997), as a result, they want to apply fresh corporate reporting techniques such as integrated reporting (Frias-Aceituno et al., 2014), which increases their exposure to information. Moreover, the use of integrated reporting can help to resolve the conflict-of-interest problem because it gives owners access to more thorough company data while also raising the management's accountability and transparency (Cerbioni & Parbonetti, 2007). Also, one of the finest ways to inform the market about a firm, boost the company's value, and reduce agency conflict is through integrated reporting.

2.2.2 Legitimacy Theory

The legitimacy idea emerged as a result of the recognition that a company's development, standing, and viability are reliant on societal support (Jeroe, 2016). Businesses and organizations voluntarily share specific non-financial information as a persuasion tactic to encourage the community to see their acts and presence as appropriate, real, and supportive in order to gain and maintain such supports (Maama & Appiah, 2019).

Legitimacy theory is founded on ideas from the theory of political economics, which acknowledges societal power structures as well as the numerous conflicts that can emerge between various social groupings (Lakhani & Herbert, 2022). The legitimacy theory basically upholds the necessity of moral business conduct for a given economy (Aluchna, et al., 2019). Thus, the core of integrated reporting is the legitimacy theory, which promotes social connection and balances adverse publicity to meet stakeholders' expectations (Aluchna, et al., 2019).

According to Nurunnabi, et al., (2001), firms are an integral component of society, and they must operate in accordance with societal norms in order to be seen as good citizens. In order to show compliancy with society norms and expectations, financial and non-financial (voluntary) information reporting, including integrated reporting, is employed (Emeseh and Songi, 2014). Rather than concentrating exclusively on financial success, firms must fulfill societal expectations, and this is the driving force behind the development of integrated reporting (Vilanova, 2007). Firm have been encouraged by public outlooks to raise the volume of non-financial information they report, which has been connected to improved lasting financial performance and sustainable company development, in addition to the amount of financial information they broadcast (Ali *et al*., 2017).

3.0 RESEARCH METHODOLOGY

This section considers the methodology applied in line with the research objectives. Here we discuss the research design, population and sample size, sources of data, method of data collection, techniques of data analysis as well as variables measurements and model specification.

3.1 Research Design

Correlation research design was used because this is considered essential as the initial step in measuring the existence of an association between the variables of the study. With the goal of describing and forecasting the link between the relevant variables, correlational research design entails relating two or more variables. Such a design is therefore considered apt for this research project, given that the study aims to analyze the association between firm level determinants and the voluntary adoption of IR. The study utilized three (3) explanatory variables (firm age, firm size and liquidity).

3.2 Population of the study.

The population of the study included five (5) agricultural firms listed under as at 31^{st} December, 2023 on the Nigerian Group

3.3 Source and methods of data collection

In concordance with the research methodology framework being quantitative, the data to be used in this study will be collected from secondary source only. Specifically, data was sourced from the published financial statements of agricultural firms listed on the Nigerian Exchange Group.

3.4 Techniques of data analysis

Given the correlational research design adopted by the study, regression technique was used to estimate the association between the variables under study. This was preceded using descriptive statistics. The descriptive statistics will enable the evaluation of the nature of the sampling distribution from which the variables are drawn. The precise descriptive statistics employed are analysis of minimum and maximum values, mean and standard deviations.

3.5 Variable Measurement

The dependent variable which is Integrated Reporting was measured using content analysis to ascertain whether a firm revealed items within the integrated reporting disclosure index. In this regard, all narrative segments of the yearly reports and stand-alone reports was observed.

The most typical type of content analysis is examining the presence or absence of each item using a non-weighted disclosure technique (Krippendorff, 2004). This method has been utilized in numerous previous studies (Frías-Aceituno *et al.*, 2013; Garcia-Sánchez *et al.*, 2013; Haji and Anifowose, 2017). Using this method, a score of 1 is assigned if the firm revealed a particular item at least once, and 0 otherwise. As a result, a firm was assigned a score ranging from 0 to 31, depending on the number of items disclosed.

The IRS is computed by dividing the items disclosed to a maximum number of items that a firm could disclose. The IRS is mathematically represented as:

$$\text{IRS} = \frac{\sum_{i=1}^{t} IR}{t}$$

where IRi = 0 or 1, as follows:

IRi = 0 if the disclosure item was not disclosed;
IRi = 1 if the disclosure item was disclosed; and
t = the maximum number of integrated reporting disclosure items a firm could disclose (i.e. 31 items).

The independent variables are measured as follows: firm age was quantified as the number of years since the firm's inception (Pickering 2011; Raimo et al., 2020), firm size was measured by the logarithm of total assets (Frías-Aceituno et al., 2013; 2014, Lai et al., 2016., Raimo et al., 2020). Firms' liquidity was measured as current assets divided by current liabilities (Samaha & Dahawy 2011; Amosh *et al.,* 2022). Measurement of the variables are summarized in table 3.1:

Table 3.1 Measurement of Variables

Variable	Measurement	Source in literature
Integrated Reporting	The dependent variable which is proxied by IRS is the percentage of total items a firm disclosed to total items (i.e. 31 items) in disclosure index	Kilic and Kuzey (2018).
Firm age	Firm age will be quantified as the number of years since the firm's inception.	Pickering 2011; Raimo et al., (2020).
Firm size	Firm size will be measured by the logarithm of total assets.	Frias-Aceituno et al., 2013, 2014; Lai et al., 2016., Raimo et al.,2020.
Liquidity	Firms' liquidity will be measured as current assets divided by current liabilities.	Samaha and Dahawy (2011); Amosh *et al.*, (2022).

Source: Author's compilation (2023)

Model Specification

Econometrically, the model proposed to be estimated is given by:

$IRS_{it} = \alpha_0 + \beta_1 FAGE_{it} + \beta_2 FSIZE_{it} + \beta_3 LIQ + \varepsilon_{it}$

where IR: 1 if firm adopts IR voluntarily, if not 0, FAGE= firm age, FSIZE=firm size, LIQ= liquidity, ε= error term, i = Firm i, t= time t, α_0=Constant, β_1-β_4 = Beta coefficient.

4.0 RESULTS AND ANALYSIS

Descriptive and inferential statistics of the data collected for the study are presented, discussed and interpreted in this section. A summary of the descriptive statistics of the data is presented in Table

Table 4.1: **Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
IR	165	.526	.166	.097	.774
Firma ge	165	46.121	18.839	12	98
Firm size	165	1.571e+11	3.446e+11	5.392e+08	2.392e+12
liquidity	165	1.249	.627	.19	3.592

Source: Stata Output, 2025.

From Table 4.1 it can be seen that the average integrated reporting practice level is 52.6%, with a standard deviation of .166. This shows that there is no wide dispersion in integrated reporting disclosure of the studied firms. The minimum disclosure of integrated reporting among the firms is .097 with a maximum of .774. The table also shows a mean firm age of 46.121 with a standard deviation of 18.839. Minimum age is 12years while maximum is 98. There is therefore a wide range in the dataset. Firm size is measured by Total Assets. However, to get a feel of the variable the total assets figures are described. Table 4.1 shows mean total assets of N157 bn with a wide dispersion as evidenced by the standard deviation and minimum size of N539,200,000 and a maximum of N239,200,000,000. Similarly, liquidity has a mean average of 1.249 with a standard deviation of .627. It also has a minimum and maximum of .19 and 3.592 respectively. The standard deviation for liquidity among the firms suggests that there is a low variation in the values of liquidity measured as the ratio of current assets to current liabilities.

As a prelude to estimating, by regression, the association between the studied variables, we first examine the correlations between the independent variables and the outcome variable as well as strengths of association among the independent variables themselves. The correlation coefficients are presented in Table 4.2.

Table 4.2 Matrix of correlations

Variables	(1)	(2)	(3)	(4)
(1) ir	1.000			
(2) firm age	0.115	1.000		
(3) firm size log	0.391	0.348	1.000	
(4) liquidity	0.012	-0.028	-0.400	1.000

Source: Stata output, 2024

Table 4.2 reveals a positive relationship between the dependent variable IR and all the independent variables; firm age, firm size and liquidity with coefficients of 0.115, 0.391 and 0.012 respectively. This positive correlations between firm age, firm size, liquidity and integrated reporting suggests that older, larger and more liquid firms tend to practice integrated reporting. This could be because larger and more liquid firms may have the expertise and both human and material resources to provide integrated reports. With respect to association between the independent variables themselves, the table reveals that firm size and firm age are positively correlated. Conversely, firm age and liquidity as well as firm size and liquidity are negatively related among themselves. According to Gujarati (2004) a correlation coefficient among two independent variables above 0.80 is regarded extreme. From the table, it can be observed that all correlation coefficient between independent variables is below 0.80. This suggests the absence of harmful multicollinearity. The absence is also confirmed considering the Variance Inflation Factor (VIF) result depicted in Table 4.3.

Table 4.3 Variance inflation factor

	VIF	1/VIF
Firm age	1.16	0.863750
Firm size	1.38	0.726399
Liquidity	1.21	0.826143
Mean VIF	1.25	

Source: Stata output, 2023.

The highest value is 1.38 and the mean VIF is 1.25 indicating no multicollinearity as defined by benchmarks of VIF and Tolerance values of less than 5 and greater than 0.01 respectively (Gujarati, 2004).

The Random Effect Robust estimate of the model of the study is presented in Table 4.4.

Table 4.4: Regression results

Ir	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Firm age	0	.001	0.05	.962	-.002	.002	
Firm sze log	.08	.036	2.25	.024	.01	.15	**
liquidity	.044	.044	0.99	.321	-.043	.131	
Constant	-.375	.368	-1.02	.308	-1.097	.346	

Mean dependent var	0.526	SD dependent var	0.166
Overall r-squared	0.186	Number of obs	165
Hausman	0.2227	Prob > chi2	0.071
Skewness/Kurtosis	0.0004	Auto correlation	0.6155

*** *p<.01, *** *p<.05, * p<.1*

Source: Author's computations generated with Stata 18 software

IRS_{it}= .768 +.009$FAGE_{it}$_- .069$FSIZE_{it}$ + .129LEV

It can be seen from the table that the explanatory variables (firm age, firm size and liquidity) explains the dependent variable to the tune of 18.9% while the remaining 71.1% is explained by other variables not captured in the model.

From Table 4.4, it can be viewed that the model has a constant (β0) value of -.375. This means that in the absence of firm age, firm size, and Liquidity, the β -value is .375. The table 4.4 also shows the result obtained from the Random Effect Robust Error Regression which was interpreted after conducting all relevant tests; including Hausman specification test which was insignificant, so we estimated a random effect model. Normality test for the residuals was significant. Hence, this study employed the Random Effect Robust Error Regression to address the issue this. The result obtained revealed the model is fit as indicated by the prob>F of 0.071. The result obtained shows that the coefficient of firm age is positive and insignificant. This infers that firm age has no impact on the integrated reporting practices of agricultural firmsin Nigeria. The result is consistent with that of Nurkholis (2020).

From the model also, firm size has a positive and significant at 5%. This implies that firm size has an impact on the Integrated Reporting practices of agricultural firms in Nigeria. This result supports the studies of Madhuhansi and Karunarathne (2022), Alade and Odugbemi (2022) and Bhatia et al. (2023). From the agency theory standpoint, larger firms have more widespread shareholders and consequently incur higher agency costs and to curb these costs in terms of information asymmetries, they voluntarily disclose more information. Also, according to the legitimacy theory, big firms are incentivized to provide both financial and non-financial information to be portrayed as good corporate citizens and to legitimize their existence in society.

Lastly, liquidity is seen to be positive but not significant. This implies that liquidity has an impact on the Integrated Reporting practices of agricultural firms in Nigeria. This result is in line with Barth et al., (2017) and Al Amosh *et al.,* (2022).

5.0 CONCLUSION

This study established the association between firm level determinants and Integrated Reporting Practices of agricultural firms in Nigeria where three variables were used as independent variables. The findings revealed that firm age and liquidity have no impact on integrated reporting practices while firm size is a significant variable that facilitates integrated reporting practices of agricultural firms in Nigeria. This implies that bigger sized corporations tend to publish more of IR items in their integrated report due to their greater resources and lower information production costs (Busco *et al.,* 2019).

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