Does IFRS Implementation Influence Sustainability Reporting in Nigeria?

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Abstract

Purpose: Upon the mandatory implementation of the International Financial Reporting Standards (IFRS) in 2012, Nigeria seems contented as no specific regulation has been set up mandating firms to comply with sustainability reporting. Thus, this study examines whether IFRS implementation influences the disclosure level of the three aspects of sustainability (economic, environmental, and social).

Design/methodology/approach: The hypotheses are analysed using the paired samples t-test; purposive sampling technique is adopted in selecting seven (7) companies from the oil and gas industry. These seven companies have a complete annual report on the Nigerian Stock Exchange for the period of twelve (12) years, from 2006 to 2017 (6 years pre-IFRS and 6 years post-IFRS) and are measured by scoring index based on disclosure indicators selected from Global Reporting Initiative guidelines 2016.

Findings: This research establishes that IFRS implementation improves sustainability reporting, as the disclosure level of all three aspects of sustainability reporting increases post-IFRS implementation. However, the varying disclosure level amongst the three aspects suggests that IFRS implementation may not be enough.

Originality/value: This study is original in that it considers sustainability reporting in Nigeria from the standpoint of IFRS implementation. Also, unlike most sustainability studies which rely on legitimacy theory, this study anchor on reputation theory.

Keywords: IFRS, Sustainability Reporting, Economic, Environmental, Social.
Paper type: Research paper.

1. Introduction

The increasing growth of international trade and investment in Nigeria necessitated the need for the adoption of the International Financial Reporting Standards (IFRS) in 2012. This was a welcome development considering that IFRS enhances the quality of financial reports available to its users (both internal and external users), who require useful accounting information for investment and other decision-making purposes (Cherepanova, 2017; Kouki, 2018; Lee, 2019). In the face of the implementation of IFRS which stresses a lot on disclosure (Kythreotis, 2014), companies in Nigeria and the world at large are increasingly being confronted with the need to prepare thorough, comprehensive and reliable reports. However, it has become clear that for financial reports to be considered comprehensive they should capture much more than economic substance but also environmental and social substance, thus the origin of sustainability reporting (also known as the triple bottom line of profit, people and planet).

The idea of sustainability emerged in the 1980s, but initially focused on the environmental aspects; however, the other components (the economic and social aspects) were included later on (Cherepanova, 2017). At around 1991 some of the professional bodies within the accounting community had started to take note of the need for sustainability reporting, resulting to the creation of the Association of Certified Chartered Accountants (ACCA) Sustainability Reporting awards. To help develop the credibility of the sustainability reporting awards, the ACCA adopted the Global Reporting Index (GRI) as an indicator in terms of the kind of reports that were accepted as producing reliable and relevant sustainability information (GRI Global Reporting Initiative, 2015). The next phase was much more specific to the development of sustainability by the accounting community and was championed since 2004 by Accounting for Sustainability (A4S). This body explored how the accounting community can engage in sustainability reporting and develop a combined reporting framework. The A4S International Integrated Reporting Committee (IIRC) is a body set up and championed by the professional accounting bodies as well as the big four firms. It provides the clearest example of the way that the accounting community views the development of sustainability reporting.

Presently, sustainability reporting has fast become a criterion for measuring the quality of financial information of entities to provide information which holistically assesses companies' performance in a multi-stakeholder environment. This led in it becoming mandatory in some countries of the world (South Africa inclusive) as transparency about the sustainability of organisational activities is of interest to a diverse range of stakeholders, including business, labour, non-governmental organisations, investors, accountancy, and others. According to researchers (Saleh, 1993; Žák, 2009; Christofi, Christofi and Sisaye, 2012; Lemus, 2016), an organisation's sustainability report gives adequate information about its economic, environmental, and social performance and not just a report of financial matters, thus improves an organisation's commitment to sustainable development in a way that benefits both the internal and external stakeholders.

One of the key challenges of sustainable development is that it demands new/innovative choices and ways of thinking. It is worthy of note that while developments in knowledge and technology are contributing to economic development, they also have the potential to help resolve the risks and threats to the sustainability of our social relations, environment, and economies (Al-Shaer, 2020). New knowledge and innovations in technology, management, and public policy are challenging organisations to make new choices in the way their operations, products, services, and activities impact the earth, people, and economies. In the last decade, there are growing numbers of countries and companies that perform not just economic activities but also environmental and social practices in their annual reports. The main objective of companies is to generate profit, thereby eventually maximizing the wealth of its shareholders, therefore businesses must have recognised that sustainability practices help them to accomplish this ambition (Khaveh *et al.*, 2012).

Sustainability reporting is fast gaining momentum in this millennium as a business philosophy (Nnamani, Onyekwelu and Ugwu, 2017). Nigeria however, seems to be content as no regulation has made sustainability reporting compulsory for companies, even though business analysts and most research works (Asaolu et al., 2011; Kwaghfan, 2015; Nnamani, Onyekwelu and Ugwu, 2017) in this area recognise this triple bottom line reporting as being very beneficial and vital in accounting for the true state of affairs of the company. Emphases seem to remain on IFRS, the question now is whether IFRS encompasses sustainability reporting or if it provides for an improvement in sustainability reporting. In the words of Bowers (2010), sustainability reports convey a company's efforts to conform with both environmental and social regulations; thus these sustainability reports communicates the direct economic benefits that sustainable actions can bring to the company.

The adoption of IFRS in Nigeria was accompanied with a lot of expectations ranging from a more accurate measurement of accounting numbers to a clearer and detailed disclosure of financial statement components. Although some of these expectations have been met in the last six post-adoption years, some researchers (Tsalavoutas and Dionysiou, 2014; Kouki, 2018) opine that IFRS may not be as encompassing as it claims to be. They believe that IFRS has remained silent or paid little emphasis on some very vital areas of accounting, one of which may be sustainability reporting. Another commonly debated concern is the level of discretion given to companies by IFRS, this is why the IASB principle-based approach is being constantly criticized for the lack of detail and generous scope for independent personal judgment (Cherepanova, 2017). This liberality of IFRS therefore allows firms the free hand to interpret the standards in the light of their understanding, therefore may encourage for sustainability reporting.

A glimpse through the IFRS conceptual framework and a number of its standalone standards provide useful grounds for monitoring sustainability reporting. Furthermore, some IFRSs' are linked to sustainability reporting in one way or another, thus the IASB may have already made provision for which sustainability information at the corporate level can be reported (Ankarath *et al.*, 2010). On the other hand, some companies in Nigeria have become involved in sustainability reporting (although sustainability reporting is yet to be made mandatory in Nigeria), in order not to be considered as striving towards unsustainable development, more so as sustainability reporting is directly linked to the concept and goal of sustainable development (Bowers, 2010; Christofi, Christofi and Sisaye, 2012; Nwobu, Owolabi and Iyoha, 2017). Hence, this research investigates the influence IFRS has on reporting for the three aspects of sustainability accounting (economic, environment and social) (Fig.1), therefore establishes whether IFRS implementation in Nigeria provided/provides an adequate platform for sustainability disclosure and if it does how adequate it is. This paper also identifies the IFRSs that are relevant to the TBL, how they are accounted for and whether the global financial reporting standards (IFRS) can contribute towards proper sustainability reporting. Furthermore, this study attempts to provide answers to these questions:

i. Does IFRS implementation influence economic/profit reporting in Nigeria?
ii. Does IFRS implementation influence social/people reporting in Nigeria?
iii. Does IFRS implementation influence the reporting of environmental/planet activities in Nigeria? apart from Negash (2012) who examined whether International Financial Reporting Standards (IFRS) can be used for monitoring environmental degradation

This study contributes to the body of knowledge in that it is the first known work to consider sustainability reporting from the standpoint of IFRS implementation, as most of the other studies reviewed (Asaolu et al., 2011; Kwaghfan, 2015; Nwobu, 2017; Nwobu et al., 2017) considered sustainability reporting from a different perspective, apart from Negash (2012) who examined whether International Financial Reporting Standards (IFRS) can be used for monitoring environmental degradation. Being the first known study that considers whether IFRS implementation influences sustainability reporting, the study provides a framework that can be used to assess reliance of IFRS to sustainability reporting and thus aid in the making of policy. Also, unlike many other prior sustainability studies which rely on legitimacy theory (Bebbington, Larrinaga-González and Moneva-Abadía 2008), this study, however, adopts the reputation theory as its anchor theory.

Findings from this work confirm that IFRS implementation improves sustainability reporting since the disclosure level of all the triple bottom line increases post-IFRS implementation, however, the varying disclosure level amongst the three aspects suggests that IFRS implementation may not be enough. Similarly to most of the Nigerian empirical works (Kwaghfan, 2015; Nwobu, 2017; Nwobu et al., 2017), the economic aspect of TBL remained the most reported amongst the three elements of sustainability reporting, followed by social, with environmental as the least reported aspect.

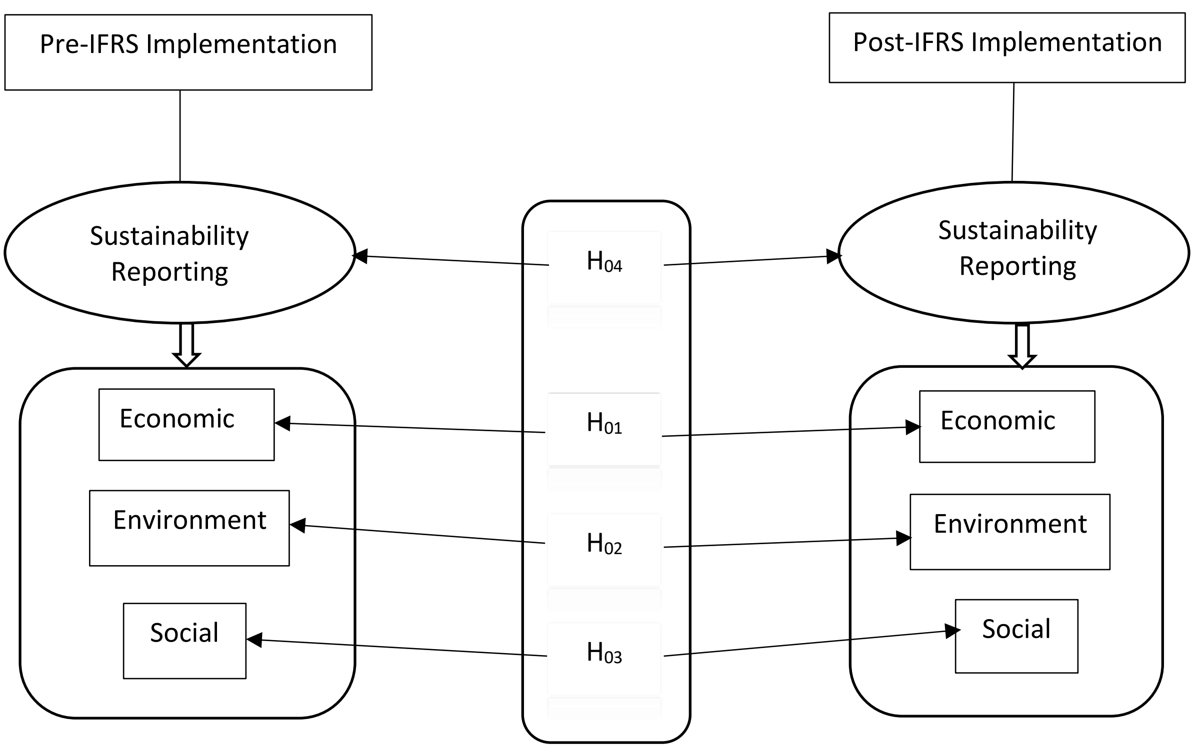
The remainder of the paper consists of five sections. Section 2 embodies literature review and development of hypothesis and section 3 describes the research methodology. The results and findings are presented in section 4, section 5 gives a comprehensive discussion of the results, while the conclusion of the paper is presented in section 6.

2. Literature Review and Development of Hypotheses

2.1 Conceptual Framework

The review of contextual information for this study encompasses both IFRS standards and guidelines on sustainability reporting; with consideration to the aspects of economic, environment and social reporting. It also includes a discussion of theories and prior empirical studies on the key concepts.

Fig.1 Conceptual framework



Source: Developed by Authors (2019)

2.2 Review of Theories on Sustainability Reporting

Stakeholder theory perceives the organisation as a combination of stakeholders with the aim being to manage their interests, needs, and views (Martínez-Ferrero, Garcia-Sanchez and Cuadrado-Ballesteros, 2015). Akisik and Gal (2011) consent that stakeholder theory is built on the premise that the stronger the companies' relationships are with other interest parties, the easier it will be to meet its business objectives. As such explains that the sustainability of a firm is highly dependent on the sustainability of its relationship with its stakeholders, therefore the need to align the goals of owners with the interests of the several stakeholders' (Senkl, 2010). Legitimacy theory, on the other hand, has its origin from political economy theory and depends on the ideology that the legitimacy of a company's operation within a society is dependent on an implicit social agreement between the company and such a society. As such it hangs on managers to constantly make efforts to ensure that their companies comply with this social contract by operating within society's expectations (Cho *et al.*, 2015).

The legitimacy theory and the stakeholder theory are closely related, they are theories which explain corporate behaviour, for example, IFRS implementation and sustainability reporting can be analysed under either the legitimacy theory or the stakeholder theory with a focus on the legitimation process or stakeholder dialogues, with the main difference being in the definition of the relevant audience (Senkl, 2010). Overtime, sustainability reporting studies carried out by authors such as Akisik and Gal (2011), Kwaghfan (2015), Negash (2012), Nnamani et al. (2017), Nwobu (2017), Nwobu et al. (2017), Senkl (2010), and Žák (2009), favoured legitimacy theory in explaining the triple bottom line (Cho *et al.*, 2015).

Parker (2005) on the other hand, suggests that legitimacy theory suffers from problems some of which are: lack of specificity, uncertain ability to anticipate and explain managerial behaviour and a suspicion that it still privileges financial stakeholders in its analysis. Likewise, Nwobu (2017) asserts that even though stakeholder engagement is for the enhancement of organisational legitimacy, it may be impracticable for organisations to act on the views of all stakeholders at a particular point in time since organisational legitimacy is a process and not a destination; it is not an end in itself. In an earlier study, Bebbington, Larrinaga-González and Moneva-Abadía (2008) opined that it is too early for theoretical closure in the analysis of sustainability reporting in favour of legitimacy, since management perspective may propose different corporate disclosure strategies as a response to environmental pressure that can address the complexities of CSR reporting practice; thus suggests that Reputation Risk Management (which buttresses reputation theory) is likely to be beneficial given this is how many organisations are articulating their motivations for reporting.

Reputation theory provides an additional argument to include board composition variables; and that the commitment to stakeholder is measured by a self-created index and by the existence of a sustainability committee in the corporate board. There are four main components the corporate board may consider for the reputation of a company: the prestige of a company, its strategic posture, the relative competitive position, and the image of being a good corporate citizen (Senkl, 2010; Agnihotri, 2014). The concept of reputation is similar to the concept of legitimacy as they both develop from the same social construct that concentrates on the differentiation of both concepts and serves as a base reference for reputation based articles (Senkl, 2010). The main difference is that legitimacy results from a company's efforts to conform to the social system in general, and reputation is the social comparison of companies amongst each other; implying that the concept of reputation builds on the status a company has in society relative to other companies (Bebbington, Larrinaga-González and Moneva-Abadía, 2008; Harvey *et al.*, 2017).

Companies owe it to their stakeholders to present sustainable reports and IFRS compliance report as explained by legitimacy and stakeholder theories, however 'the how' and 'the what' of such a report is not determined by the stakeholders rather it is the organisation (as emphasized by the reputation theory) through the board that determines this. It appears that legitimacy theory may explain the reason or need for sustainability report, but reputation theory, on the other hand, gives a more appropriate description of sustainability reporting especially in a country like Nigeria where sustainability reporting is still voluntary and not too popular (Agboola, Ayoola, & Salawu, 2011; Kwaghfan, 2015; Nwobu, Owolabi, & Iyoha, 2017; Owolabi, Akinwumi, Dorcas, & Uwalomwa, 2016). Thus, sustainability reporting and even the extent of compliance to IFRS is left to the prerogative of the company (or board as the case may be). This study hence applies the reputation theory as its anchor theory, having established that irrespective of what stakeholders' desire, the onus of sustainability reporting or any other disclosure still lies on firms, more so in Nigeria.

2.3 Empirical Review and Hypothesis development

The literature on sustainability reporting is widespread and dense, as several studies have considered sustainability reporting from various standpoints. Nnamani, Onyekwelu, and Ugwu (2017) in a study on the effect of sustainability accounting on the financial performance of listed manufacturing firms in Nigeria reveal that sustainability reporting has a positive and significant effect on financial performance. Kwaghfan (2015) also consents that sustainability reporting impacts positively on financial performance, although economic and social aspects are the most reported among the three sustainability reporting indices. In a latter study Owolabi et al., (2016) found a 0% disclosures on human rights issues, 3% environmental disclosures and an aggregate of 30% disclosure based on a one hundred and sixty-nine GRI indicators used. A study by Okwuosa and Amaeshi (2018) evidenced that accountants' sustainability knowledge originated 65% from international linkages and only 1% from the local accounting profession, and a high 24% claimed no knowledge of sustainability reporting.

Asaolu et al. (2011) find significant variations in sustainability reporting disclosures with no support by any known local regulation and that even multinationals operating in Nigeria fared badly in their Environmental and Social reporting indicators. On the contrary, findings by Kılıç and Kuzey (2018) indicate that a growing number of companies publish stand-alone sustainability reports, ranging from one (1) report in 2004 to twenty-seven (27) reports in 2015; this shows the increasing awareness of sustainability reporting amongst Turkish companies. Dobre, Stanila and Brad (2015) emphasis that companies listed on a stock exchange should discern that reporting only financial measures is not enough for ensuring sustainable development, they suggest that information about environmental policies and employees' benefit be included in company reports.

Bebbington, Larrinaga-González, and Moneva-Abadía (2008) note that companies should prepare three different (and quite separate) bottom lines. The first one being the traditional measure of corporate profit and other economic events; the second is the bottom line of a company's 'people account' stating a measure of how socially accountable an organisation has been during its operations, and the third is the bottom line of the company's 'planet account' showing a measure of how environmentally responsible it has been.

2.3.1 The influence of IFRS implementation on Economic Reporting

Economic (profit) part of sustainability reporting focuses not only on profitability but also concerns itself with delivering cash flows that are adequate to maintain liquidity and bring a constant, above the average return to shareholders (Global Reporting Initiative, 2015). As such, economic sustainability deals with the flow of money, including such indicators as profits and shareholder returns, as well as stock market performance and financial ratios. Economic sustainability also relates to an organisation's economic impact on its external and internal stakeholders at the local, national, and global level. Hence, to be economically sustainable, companies need to perform well at the micro-level by minimizing costs and maximizing profits and shareholder returns (Global Reporting Initiative, 2016).

Interestingly, some IFRS standards that apply to reporting of economic events, such standards include; IAS 1 - Presentation of Financial Statements, IAS 7 - Statement of Cash Flows, IAS 18 – Revenue, SIC 31- Revenue: Barter Transactions Involving Advertising Services, IFRIC 13 Customer Loyalty Programs, IFRIC 15 Agreements for the Construction of Real Estate, IFRIC 18 Transfers of Assets from Customers. Nnaemeka et al. (2017), reveal that sustainability reporting has a positive and significant effect on the financial performance of firms. In tandem with Nnaemeka et al. (2017), Kwaghfan (2015) also established that sustainability reporting impact positively on financial performance. Most of the studies carried out in Nigeria revealed the economic aspect as the most reported amongst the three elements of sustainability reporting (Asaolu et al., 2011; Kwaghfan, 2015; Nnaemeka et al. 2017; Nwobu, 2017; Nwobu et al., 2017). However, this study seeks to establish whether Nigeria's adoption of IFRS boosts the level of reporting economic activities by listed companies. Considering also that some aforementioned IFRS standards seem related to the economic aspect of sustainability reporting, thus this motivates the first hypothesis stated in null form:

Ho_1: There is no significant change in reporting of economic events following the implementation of IFRS in Nigeria.

2.3.2 The implication of IFRS implementation on Environmental Reporting

The environmental (planet) aspect of sustainability emphasizes an organisation's impacts on living and non-living natural systems, including ecosystems, land, air, and water. Environmental Indicators cover performance related to inputs (e.g., material, energy, water) and outputs (e.g., emissions, effluents, waste). Also, they cover performance related to biodiversity, environmental compliance, and other relevant information such as environmental expenditure and the impacts of products and services (Pérez-Calero, Villegas and Barroso, 2016). Environmental reporting involves the identification, measurement and allocation of environmental costs, the integration of these environmental costs into business decisions, and the subsequent communication of the information to a company's stakeholders. Nonetheless, environmental reporting is more than accounting for environmental benefits and costs, it is accounting for any costs and benefits that arise from changes to a firm's products or processes, where the change also involves a change in environmental impacts.

In examining whether IFRS can be used for monitoring environmental degradation Negash (2012) carried out a comprehensive review of academic and professional literature; the review indicates that the IFRS regime provides useful conceptual and practical frameworks for monitoring firms that are operating in environmentally sensitive industries. Some of the IFRSs' that addresses environmental issues are; IAS 37 - Provisions, Contingent Liabilities and Contingent Assets, IFRIC 1 - Changes in Existing Decommissioning, Restoration and Similar Liabilities, IFRIC 5 - Decommissioning Restoration & Environmental Rehabilitation Funds, IFRIC 6 - Liabilities arising from Participating in a Specific Market – Waste Electrical and Electronic Equipment, IFRIC 21 — Levies.

Dobre, Stanila, and Brad (2015) opine that companies listed on a stock exchange should discern that reporting only financial measures is not enough for ensuring sustainable development, therefore it is important that they also include information about environmental policies. In an assessment of sustainability reporting in Nigeria, Owolabi et al. (2016) find 3% disclosure of environmental activities. In a similar study carried out on companies in the Nigerian Oil and Gas sector, Asaolu, Agboola, Ayoola, and Salawu (2011) confirms significant variations in sustainability reporting disclosures with no support by any known local regulation and that even multinationals operating in Nigeria fared badly in their Environmental indicators. Inspired by previous studies and having mentioned some IFRSs' that addresses the environmental aspect of sustainability, the next null hypothesis is presented in a null form:

H02: The implementation of IFRS in Nigeria does not significantly influence reporting environmental activities.

2.3.3 IFRS influence on Social Reporting

Social (people) sustainability describes organisations' duties to society and encompasses issues concerning the alleviation of poverty and diseases, access to health care and education, and general wellbeing of society. The social facet of sustainability is synonymous to corporate social responsibility (CSR) (Lanis and Richardson, 2013), as it is also related to the human capital of the firm and encompasses business practices that are fair and favourable to the people affected, either directly or indirectly, by the company. Social sustainability requires that firms provide equitable opportunities, encourage diversity, provide training and development seminars to employees, and maintain high occupational health and safety standards. CSR encompasses a wide range of environmental, social, and governance activities (or policies) without sharp boundaries (Christensen, Hail and Leuz, 2019).

Social events as well have IFRSs that may be the basis for its increased reporting level, for example; IAS 19 - Employee Benefits, IFRIC 14 - Employee Benefits: the limit on a defined benefit asset, minimum funding requirements and their Interaction. Olayinka, Jatau, Ande, and Okwoli (2014) revealed the extent of CSR disclosures by quoted companies in Nigeria to be at a 53% threshold; which falls below the 75% global benchmark for excellent disclosure. Owolabi et al. (2016) assessment of sustainability reporting in Nigeria found no disclosures on human rights issues (which contradicts the 53% of Olayinka, Jatau, Ande, and Okwoli, 2014). Akisik and Gal (2011) evidenced that sustainable development is strongly related to CSR and accounting standards.

Meanwhile, Christensen, Hail and Leuz (2019) noted that the role of standards in harmonizing reporting practices is limited, considering the differences in managerial reporting incentives across firms and countries. Weerathunga *et al.*, (2020) confirmed that the level of CSR reporting of IFRS adopting firms in India increased significantly following IFRS convergence; this increase in the level of disclosure was seen in all the dimensions of CSR, namely employee, environmental, human rights, and social and community. As such, this third null hypothesis is motivated at establishing if implementing IFRS influences the level of reporting social events and is stated thus:

Ho3: IFRS implementation in Nigeria does not significantly influence the reporting of social events.

2.3.4 The influence of IFRS on Sustainability Reporting

Most of the Nigerian works reviewed in this study, such as Asaolu et al. (2011); Kwaghfan (2015); Nnaemeka et al. (2017); Nwobu (2017); Nwobu et al. (2017) emphasized the importance of all three aspects of sustainability while buttressing the need for mandatory disclosure. Also, as mentioned earlier, that several IFRSs are relevant to sustainability reporting and may give a reason for an increase in the disclosure level of all the three aspects of sustainability following the mandatory adoption of IFRS in Nigeria. Still, sustainability reporting indicators according to Global Reporting Initiative (2016) comprises of not only the seventeen indicators for economic events, or the twenty indicators for environmental activities, nor the thirty-four indicators for social events, but also the fifty-five indicators for general disclosures. Altogether, the indicators that are expected to be disclosed in the annual report of these selected companies in accordance to Global Reporting Initiative, GRI (2016) are one hundred and thirty-four (134) in number. The above discussions on the economic, environmental and social activities, as well as those on sustainability reporting as a whole highlight the importance of considering sustainability not just from the three aspects but holistically, thus the motivation for the fourth hypothesis, that:

Ho4: The implementation of IFRS in Nigeria has no significant influence on sustainability reporting.

3. Methodology

This research is hinged on the positivistic epistemology as it employs the scientific approach of collection and measurement of data (Kothari, 2004). The needed facts for this research are collected in an objective and structured format, making use of a quantitative method of analysis.

3.1 Research Design and Sample Selection

Table 1: Sample representation

Number of Oil and Gas firms listed on the Nigerian Stock Exchange		12
Less Missing required information		(4)
Less Firm listed only after IFRS adoption		(1)
Total Number of Oil and Gas firms included in sample		7
	Firm years	
(Number of firms X number of years)		
Pre IFRS	42	
Post IFRS	42	

The study employs the ex-post facto design; analysing data gotten from events that have occurred, hence makes direct manipulation or control of the variables difficult due to the past nature of the events. Also, the descriptive design is adopted to give an accurate description of the association between the independent and dependent variables (IFRS implementation and sustainability reporting). Secondary data is obtained from published annual financial reports of oil and gas companies resident in Nigeria. The sample for this study is determined using the purposive sampling technique, this is a non-probability technique that focuses on a specific population (Kothari, 2004); in the case of this paper; the emphasis is on the oil and gas industry. The oil and gas sector were selected due to the nature of their activities as it cuts across the three aspects of the triple bottom line and the environmental plus social issues/challenges faced by communities where such company activities are being carried. Nigeria is a country where oil seems to be a problem instead of a solution due to lack of accountability, poor sustainability and governance failures among policymakers.

The sample size consists of oil and gas companies listed on the Nigerian Stock Exchange (NSE) and of necessity have complete annual reports for the relevant period under consideration (2007-2017). The population hence focuses on those oil and gas business organisations that are listed on the NSE since their corporate annual reports are available for public scrutiny; these companies sum up to a total of 12. Out of the twelve (12) under the population, four (4) of the companies' annual report for a twelve (12) year period were inaccessible from the internet, while one (1) became listed in 2014; making a total of five (5) companies which are expunged from the sample (see table 1). Thus based on the oil and gas companies with available complete annual reports on the internet, the sample for the survey reduced to seven (7) companies for the twelve (12) years period (see appendix).

3.2 Data collection and Analysis

The four (4) hypotheses are empirically analysed, using the paired samples t-test; where the means of the dependent variable are compared to see whether a significant difference exists. Paired-samples t-test (also referred to as repeated measures) is a parametric test that is used when data is collected from one group of subjects (oil and gas sector in this study) on two different occasions/conditions (pre-IFRS and post-IFRS) (Fig.1). Aligning with previous researches such as Nwobu (2017), Nwobu et al. (2017) and Kwaghfan, (2015), this study calculates sustainability reporting as a dichotomous equally weighted index. Altogether, the indicators that are expected to be disclosed in the annual report of these selected companies under the Global Reporting Initiative, GRI (2016) guidelines, are one hundred and thirty-four (134) in number; seventeen (17) for economic events, twenty-eight (28) for environmental activities, thirty-four (34) for social events, and fifty-five (55) for general indicators.

The GRI was established in late 1997 with the mission of developing globally applicable guidelines for reporting on economic, environmental, and social performance, initially for corporations and eventually for any business, governmental, or non-governmental organisations (NGOs). Thus, the GRI Global Reporting Initiative (2016) guidelines provide a framework for reporting that promotes comparability between reporting organisations while recognizing the practical considerations of collecting and presenting information across diverse reporting organisations. In considering the reporting organisation's economic, social and environmental performance (section 5 of the GRI Guidelines), the GRI requires reporters to use both quantitative and qualitative indicators, as well as providing supplementary information. GRI also request companies to provide context, management explanations and commentary on trends and unusual events. Apart from GRI, there are other guidelines available for companies to use to engage in Sustainability accounting and reporting. They include; SIGMA project, the International Standards Organisation (ISO), the World Business Council for Sustainable Development (WBCSD) and Accountability: Institute of Social and Ethical Accountability (AA1000). This research, however, dwells on the GRI as a tool for measuring sustainability reporting compliance.

The economic, environmental and social disclosure indexes are calculated based on the number of indicators that are disclosed (occurrence) whether quantitative and qualitative in the following manner: Assign 0 if a company does not disclose an indicator, that is the non-occurrence of an indicator in company's financial statement; and assign 1 if a company disclose an indicator, which is the occurrence of an indicator in the company's financial statement. The scores of the disclosure index are then calculated for each company by dividing the total scores of items disclosed by the total that could have been disclosed based on the GRI (2016). Thus the total disclosure score (TD) was calculated as follows:

$$TD = \sum_{i=1}^{n} di$$

Where:

di = item of disclosure (1 if the item di is disclosed, 0 if the item di is not disclosed).

n = number of items.

The final disclosure score indexes for each category are calculated as follows:

TDI = TD/N

Where:

TDI = total disclosure index

N = maximum number of relevant subcategories a firm may disclose based on GRI

In addition to the paired sample t-test, the effect size statistics are computed to provide an indication of the magnitude of the differences between the pre-IFRS and post-IFRS sustainability reporting, plus to show that the difference did not occur by chance. There are several different effect size statistics, the most commonly used being eta squared. Eta squared can range from 0 to 1 and represents the proportion of variance in the dependent variable that is explained by the independent (group) variable. It is calculated using the information provided in the output of the paired sample t-test result. The formula for eta squared is as follows:

$$\text{Eta squared} = \frac{t^2}{t^2 + N - 1}$$

Where t = t statistics value obtained from the paired sample t-test result;
N = Number of observations.
Based on the guidelines proposed by Cohen (1988) for interpreting the eta squared value, .01=small effect, .06=moderate effect and .14=large effect.

4. Results and Findings

Table 2: Descriptive Statistics

	ECO PRE	ECO POST	ENV PRE	ENV POST	SOC PRE	SOC POST	SUS PRE	SUS POST
Mean	0.54	0.65	0.08	0.11	0.27	0.40	0.42	0.51
Median	0.53	0.65	0.11	0.11	0.26	0.37	0.42	0.50
Maximum	0.65	0.82	0.21	0.21	0.47	0.68	0.59	0.66
Minimum	0.35	0.47	0.00	0.00	0.09	0.26	0.19	0.43
Std. Dev.	0.10	0.09	0.07	0.08	0.08	0.13	0.09	0.07
Skewness	-0.33	0.31	0.19	-0.32	-0.17	1.05	-0.84	0.56
Kurtosis	1.73	2.84	1.99	1.77	3.21	3.15	4.12	2.42
Observations	42	42	42	42	42	42	42	42

Source: EViews10 Output.

With reference to table 2, there is an increment in disclosure of economic events from pre-IFRS (Mean = 0.54, SD = 0.10) to post-IFRS (Mean = 0.65, SD = 0.09), also the median, maximum and minimum pre-IFRS scores of 0.53, 0.65 and 0.35, improved to a post-IFRS scores of 0.65, 0.82 and 0.47 respectively; all establishing an improvement in economic reporting after IFRS implementation. Also an improvement in environmental disclosure was observed after IFRS implementation (Mean = 0.11, SD = 0.08) compared to pre-IFRS (Mean = 0.08, SD = 0.07), with median score of 0.11, maximum score of 0.21 and a minimum score of 0.00 (both pre and post-IFRS implementation). The disclosure of social events before IFRS implementation (M = 0.27, SD = 0.08) is lower than disclosure after IFRS implementation (M = 0.40, SD = 0.13) meaning an enhancement of social disclosure level after IFRS implementation. Likewise, the median, maximum and minimum disclosure values post-IFRS of 0.37, 0.68 and 0.26 respectively are greater than their corresponding pre-IFRS scores of 0.26, 0.47 and 0.26. As expected, the overall sustainability reporting follow similar trend as its pre-IFRS scores (M = 0.42; SD = 0.09; Median = 0.42; maximum 0.59; minimum 0.19) are lower than the respective post-IFRS scores (M = 0.51; SD = 0.07; median = 0.50; maximum = 0.66; and minimum = 0.43). This further affirms a variance in sustainability reporting post-IFRS as opposed to pre-IFRS and an enhancement in the disclosure level after IFRS implementation.

Table 3: Paired Samples Correlations

		N	*Correlation*	*Sig.*
Pair 1: Eco-Disclosure	Pre and Post IFRS	42	0.253	0.106
Pair 2: Env-Disclosure	Pre and Post IFRS	42	0.911	0.000
Pair 3: Soc-Disclosure	Pre and Post IFRS	42	0.195	0.215
Pair 4: Sus-Disclosure	Pre and Post IFRS	42	0.352	0.022

Source: EViews10 Output.

Table 3 gives the information that pre-IFRS disclosure and post-IFRS disclosure for all the four variables (economic, environmental, social and sustainability) are all positively related at 0.253, 0.911, 0.195 and 0.352 scores respectively. Environmental activities seem to have the strongest and significant pre and post-relationship ($r = 0.911$, $p = 0.00$), this implies that the difference in environmental disclosure before IFRS implementation is not too different from after IFRS implementation disclosure. Social events, on the other hand, has the weakest pre and post-relationship ($r = 0.195$, $p = 0.215$) meaning that there exists a greater disparity in how social events were reported before IFRS implementation as compared to after its implementation.

Table 4: Hypotheses Testing

The four hypotheses are tested using EViews10.

	t-statistics	Probability	Sample Mean	Sample Std. Dev.
ECO	-5.819756	0.0000*	-0.106443	0.118532
ENV	-5.945152	0.0000*	-0.029762	0.032443
SOC	-6.078917	0.0000*	-0.129552	0.138115
SUS	-6.684301	0.0000*	-0.093994	0.091132

Source: EViews10 Output.

Decision rule: Reject null hypothesis where $p < 0.01$

Table 4 presents the result of the paired-samples t-test conducted to evaluate if there exists a statistically significant difference in the sustainability reporting following the implementation of IFRS in Nigeria. The result shows a statistically significant increase in the reporting of economic events post-IFRS; $t(42) = -5.82$, $p < 0.001$ (two-tailed). The t-value for all four hypotheses are negative, implying that the post-IFRS values exceed the pre-IFRS numbers. There is, therefore, sufficient reason to reject the null hypothesis for all four hypotheses, as there exists a difference in reporting economic events, environmental activities, social events and the entire sustainability reporting after the implementation of IFRS.

Table 5: Eta squared Computation

Hypotheses	t2	N		Eta squared
H1	-5.8198	42	1	0.4524
H2	-5.9452	42	1	0.4630
H3	-6.0789	42	1	0.4740
H4	-6.6843	42	1	0.5215

Source: Authors Excel Computation

The eta squared statistic (0.45) indicates a large effect size. According to the result in table 5, there is also a statistically significant increment in the reporting of environmental events post-IFRS; $t(42) = -5.95$, $p < 0.001$ (two-tailed and eta squared statistic (0.46) indicates a large effect size. Similarly social events experienced a statistically significant increase after IFRS implementation; $t(42) = -6.08$, $p < 0.001$ (two-tailed) while the eta squared statistic (0.47) indicates a large effect size.

5. Discussion

Economic events have an above-average (50%) disclosure level; with a percentage of 54 before IFRS and 65% after IFRS implementation, making it the highest disclosed aspect of sustainability amongst the three components. Similarly, economic events have the highest maximum of 0.65 pre-IFRS and 0.82 post-IFRS, with the highest post-IFRS minimum disclosure score of 0.47; thus suggesting a high (above average) disclosure level amongst companies. This finding is in tandem with Kwaghfan (2015), Nwobu (2017), and Nwobu et al. (2017), who all report economic events as the most disclosed element of sustainability reporting in Nigeria. This perhaps can be linked to the initial accounting practice which focused more on reporting profit or loss as the case may be, and was silent about reporting environmental activities and social events.

The descriptive statistics reveal that environmental activities have the lowest disclosure level of 8% pre-IFRS and 11% post-IFRS which is very poor (as compared to economic and social). Although the paired-samples test discloses a difference in environmental reporting for the two periods, the difference is insignificant as revealed in the difference in means of 3%. Also, the correlation result shows a strong pre and post-relationship (table 3), emphasizing that the existing variation in disclosure level before IFRS implementation is not too different from after IFRS implementation disclosure. Considering the recommendations of earlier researches in Nigeria (Asaolu et al., 2011; Beredugo & Mefor, 2012; Kwaghfan, 2015; Nwobu, 2017) for an increased environmental disclosure level, it could be expected that the disclosure of environmental activities would have significantly improved over the years. Jones (2010) on the other hand believes that sustainability reporting practices in many cases have focused largely on environmental issues. This is similar to Hahn and Kühnen (2013) who are of the view that papers pay more attention to environmental rather than social performance, however, this contradicts researches in Nigeria (Asaolu et al., 2011; Kwaghfan, 2015; Nwobu, 2017)

Meanwhile, social events have the highest improvement (amongst the three aspects); meaning that firms are beginning to realize the importance of conducting and then reporting social events. Although the result shows an increase in social reporting post-IFRS, similar to the findings of the Olayinka et al. (2014), there is a dismal (a below average in the case of this study) disclosure level amongst oil and gas companies in Nigeria. Olayinka et al. (2014), blames the poor disclosure on social costs not being independently tracked in companies' annual reports as to reflect sufficient details and economic specific benefits to both the receiving stakeholders and the companies. Watts and Holme (1999) posit that the reason for the poor response of companies to social reporting is stemmed from their concern that social events have no clear business benefits and could destroy shareholder value by diverting resources from core commercial activities, plus the fear of that they (companies) will be persuaded to take on social responsibilities that should be handled by the government and other individuals (Watts and Holme, 1999; Bondy and Jackson, 2009).

The finding that sustainability reporting improved after IFRS implementation is affirmative of Nwobu (2017) who posit that financial reporting standards such as IFRS play crucial roles in the measurement and reporting of economic transactions. Also, the result further affirms Akisik and Gal (2011) conclusion that accounting standards are important for sustainable development in businesses since environmental issues are treated in accounting standards including IFRS. Nnamani et al. (2017) accentuate this finding by noting that the awareness of sustainability accounting as a business philosophy has been enhanced with the adoption of IFRS which emphasizes a lot on disclosure. The improvement of sustainability reporting suggests that even in the absence of a regulation which mandates the adoption of specific sustainability guidelines, firms seek and are willing to comply to the qualitative properties of comparability and credibility (Ioannou and Serafeim, 2011). However, the extent of compliance could be improved if the Financial Reporting Council of Nigeria (FRCN) enforces mandatory sustainability reporting in Nigeria as supported by Okwuosa and Amaeshi (2018).

Having established that IFRS implementation has undeniably created a platform for the improvement of sustainability reporting. Firms in Nigeria, are however under no obligation to report these issues as no regulations enforce them to do so; consequently agreeing with the reputation theory which stresses that organisations will select accounting practices and voluntarily disclose information based on what it means for them (Ghanbari *et al.*, 2016). Considering the results and having explained the voluntary nature of sustainability reporting in Nigeria; reputation theory seems to form a basis for sustainability disclosure of any company in Nigeria, as the duty of how and what should be disclosed rest on the organisation, even though they may be spurred by the stakeholders.

Findings from this study show that IFRS provides a framework for improved sustainability reporting. However, the extent of the disclosure is dependent on the company as explained by reputation theory; which expounds that the degree of sustainability reporting of companies in Nigeria is being determined internally by the managers who would naturally act to promote a positive reputation, as they are not bound by any regulation.

More specific findings are:

i. There is a difference in the disclosure of economic events following the implementation of IFRS in Nigeria. Amongst the three aspects, economic disclosure has the highest level of disclosure both post and pre IFRS implementation; implying that companies seem to be more inclined to reporting profit-related items as opposed to environmental and social items.

ii. Environmental reporting also improved post-IFRS, however, it is the poorest reported component of sustainability reporting.

iii. Social events have the highest improvement in its disclosure level following the implementation of IFRS, although there is still has a less than average reporting level.

iv. For all three aspects of sustainability reporting, there exists a significant difference in sustainability reporting following the implementation of IFRS. Therefore IFRS implementation provides a platform for improved sustainability reporting as a whole since some of its standards addresses such sustainability issues.

6. Conclusion

Conclusively, this work confirms that IFRS implementation improves sustainability reporting since the disclosure level of all the triple bottom line increases post-IFRS implementation, however, the varying disclosure amongst the three aspects suggests that IFRS implementation may not be enough. Also, similarly to most of the Nigerian empirical works reviewed in the course of the study, the economic aspect remained the most reported amongst the three elements of sustainability reporting, followed by social, with environmental as the least reported aspect. This study is unique as it considers sustainability reporting from the standpoint of IFRS implementation, as most prior research focused on either the determinants or impacts of sustainability reporting. Also, unlike most prior researches which used stakeholder theory or/and legitimacy theory as their anchor theory, this study is anchored on reputation theory.

The following recommendations emanate from the findings of this study:

i. Since economic disclosure has the highest level of disclosure amongst the three areas, firms should be enlightened on the relevance of the other two aspects (that is the environmental and social areas) and the need to report them.
ii. Emphasis should be made by relevant regulatory bodies in Nigeria on the importance of environmental reporting and proper monitoring done.
iii. Given the high improvement in the disclosure level of social events following the implementation of IFRS, likewise sustainability reporting should be made mandatory as this will further enhance social events disclosure.
iv. Incentives should be given to companies that are compliant with sustainability reporting practices. There is a need for harmonized sustainability reporting standards, which will help even out the variations in reporting the triple bottom lines and encourage transparency. Also, the Financial Reporting Council of Nigerian (FRCN) could tentatively come up with local sustainability reporting standards or adopt/modify one of the global sustainability standards for use in the country.

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APPENDIX

List of oil and gas companies listed on the Nigerian Stock Exchange that have complete annual reports for the relevant period under consideration (2006-2017).

SN	Company	Symbol
1.	Conoil	CONOIL
2.	Eterna	ETERNA
3.	Forte Oil	FO
4.	Japaul Oil & Maritime Services	JAPAULOIL
5.	Mrs Oil Nigeria	MRS
6.	Oando	OANDO
7.	Total Nigeria	TOTALNG

Source: Nigeria Stock Exchange Portal

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