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Investment decisions quality in the real estate sector

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Abstract
Purpose –The study aims to establish the relationship between information search precision and investment decision quality in commercial real estate investment in Uganda and as a corollary, to establish the contribution of each of the dimensions of information search precision (perfect rationality, satisficing rationality and decision weights) to quality of real estate investment decisions, using evidence from Uganda
Design/methodology/approach – This study was cross-sectional and correlational. It used a sample of 200 residential housing real estate investors, and the data were analyzed using SPSS Version 20 to test the hypotheses put forward.
Findings – Results indicate that information search precision and investment decision quality are significantly associated. Results further indicate that perfect rationality is the most important predictor investment decision quality.
Originality/value: This study improves our understanding of investment decision quality in a developing country setting unlike previous studies which evaluated investment decision quality exclusively based on standard finance using evidence from developed economies. Using evidence from Uganda, the current paper shows that perfect rationality in real estate investment decision-making is the more important in such settings.

Keywords: Information search precision, perfect rationality, Satisfying rationality, Decision weight, Decision quality.

Paper type: Research paper

1. Introduction

Investment decision quality is a key concern for decision makers in commercial real estates across the globe (Hebb, *et al.*, 2010). This concern was steeped by the 2008 global financial crisis that led to a number of American investors' loss of their investment in homes. Yet investments in real estate continue to advance rapidly in volume and complexity, and contribute significantly to the gross domestic product (GDP), wealth accumulation and employment (Reddy, *et al.*, 2014). Investment decision quality involves actions that can result in acceptable yields (Kauko, 2014), satisfaction derived from investment decision (Muhammad and Jantan, 2009) and satisfaction in profits, value creation and cost-efficiency (Klimczak 2010; Brueggeman and Fisher 2011). It helps investors in making decisions that attract inward and fixed investment, capital formulation, employment creation, productivity, profitability, value creation, cost-efficient accountableness, and sustainable affordability (Raghunathan, 1999). In the real estate sector, it allows investors to allocate capital to the most strategically important projects (Lorenz and Lützkendorf, 2011), provides well developed decision systems to address the complexity and uncertainty in the commercial real estate sector (Nguyen, 2020). A good quality decision can boost earnings and increase the value of the firm (Nguyen, 2018). Thus, on the international scene, how and the benefits of quality of investment decisions can be improved has significantly been addressed in literature. In Uganda, the quality of the investment decisions in real estate according to Uganda Bureau of Statistics (UBOS) report (2019), is faced with challenges of increased supply but at the same time many properties remain vacant and have not resulted into the expected return on investment. Ironically, the demand for low cost residential housing units is rising in Uganda (Esolyo, 2019).

Studies on information search precision and investment decision quality exist in the developed world (Gallimore and Gray, 2002; Erev, *et al.,* 2017; Callett, 2000; Philip *et al.*, 2019; Samina, *et al.,* 2018; Soukup, *et al.,* 2015). Gallimore and Gray (2002) concluded that commercial real estate investment decision quality is reliant upon all relevant information to maximize utility in USA. Erev *et al.* (2017) reveal that even with substantial evidence on information search activities, investors may utilize their perceptions of sentiment to determine investment decision quality to achieve the optimum level. Callett (2000) reports that individuals cannot account for all the available information, compile an exhaustive list of alternative courses of action, and ascertain each possible outcome's value and probability. Philip *et al.* (2019) highlight three properties of the weighting function to measure investment decision quality. Others like (Samina *et al.,* 2018) suggest that information search precision expressed as bounded, perfect, satisficing rationality and decision weight influence investment decision quality. According to Soukup, *et al.* (2015), the probability weighting function assigns decision weights to the different investment opportunities based on the objective probabilities of occurrence.

While available studies have served readers well, little is known about how information search precision and investment decision quality relate, in emerging economies like Uganda. The focus on Uganda is important because unlike other developed nations there is a widening gap in annual housing supply compared to the established demand. As indicated above, the demand for low cost housing is growing exponentially in Uganda compared to low cost housing supply, yet investments in high cost housing is also rising relative to its demand. The question is “are investors making wrong decisions in investing in high cost housing when the effective demand is high in low cost housing?” Available studies appear less focused on addressing this issue.

Furthermore, available literature offers no evidence about which of the expressions of information search precision (i.e. satisficing rationality, perfect rationality and decision weight) matter most for quality investment decisions in the real estate sector especially in economies such as Uganda where the sector is fledgling. This is unfortunate because a decision maker in nascent economies fails to descriptively (i.e. describe how to decide), normatively (suggest how to decide) or prescriptively (i.e. how to use normative models to guide decision-making within other limiting cognitive parameters) analyze the various investment choices in the real estate sector. The question of which in-put information to use in the decision process has remained an empirical one (French, 2001). For example, should investors in such economies aim at obtaining perfect information or information that would just suffice for real estate investment decision quality? We believe that the establishment of the model (perfect rationality model, satisficing rationality model or the decision weight model) that produces the most variances in real estate investment decision quality partly ameliorates the lacuna in extant literature.

Drawing on expected utility theory (Ivan, 2016; Paul, et al., 2018), bounded rationality theory (Simon, 1955; Landa and Wang, 2001) and prospect theory (Kahneman and Tversky, 1979) this paper aims to examine the relationship between information search precision and investments decision quality in the real estate sector in Uganda. Literature suggests that information search precision is manifest in perfect rationality, satisficing rationality and decision weight (Schulz-Hardt, *et al.*, 2000). Thus, this study tests three predictions: a relationship exists between perfect rationality and investment decision quality, a relationship exists between satisficing rationality and investment decision quality, and a relationship exists between decision weight and investment decision quality. Using a questionnaire survey of real estate managers in Uganda, this study finds that information search precision manifest in perfect rationality, satisficing rationality and decision weight significantly relates to investment decision quality. The study also finds that perfect rationality is the more important predictor of real estate investment decision quality in Uganda.

This study results are important in several ways. This study contributes to existing literature on the relationship between information search precision and investment decision quality using evidence from Uganda where investors target high income earners and neglect low income earners. Targeting high income earners has led to over surplus in the high-end housing units while the neglect of the low-income earners has created a deficit in the housing units. The results support the idea that a rational investor is always risk-averse as assumed by expected utility theory and can collect all relevant available information to achieve maximum profits in an efficient market. Lastly, investors wishing to improve their decision quality in real estate sector in Uganda and such similar other settings, need to aim for perfect rationality in their information search.

The reminder of the paper is organized as follows. The next section is literature review where the theoretical and empirical review is done. Methodology then follows. After the methodology section, the results are presented and this is followed by discussion. The final section is summary and conclusion.

2. Literature review

2.1 Study setting

This study was conducted in Uganda – a developing landlocked country in East Africa. Uganda is largely dominated by the service sector, agricultural sector and the industrial sector. The commercial real estate investments are part of the services sector.

The estimated annual need for new housing units is currently about 200,000 in rural and urban areas of Uganda. In Uganda, private developers' investment decisions primarily target the high-end housing segment since it fetches a premium over the mid-income housing (Cytonn Real Estate report, 2017). These types of investments have led to an oversupply in the high-income segment, with about 50% remaining vacant thereby creating a situation of oversupply in one segment alongside under supply in the other. Further, the housing market is characterized by the few affordable units, specially targeting middle and lower-middle-income earners. According to Ojok (2018), the annual housing requirements is 200,000 per year where 60% of the housing deficit is for low-income earners, 37% for middle-income and only 3% for the high-end market. Based on the above figures, it is inevitable that the country's annual housing requirement will continue to prevail, compared to the population growing at an annual rate of 3.3 %. With the widening gap in annual housing supply compared to the established demand, developers could exploit the significant opportunity in the current attractive situation in commercial real estate in Uganda. One of the key constraints to commercial real estate investments in Uganda is lack of the quality of investment decisions which this study is trying to address.

2.2 Theoretical foundation

The expected utility theory (Von Neumann and Morgenstern, 1947) has been used to explain investment decision quality. According to Ivan (2016), the main assumptions of this theory are perfect rationality and risk averseness. The theory asserts that to achieve a quality investment decision, investors can get assess, process all the information available, the probabilities of possible outcomes, the preferences, and always choose the ones with the highest profit alternative (Paul *et al.,* 2018). However, in bounded rationality situation, decision maker's aim is to satisfy. The satisficing rationality has roots in the bounded rationality theory indicating that decision-makers do not associate quality decisions with optimal decision alternatives. The implication is that quality investment decisions are made without analyzing all the other options, because of the associated costs. Scholars (Simon, 1955; Byrne, *et al.,* 2013) argue that satisficing decision would be one that yields satisfactory outcomes and not necessarily the one with maximum satisfaction as suggested by perfect rationality model. Moreover, the prospect theory by Kahneman and Tversky, 1979) states that under the state of uncertainties, investors measure decision quality based on the decision weights, contrary to the expected utility theory. Thus, a decision-maker perceives each consequence as subjectivity's probabilities, to estimate the utility of each outcome relative to each other and evaluates the possibilities of developing a priori with personal knowledge and beliefs. Unlike the rational investor who exclusively evaluate investment decision quality based on perfect rationality, this paper in addition investigates whether satisficing rationality and decision weight affect the quality of investment decisions in commercial real estate in Uganda.

2.3 Investment decision quality

Decision quality refers to best choice, the goals, and values of the decisions, (Jacoby *et al.,* 1974). It is conceived in terms of decision outcomes, outputs, expectancy of success, information processing performance and risk preferences (Lucian and Sidorova, 2015). Zakay (1984) distinguishes four classes of decision quality: the outcome of the decision, the correctness of the decision process, the importance and ethical value of the decision, and the decision maker's feelings about the decision (Ebbers et al*.,* 2016). Decision quality is associated with allocating resources to the most efficient combined with the goal of value creation and, and aim to help investors make decisions and adapt strategies that better fit the task at hand, (Hochberg and Mŭhlhofer, 2016). Decision quality outcomes are often measured using perceived decision maker satisfaction with the outcome as a surrogate for decision quality (Kaltoft *et al.,* 2014).

2.4 Information search precision

Information search precision is indicated and requires perfect rationality, satisficing rationality, and decision weight. It is about developing different plans to minimize risks in investment decisions, including obtaining more information to lessen uncertainties of these decisions (Schulz-Hardt, *et al.,* 2000). Information search means the necessity to seek advice from many resources before making any investment decision (Yang*, et al.*, 2011). Well-informed investors can handle risk more efficiently and reduce uncertainty and biases in the investing process. In a rapidly changing environment, professional advice ensures the accuracy of the desired information acquired through digital or advice-seeking searches in general (Baker, *et al.*, 2020). According to Yang *et al.* (2011), information search precision requires consulting various sources before making a biased free decision.

2.5 Information search precision and investment decision quality.

Scholars (Ge and Helfert, 2006; Taylor, 1974) note that information search precision plays a bias-reducing role in achieving a quality investment decision, especially in an uncertain environment (Yang*, et al.*, 2011). Studies have found that information search precision is the primary consideration of the quality of investment decisions via a great understanding of a company's financial status, based on economic perspectives. Therefore, information search brings to bare the organization's external environment (Mohammed and Van Belle, 2019) and thus the decisions made will be informed. Since according to (De Bondt *et al.,* 2013), information search precision is the ability with which knowledgeable investors can estimate the cognitive bias in the information available accurately to arrive at an error-free investment decision, this study mainly hypotheses as follows:

H_1*: There is a positive relationship between information search precision and investment decision quality in the housing sector in Uganda.*

Ivan (2016), Fuerst and Grandy (2012) and Hands (2014) suggest that perfect rationality is the investor's ability to adjust rapidly the decisions as new information comes in so it matches with his/her prime objectives. In essence, a rational investor can efficiently process data in an efficient market and make a quality decision as it has been suggested (e.g., Gallimore and Gray, 2002) that Investors use logical processes of considering available information to arrive at the optimal conclusion. Few studies (e.g., Bolomope *et al.,* 2020; De Bondt *et al.,* 2013) document evidence on the link between perfect rationality and investment decision quality. According to Bolomope *et al.,* 2020), through maximum utilization of all the relevant information available to an investor is associated with better quality of investment decisions. According to De Bondt *et al.* (2013), the choice of the option with the relevant information increases the action of removing biases from investment decision quality. Based on this literature, it can be hypothesized that:

***H_2**: Perfect rationality and investment decision quality are positively related.*

2.6 Satisficing rationality and investment decision quality

Satisficing rationality as component of information search precision, seeks to understand how searching for information predicts investment decision quality. Satisficing is a framework for decision quality making process (Matteo, 2017; Simon, 1955) through which an individual decides when the alternative approach or solution is sufficient to meet the individual's investment objective (Schwartz *et al.,* 2010). Satisficing rationality is the notion that investment decision quality has limitations due to information availability and an individual's cognitive abilities (Musshoff, *et al*., 2011). Satisficing advocates for the use of less information and time in situations of uncertainties and complexes to achieve quality decisions (Gigerenzer 2010). Starry (2013) argues that investors generally seek satisfactory solutions rather than optimal ones because of the environment's complexity and human information processing limitations. Schwartz et al. (2002) also suggest that some individuals consistently attempt to find the best solution. However, such an option demands an exhaustive search, which may be costly and distort the quality of investment decisions. Likewise, others consistently attempt to find a non-exhaustive search that can meet a satisfactory solution that is free or good enough, given their standards. For instance, typical satisfiers would select only a few criteria instead of waiting for all relevant information to achieve a certain level of decision quality. Once that level of action meets this criterion, the thinking is that the quality of investment decisions is appropriate, and any other search is unnecessary. Deciding on the first option that exceeds an aspiration level is a form of a satisficing strategy in achieving a biased free achievement. Hence:

***H_3**: Satisficing rationality and investment decision quality are related*

2.6 Decision weight and investment decision quality

Decision weight is a component of information search precision. According to Hertwig *et al*. (2004), decision weight refers to the subjective probability that allows investors to make quality decisions by referencing things they have learned and their own experience. Jakub et al. (2018) argue that decision quality, rather than being derived solely from hard data and facts, depends on subjective probability, which is person's psychological estimate or intuition of a situation, and the likely outcome (Zeinab, 2013). Essentially, when investors want to achieve better quality investment decisions, they summarize all the information to avoid information overload in an attempt to minimize the cost. Decision weight extends this probability by explaining the investors' use of psychological weights to predict the actions influencing investment decision quality. The decision weights are probabilities that are not linearly proportional to their associated objective probabilities because they do not obey the expected utility theory's probability axioms. Decision weights refer to assigning different weights, to predict investment decision quality (Baláž, *et al*., 2016). Previous studies show that investors place decision weights on the gain or loss depending on induced biases (see. e.g., Hertwig *et al*., 2004). Investor fear losses than they value gains and therefore their perception on these variables tend to affect investment decision quality non-uniformly. Tversky and Kahneman (2007) asserted that the decision weights assigned by a decision-maker measure the likelihood of events perceived, but also the level of biases events might have on the desirability of prospects. The above argument finds support in the non-linearity function proposed by prospect theory, which posits that decision weights are not directly proportional to the probability of the consequence occurring. They posit that decision weights best explain investment decision quality by overweighting small probabilities and underweighting moderate and high chances. Therefore, decision weights empirically derive an assessment of how investors de-bias their sense of events' likelihood (Madan, *et al.*, 2014; Byrne, *et al.*, 2013). Based on the foregoing discussion, the following hypothesis is stated.

H*$_4$*: Decision weights and investment decision quality are related

3. Methodology

3.1 Study design and sample

The study is a cross-sectional survey and the population comprised of 1.346 residential housing market investment decisions in Uganda, (AREA Uganda, 2015). The residential property was the unit of analysis based on the works of Muhammad and Jantan (2009). According to (Krejcie and Morgan, 1970) sampling table, a population of 1.346 required sample size of 335 properties with a margin error of 0.05 and a 95% confidence level. We use simple random sampling to select the investments and purposively select the managers/investors who are responsible for making investment decisions (Thornhill *et al.*, 2009).

The results in table 1 indicate that in terms of gender, the majority 52.5 percent were male and 47.2 percent females. The results show that 45.5 percent fell in the age bracket of 31-40, followed by 27.5 percent in the range of 21 - 30, and 20 percent in the 41 -50 percent range. Majority 43.5 percent of the respondents had been in business for a period ranging between 11 and 15 years, followed by 24 percent of them 6 to10 years and less than 5 years' experience accounted for 23 percent. Quite interesting is that the investments are jointly owned 54 percent compared to the 46perent that owned by individuals, underscoring the fact that huge resources are needed and these can be raised in partnership rather than individual efforts. With regard to sources of funding, majority 44 percent raised capital from bank loans while own savings accounted for 40 percent. Most of the investment 26 percent was in bungalow (two bed room) closely followed by 24.5 percent low-cost housing unit while 21.5 percent was bungalow (three bedroom). Overall, there is diversity of investment in the residential markets and there are efforts to meet the various demand requirements in the market.

Table I: Demographic characteristics

Background information	Frequency	Percentage
Gender		
Male	105	52.5
Female	95	47.5
Total	200	100.0
Age of the respondent		
20-30	55	27.5
31-40	91	45.5
42-49	40	20.0
50-57	12	6.0
58-65	2	1.0

Total	200	100.0
Experience		
< 5 years	18	9.0
6-10 years	46	23.0
11-15 years	87	43.5
o years	18	24.0
>20 years	1	.5
Total	200	100.0
Marital status		
Single	20	10.0
Married	151	75.5
Separated	29	14.5
Total	200	100.0
Education		
Ordinary level certificate	15	7.5
Advanced level certificate	39	19.5
Professional certificate	17	8.5
Diploma	42	21.0
Bachelor degree	65	32.5
Master's degree	22	11.0
Total	200	100.0
Investment partnership		
Singly owned	92	46.0
Jointly owned	108	54.0
Total	200	100.0
Purpose of investing in housing		
Rental income	63	31.5
Accumulating wealth	63	31.5
Affordable and sustainable	13	6.5
Ownership	61	30.5
Total	200	100.0
Capital investment		
10-40 bn.	81	40.5
41-80bn.	96	48.0
81-120bn.	15	7.5
Above 120bn.	8	96.0
Total	200	100.0
Type of property		
Bungalow (Two bed room)	52	26.5
Bungalow (Three bed room)	42	21.5
Apartment	30	15.0
Condominium	27	13.5
Low cost Units	49	24.5
Total	200	100.0
Source of financing		
Returns	18	9.0
Savings	81	40.5
Bank loan	89	44.5
Sales of other properties	12	6.0
Total	200	100.0

Source: Primary data

3.2 The questionnaire and variables measurements

The questionnaire was a six-point Likert scale ranging from strongly disagree to strongly agree (Krishnaveni and Deepa, 2013). We also tested reliability using the inter-item test method to measure the reliability where inter-item correlations were determined using the Cronbach Alpha test (Saunders *et al*., 2009). The results of the alpha coefficient were all above 0.7 and meet the recommendation (Nunnally, 1978). Investment decision quality was measured by profitability of prediction accuracy, value creation, cost-efficiency, affordable sustainability, rate of return and satisfaction of investment decisions, timeliness (Muhammad and Jantan, 2009; Dooley and Fryxell, 1999). Perfect rationality was measured with the rational subscale of the General Decision-Making Style Scale developed by Scott and Bruce (1995). These measures basically tap into the aspects of problem identification, alternative solutions and selection of optimal solutions (Hirschauer 2011; Goyal, 2016). We follow previous scholars like Brighton and Gigerenzer (2008) to operationalize satisficing rationality as action taken based on the limited availability of information, limited cognitive abilities to processing the available information. Decision weight works on the notion that investors fear losses than they value gains. We measure decision weights using (Durbach and Stewart 2012; Ludvig, *et al*., 2013) items of psychological belief that low probability events (rare events) are overweighed, high probability events are under weighed (more probability events).

Table II: Measurement of variables

Variable	**Acronym**	**Measure**
Dependent Variable:		
Investment decision quality	*IDQ*	Average rating on a 6-point Likert scale of questions
Information search precision	IFSPR	Average rating on a 6-point Likert scale.
Predictor variables:		
Perfect rationality	*PR*	Average score of questions on a 6-point Likert scale
Satisficing rationality	*SR*	Average score of questions on a 6-point Likert scale
Decision weight	*DW*	Average score of questions on a 6-point Likert scale
	βo	Constant
	εj	Error term

Source: Primary data

Model

The study utilizes a hierarchical regression model in investigating the contribution of information search precision and its dimensions to investment decision quality in commercial real estate in Uganda. Hierarchical regression analysis is the ideal for studies that aim to establish the contribution of any independent variables to variances in the dependent variables (Sekeran, 1983). Specifically, the models below were tested.

Model 1: $IDQ = \beta_0 + \beta_1\, IFSPR + \varepsilon j.$

Model 2: $IDQ = \beta_0 + \beta_1\, IFSPR + \beta_2\, PR + \varepsilon j.$

Model 3: $IDQ = \beta_0 + \beta_1\, IFSPR + \beta_2\, PR + \beta_3\, SATS + \varepsilon j.$

Model 4: $IDQ = IDQ = \beta_0 + \beta_1\, IFSPR + \beta_2\, PR + \beta_3\, SATS + \beta_4\, DW + \varepsilon j.$

Where: IDQ is investment decision quality; IFSPR is information search precision; PR is perfect rationality; SATS is satisfying rationality, DW is decision weights, εj is the error term while β_0 is a constant.

3.3 Factor analysis

In executing the principal component analysis for our scales, we assessed the suitability of our data for factor analysis based on sample size adequacy, the Keiser-Meyer-Olkin (KMO) and Bartlett tests. The KMO and Bartlett's test of sampling adequacy were computed to ensure that factor analysis yields different and reliable factors (Adebayo and Suleman (2017). The results shown in Table III indicate that the KMO values for information search precision and investment decision quality are 0.788 and 0.779 respectively and are within acceptable range. Bartlett' test of sphericity in all scales also reached statistical significance; that is to say significant value was 0.000 for each scale. For information search precision, Table IV reveals the presence of three components with eigenvalues exceeding 1 explaining 36.49, 14.46 and 11.40 percent respectively, of the variance of in information search precision. We name the components as perfect rationality, satisficing rationality and decision weight. Table V revealed the presence of presence of two components with eigenvalues exceeding 1 explaining 47.016 and 24.176 percent respectively, of variance in investment decision quality (cumulatively explaining a total of 71.192 percent of the variance). We name the components as cost-efficiency accountableness and value creation.

Table III: **Sampling adequacy and suitability of the data for exploratory factor analysis**

KMO and Bartlett's Test			
Item		**Information search precision**	**Investment decision quality**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.788	.799
Bartlett's Test of Sphericity	Approx. Chi-Square	601.110	488.842
	df	36	45
	Sig.	.000	.000

Source: Primary data

Table IV: Rotated Component Matrix for Information search precision

Item	1	2	3	Communalities
I always make investment decisions in real estate when I am comfortable with information.	0.795			0.682
I study each part of the information in detail before investment decision.	0.771			0.645
When making investment decisions in I try to find a couple of options and choose among them	0.748			0.571
I always share all relevant information with the experts before making decisions in real estate	0.687			0.549
I need a lot of time looking at different information when making investment decisions in real estate		0.808		0.693
My investment decisions in common real estate are always associated with low accessible costs		0.782		0.62
I am sure adventurous when making investment decisions in real estate than being conservative		0.551		0.606
I make decisions and get on with things than read them analyzing every last detail			0.827	0.737
My appetite towards risk influences my investment decisions in real estate			0.616	0.509
Total	3.284	1.302	1.026	
% of Variance	36.492	14.464	11.399	
Cumulative %	36.492	50.955	62.354	

Notes: KMO = 0.788; Bartlett's test of sphericity: approx. $\chi 2$ = 601.110, df = 36, Sig = 0.000. 1= Perfect rationality, 2 = Satisficing rationality, 3 = Decision weight
Extraction Method: Principal Component Analysis. Rotational method: Varimax with Kaiser Normalization

Table V: Exploratory Factor Analysis Results for *Investment Decision Quality*

	Cost-Efficient Accountableness	*Value Creation*
I always view big investment decisions in real estate, without proper accountability as a sign of poor cost control.	.832	
Profit is ideal to me if the investment decision associated with it is backed by clear supporting documents.	.946	
The success of my investment decisions is a result of cost efficiency, cost minimization and profit maximization.	.923	
Low cost investments like easy maintenance, guide my decisions in real estate.	.991	
Investment decisions based on the best available information are important in increasing wealth.		.973
Real estate investment decisions based on client affordability increase profitability.		.962
Real estate investments which are desirable and attractive can increase my asset growth.		.699
Eigen Value	3.291	1.692
Variance %	47.016	24.176
Cumulative %	47.016	71.192

KMO =, Bartlett's test =, Determinant = 1= *Cost-Efficient Accountableness, 2= Value Creation*
Notes: *KMO* = 0.799; Bartlett's test of sphericity: approx. $\chi 2$ = 488.842, *df* = 45, *Sig* = 0.000.
Extraction Method: Principal Component Analysis. Rotational method: Varimax with Kaiser Normalization

3.4 Data Management and Analysis

The data management involved entering the data using the SPSS version 20 to generate the required descriptive and inferential statistical analysis as indicated in Table VI. Prior to this, the data was checked for errors and then cleaned in line with Pallant (2005). We tested for normality using the histogram and P-P plots to guide the analysis of data. The histogram's assumption of the distribution of data is well-shaped, indicating normal data distribution as in, e.g., Figures 1 and 2. The findings on Skewness values range of -1 to +1 while the values for Kurtosis was -3 to +3, hence fulfilling the data standard assumption of normality. Secondly, the assumptions of linearity of the data depicted in Figure 1 revealed a linear relationship between the independent and the dependent variables.

Fig. 1: P-P Plot for investment decision quality

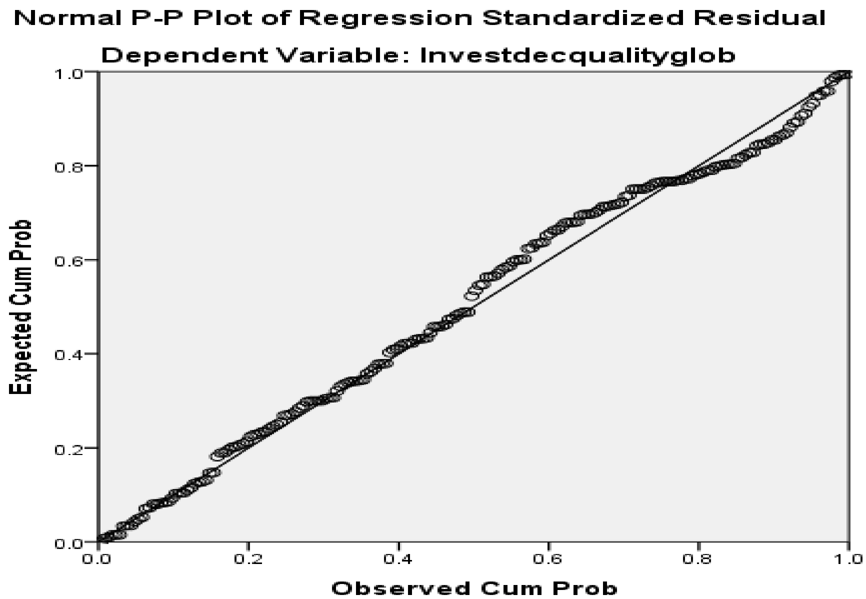
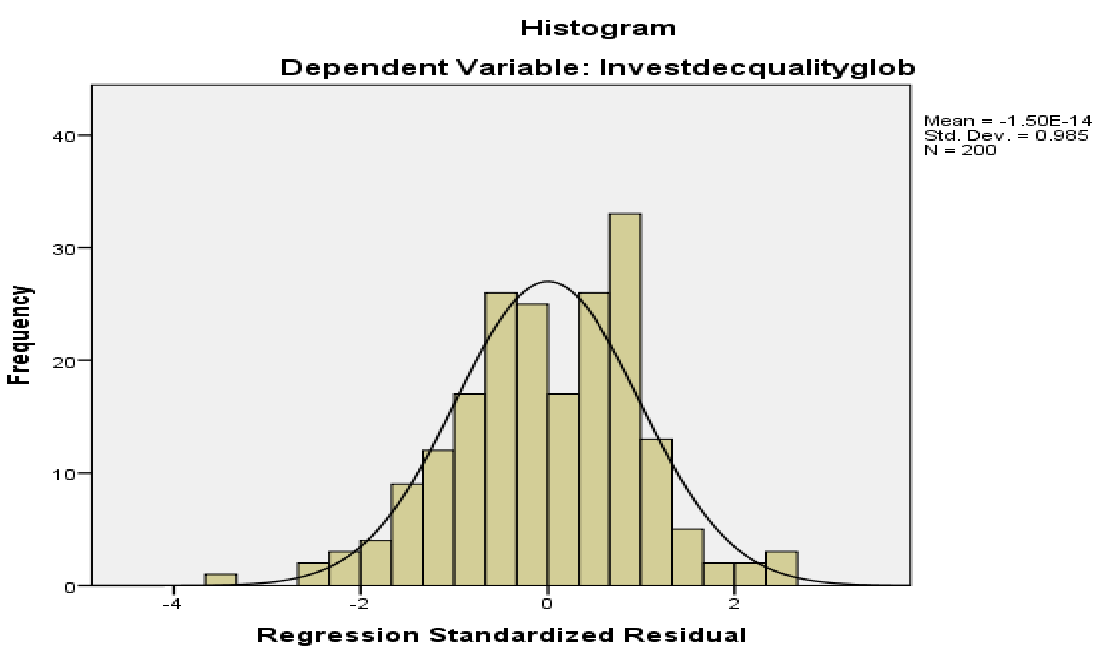


Figure 2: Histogram for investment decision quality



4. **Results:**
4.1 Descriptive and Correlation analysis

In Table VI, all mean scores of the global variables and their respective components range from 3.58 to 4.46, with standard deviations ranging from .23766 to .44620. Because of small standard deviations compared to the mean values, it is clear that the data points are close to the means (Field, 2009). Further the zero-order correlations coefficients between the variables reveal that information search precision has a significant positive relationship with investment decision quality (r =. 534**, p < 0.05). Perfect rationality has a significant positive relationship with investment decision quality (r =.667**, p < 0.05). Satisficing rationality is not significantly related with investment decision quality (r = -.005, p > 0.05). The results show decision weight and investment decision quality are positively and significantly related (r = .397**, p < 0.05). At this level of analysis, hypotheses 1, 2 and 4 are substantiated. In terms of discriminant validity, the results show that the components of information search precision are sufficiently discriminated as none of the correlations between them are more than 0.8; and so too are the components of investment decision quality. A closer look at the convergent validity show that this tenable as the relationships between the constructs and their global variable are all above 0.5.

Table VI: Descriptive statistics and Correlation analysis results

Variable	Mean	Std. Deviation	1	2	3	4	5	6	7
Satisficing rationality (1)	3.58	.36301	1						
Perfect Rationality (2)	4.37	.40158	.013	1					
Decision weight (3)	3.95	.38541	-.077	.341**	1				
Information search precision (4)	3.93	.23766	.571**	.688**	.620**	1			
Cost-efficiency accountableness (5)	4.46	.44620	-.130	.552**	.364**	.383**	1		
Value creation (6)	4.45	.39493	.014	.647**	.408**	.540**	.629**	1	
Investment decision quality (7)	4.37	.31844	-.005	.667**	.397**	.534**	.784**	.882**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Regression analysis

The difficulty with univariate analyses is their failure to control for other factors, thus making the interpretation of the results challenging. Because of this we extended the analysis to a multivariate setting and proceeded with regression analysis to further test the validity of the hypotheses. We use the regression coefficients as indicators of whether or not the contribution of each variable is significant, and the overall contribution of the variables is indicated by the variance explained (R^2) that also shows the explanatory power of the variables. Table VII(a), shows that the adjusted R^2 is 32.8 per cent and the F-ratio (F =98.261) is significant. This result further substantiates H_1. The results of Table II(b) show that except for satisficing rationality the other two constructs (perfect rationality and decision weight) of information search precision are significant predictors of investment decision quality providing further substantiation of H_2 and H_4. This model shows an adjusted R^2 of 46.09% (F = 59.602). Note, however, among the constructs of information search precision, perfect rationality is the most significant predictor (β = 0.477, $p < 0.05$)

Table VII(a): Linear regressions model

Item	Model 1
Constant	1.368**
Information search precision	.576**
R	0.576
R^2	0.332
Adjusted R^2	0.328
Std. Error of the Estimate	0.26099
F-statistic	98.261
Durbin-Watson	1.373

a. Dependent Variable: Investment decision quality

Table VII(b): Linear regressions model (with the constructs of information search precision)

Item	Model 1
Constant	1.650**
Perfect rationality	.477**
Satisficing rationality	.002
Decision weight	.159**
R	0.691
R^2	0.477
Adjusted R^2	0.469
Std. Error of the Estimate	0.23203
F-statistic	59.602
Durbin-Watson	1.514

a. Dependent Variable: Investment decision quality

Furthermore, this study utilized hierarchical multiple regression to test the extent to which information search precision together and it constructs (perfect rationality, satisficing rationality and decision weight) predict investment decision quality in Uganda. In view of the small sample size and to ensure that the study is generalizable, results for adjusted R^2 are reported (Field, 2009; Pallant 2007) as opposed to R^2. The hierarchical regression results are presented in Table VIII. Our starting model is model 1 wherein is entered perfect rationality and the results show that this accounted for a significant amount of variance in investment decision quality (adjusted $R^2 = 0.442$), $p < 0.000$). In the second model (Model 2), decision weight is entered and this causes an extra and significant 3.2 percent variance in investment decision quality (*F-Change* = 12.235, $p < 0.05$). An addition of satisficing rationality in Model 3 causes no significant variances in investment decision quality. In all, perfect rationality and decision weight are significant predictors of investment decision quality in commercial real estate in Uganda, accounting for 47.2 percent of the variance (adjusted $R^2 = 0.472$, $p < 0.05$). The model 2 is the most plausible model for commercial real estate in Uganda. Perfect rationality as best significant predictor (β = 0.529, $p < 0.05$). The results of the Durbin - Watson score was 1.514, which is between the two critical values of 1.5 and 2.5. Therefore, we can assume no first-order- linear autocorrelation in our multiple linear regression data.

Table VIII: Hierarchical regression

Item	Model 1	Model 2	Model3
Constant	2.057**	1.657**	1.650**
Perfect rationality	. .529**	.477**	.477**
Decision weight		0. .158**	.159**
Satisficing rationality			. 002
R	.667	.691	0.691
R^2	.445	.477	0.477
Adjusted R^2	.442	.472	.469
R^2 Change	.445	.032	.000
F	158.488**	89.858**	59.602**
F-statistic change	.158.488**	12.235**	.002
Durbin-Watson			1.514

a. Dependent Variable: Investment decision quality

5. Discussion.

This study identified that the information sources that the commercial real estate investors are able to access influences the quality of investment decisions in Uganda. For commercial real estate investment decisions, information search precision as the process of consulting various sources matters for achieving investment decision quality in residential real estate in Uganda. This notion is consistent with scholars such as Yang *et al.* (2011), whose findings show that when faced with uncertainty about the outcomes and sensing a high perception of risk, an individual may assess economic loss, in turn develop risk-reducing strategies (such as searching and acquiring information) to reduce the uncertainty. The diversity of financial investment decisions leads investors to seek advice and education from professional advisors when choosing more complex or riskier investments. This result is in agreement with Yaniv (2004) who suggests that information from advice-seeking may be costly but accurate. These results render support for expected utility theory. The theory states that in an efficient market, investment decision quality should include all the relevant information (Baker, *et al.*, 2020). Investors should invest in the real estate after first sharing information with experts before making the decisions. This makes intuitive sense because sharing information lowers uncertainty and gives the investor the confidence.

The central argument of this study was that literature is limited about which of the dimensions (constructs) of investment search precision matters most for the quality of investment decision in the real estate sector in the developing country setting. Findings indicate that perfect rationality in terms of (e.g.) relevant information matters for investment decision quality of the residential real estate investments in Uganda. Relative to decision weight and satisficing, perfect rationality has been found to matter most for investment decision quality in Uganda's real estate sector. A lack of focus on perfect rationality, therefore, may explain why investors in Uganda may not be taking advantage of the demand for low-cost residential housing units. The result of this study seems to advance that the resultant man – also known as *homo oeconomicus* (Walras, 1883) – chooses alternatives in a decision task according to a simple norm: maximizing his/her own expected utility. Thus, the results support the traditional/normative conceptualization of individual rationality by suggesting that investors in real estate should be perfect rational individuals if they are to act to obtain the best possible payoff from their decision to invest in this sector. The results of this study seem not to advance Simon's (1947, 1955, 1957, 1983) satisficing concept. It seems the supposed perfect rationality, pushes investors towards self-interested preferences and hence better decisions. This finding is consistent with Shaharudin *et al.* (2018) that investment decision quality is making choices that yield optimal utility. The findings are also in support of Soukup *et al.,* (2015) who found that the concept of perfect rationality is associated with relevant information about the maximum total gain. These findings provide further evidence that perfect rationality in the residential real estate context appears to be that developers should use the best currently available information to form their quality investment decisions. The best information may involve forecasts on account of the current market; trends in type of housing and assessing the current value of the property before an investment decision (Verweij, *et al.,* 2015). As well, the results reported provide evidence of the postulation by (Arshad *et al.*, 2020) that perfect rationality is an essential attribute in determining the quality of investment decisions. This study's findings signal that perfect rationality uses different types of information and observe the past price movements to predict future asset investment decision benefits. Investors need a lot of time looking at a variety information, studying it in details, gives him/her a hint of a variety of real estate that can increase their rental income.

6. Summary and Conclusion.

This paper aimed to establish the relationship between information search precision and investment decision quality in commercial real estate in Uganda. As a corollary and more importantly, the study aimed to establish the contribution of each of the dimensions of information search precision (perfect rationality, satisficing rationality and decision weights) to quality of real estate investment decisions, using evidence from Uganda. The present study surveyed and analyzed data from 200 commercial real estate properties. Findings suggest that, as expected, information search precision causes positive variances in the quality of real estate investment decisions. However, among the constructs/dimensions of information search precision, perfect rationality is the most significant predictor of investment decision quality in commercial real estate in Uganda.

The current results have important implications. First, the study contributes towards a methodological position by showing that the behavioral biases can be alternative factors influencing investment decision quality in commercial real estate in Uganda. Second, our study results support the idea that a rational investor is always risk-averse in terms of expected utility theory and can collect all relevant available information to achieve maximum profits in an efficient market. It suggests that expected utility theory provides provide a relevant framework for understanding investment decision quality in Uganda. Lastly, investors in the real estate sector in Uganda need to aim at perfect rationality in their decision-making endeavors.

Like any other study, this study has got limitations. This study employs only the quantitative approach which limits respondent's capabilities to express their opinions fully on the subject matter. This means that the use of qualitative results may result into much more interesting results. The study was cross sectional and thus monitoring changes in behavior overtime was not possible. Also, this study was conducted in Uganda's commercial real estate markets and this means that the results may only be generalized to Uganda. Still, the results are potentially useful.

References

Adebayo, A. M., and Suleman, I. (2017), "The use of multiple linear regression and principal component regression models to predict the student's final grade point average (GPA) in the polytechnic", *International Journal of Innovative Mathematics, Statistics & Energy Policies*, Vol. *5* No.4, pp. 9-29.

Arshad, M.U., Khan, F.N., Ishfaq, M., Shabbir, M.N. and Shah, S.M.R. (2020), "The relevance of financial and economic informational environment: evidence from South Asian markets", *Journal of Economic and Administrative Sciences*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JEAS-07-2020-0123

Baker, H.K., Nofsinger, J.R. and Puttonen, V. (2020), "Investment Schemes Designed to Separate You from Your Money", *The Savvy Investor's Guide to Avoiding Pitfalls, Frauds, and Scams* (*The Savvy Investor's Guide*), Emerald Publishing Limited, pp. 121-147. https://doi.org/10.1108/978-1-78973-559-820201009

Baláž, V., Williams, A. M., and Fifeková, E. (2016) "Migration decision making as complex choice: eliciting decision weights under conditions of imperfect and complex information through experimental methods", *Population, Space and Place*, Vol.*22* No.1, 36-53.

Bolomope, M., Amidu, A.-R., Filippova, O. and Levy, D. (2020), "Property investment decision-making behaviour amidst market disruptions: an institutional perspective", *Property Management*, Vol. (*ahead-of-print*) No. (*ahead-of-print*). https://doi.org/10.1108/PM-06-2020-0042

Brighton, H. and Gigerenzer, G. (2008*), Bayesian brains and cognitive mechanisms: Harmony or dissonance?* In: The probabilistic mind: Prospects for Bayesian cognitive science, ed. N. Chater & M. Oaksford, pp. 189–208,

Brueggeman, W. B., and Fisher, J. D. (2011). *Real estate finance and investments* (pp. 5-6). New York, NY: McGraw-Hill Irwin.

Byrne, P., Jackson, C. and Lee, S. (2013), "Bias or rationality? The case of UK commercial real estate investment", *Journal of European Real Estate Research*, Vol. 6 No. 1, pp. 6-33

Callett, A.P (2000)," Prospect for investment in the private rented sector", *Journal of property investment and finance*, Vol. 18 No. 4, pp. 504-16.

Cytonn Annual Market Review (2017); Cytonn Report, Uganda Market Update – H1, 2018, Knight Frank Research.

De Bondt, W., Mayoral, R. M., and Vallelado, E. (2013), "Behavioral decision-making in finance: An overview and assessment of selected research", *Spanish Journal of Finance and Accounting/Revista Española de Financiación y Contabilidad*, Vol.*42* No.157, pp. 99-118.

Dooley, R. S., and Fryxell, G. E. (1999), "Attaining decision quality and commitment from dissent: The moderating effects of loyalty and competence in strategic decision-making teams", *Academy of Management journal*, Vol.*42* No.4, pp.389-402.

Dowling, M. and Lucey, B., 2010. Other behavioral biases. *In H. Baker y J. Nofsinger (Eds). Behavioral Finance: Investors, Corporations, and Markets. New Jersey. John Wiley and Sons, Inc*, pp.313-330.

Durbach, I. N., and Stewart, T. J. (2012), "Modeling uncertainty in multi-criteria decision analysis", *European journal of operational research*, Vol.*223* No.1, pp.1-14.

Ebbers, W. E., Jansen, M. G., Pieterson, W. J., and van de Wijngaert, L. A. (2016), "Facts and feelings: The role of rational and irrational factors in citizens' channel choices," *Government information quarterly*, Vol. *33 No.* 3 pp. 506-515.

Erev, I., Ert, E., Plonsky, O., Cohen, D. and Cohen, O., 2017. "From anomalies to forecasts: Toward a descriptive model of decisions under risk, under ambiguity, and from experience". *Psychological review*, Vol.*124* No.4, pp.369-409.

Esolyo, L.M., 2019. *Stategies Adopted by Knight Frank Kenya To Increase Market Share* (Doctoral dissertation, University of Nairobi).

Feng, L., Jeusfeld, M. A., and Hoppenbrouwers, J. (2005). "Beyond information searching and browsing: acquiring knowledge from digital libraries". *Information processing & management*, Vo.*41* No.1, pp.97-120.

French. N. (2001), "Decision Theory and Real Estate Investment: An Analysis of the Decision-making Processes of Real Estate Investment Fund Managers", *Managerial and decision economics*, Vol.22 No.7 pp.399-410

Fuerst, F. and Grandy, A.M., 2012. "Rational expectations? Expectations?" *Journal of Property Investment & Finance,* Vol. 30 No. 2 pp. 159 – 174

Gallimore, P. and Gray, A., (2002). "The role of investor sentiment in property investment decisions". *Journal of Property Research*, Vol.*19* No.2, pp.111-120.

Ge, M. and Helfert, M. (2006), "A framework to assess decision quality using information quality dimensions", In: ICIQ, pp. 455-466

Gigerenzer, G., 2010. "Moral satisficing: Rethinking moral behavior as bounded rationality". *Topics in cognitive science*, Vol.*2 No.*3, pp.528-554.

Giulia, C., Gemser, G., and Wijnberg, M. N. (2017), "The interplay between intuition and rationality in strategic decision making: a paradox perspective", Organisation studies, Vol. 38 No.3/4 pp.365-401

Hands, D. W. (2014). Normative ecological rationality: normative rationality in the fast-and-frugal-heuristics research program. *Journal of Economic Methodology*, Vol.*21* No.4, 396-410.

Hebb, T., Hamilton, A., and Hachigian, H. (2010). "Responsible property investing in Canada: factoring both environmental and social impacts in the Canadian real estate market". *Journal of Business Ethics*, Vol.*92 No.*1, pp. 99-115.

Hertwig, R., Barron, G., Weber, E.U. and Erev, I., (2004). (Decisions from experience and the effect of rare events in risky choice). *Psychological science*, Vol.*15* No.8, pp.534-539.

Hochberg, Y. V. and Muhlhofer, T. (2016), "Capital-Market Competitiveness and Managerial Investment Decisions: Evidence from Commercial Real Estate (November 10, 2016)". Available at SSRN: https://ssrn.com/abstract=2883655 or http://dx.doi.org/10.2139/ssrn.2883655 Accessed 20/8/2020

Ivan M. (2016), "Retrospectives How Economists Came to Accept Expected Utility Theory: The Case of Samuelson and Savage", *Journal of Economic Perspective,* Vol.30 No.2 *pp. 219–236*

Jacoby, J., Speller, D.E. and Berning, C.K., (1974). "Brand choice behavior as a function of information load: Replication and extension". *Journal of consumer research*, Vol.1 No.1, pp.33-42.

Jakub T., J., Agata Sobkow, A., Kamil Fulawka, K., Jakub Kus, J., Dafina Petrova, D., Rocio Garcia-Retamero (2018), "Numerate decision makers don't use more effortful strategies unless it pays: A process tracing investigation of skilled and adaptive strategy selection in risky decision making", *Judgment and Decision Making,* Vol. 13, No. 4, pp. 372–381

Kahneman, D. and Tversky A., (1979), "Prospect Theory: *Analysis of Decision making under Risk", Econometrica,* Vol. 47 No. 2, pp. 263-292.

Kauko, T. (2014), "*Towards Evolutionary Economic Analysis of Sustainable Urban Real Estate: Concept of a research strategy exemplified on house price modeling using the self-organising map, interviews and field inspection". In Walloth C., Gurr J., Schmidt J. (eds) Understanding complex urban systems*. Multidisciplinary approaches to modeling. Springer, Cham

Klimczak K., (2010) "Determinants of Real Estate Investment"*, Economics & Sociology, Vol. 3, No 2, pp. 58-66*

Krejcie, R. V., and Morgan, D. W. (1970). "Determining sample size for research activities". *Educational and psychological measurement*, Vol.*30* No.3, 607-610.

Krishnaveni, R., and Deepa, R. (2013). "Controlling common method variance while measuring the impact of emotional intelligence on well-being". *Vikalpa*, Vol.*38 No*.1, pp.41-48.

Landa, J. T., and Wang, X. T. X. (2001). "Bounded rationality of economic man: decision making under ecological, social, and institutional constraints". *Journal of Bioeconomics*, Vol.*3* Nos.2-3, pp.217-235.

Lorenz, D., and Lützkendorf, T. (2011). "Sustainability and property valuation: Systematization of existing approaches and recommendations for future action". *Journal of Property Investment and Finance*, Vol.*29* No.6, pp.644-676.

Lucian, L. V. and Sidorova, A. (2015). "Improving Decision Quality: The Role of Business Intelligence", *Journal of Computer Information Systems,* Vol. 57 No.1, pp.58–66..

Ludvig, K., Stenberg, A. C., and Gluch, P. (2013). "The value of communicative skills for developing an energy strategy". *Building Research & Information*, Vol.*41 No*.6, pp.611-621.

Madan, C. R., Ludvig, E. A., and Spetch, M. L. (2014). "Remembering the best and worst of times: Memories for extreme outcomes bias risky decisions". *Psychonomic bulletin & review*, Vol.*21* No.3, pp. 629-636.

Matteo C., (2017), "Herbert Simon's bounded rationality" *Journal of Management History* Vol. 23 No. 2 pp.170-190

Mehmood, R., Hunjra, I.A., and Chani, I.M., (2019). "The impact of corporate diversification and financial structure on firm performance: evidence from South Asian countries". *Journal of Risk and Financial Management*, Vol.*12 No*.1, pp. 1-17.

Mohammed, A.E., and Van Belle, J., (2019), "Information Searching and Satisficing Process for IT Decision Making Process of SMEs", *African Journal of information systems*, Volume 11, Issue 2, pp. 99-116

Muhammad, N.M.N. and Jantan, M., (2009), "Environmental scanning and investment decision quality", *Management Research News*, Vol. 1, No. 1: E4

Musshoff, O., Hirschauer, N., and Hengel, P. (2011). "Are business management games a suitable tool for analyzing the boundedly rational behavior of economic agents?" *Modern Economy*, Vol.*2* No.4, 468-478.

Nelson, A. C., and Duncan, J. B. (1995), "*Growth management principles and practices,* "Chicago, Ill: Planners Press, American Planning Association.

Nguyen, L.D., Le-Hoai, L., Tran, D.Q., Dang, C.N. and Nguyen, C.V. (2018), "Fuzzy AHP with Applications in Evaluating Construction Project Complexity", Fayek, A.R. (Ed.) *Fuzzy Hybrid Computing in Construction Engineering and Management*, Emerald Publishing Limited, pp. 277-299. https://doi.org/10.1108/978-1-78743-868-220181007.

Nunnally, J. C. (1978). An overview of psychological measurement. In *Clinical diagnosis of mental disorders* (pp. 97-146). Springer, Boston, MA.

Ojok, M. O. (2018). *Investigating the influence of rental prices and location of retail real estate on the increasing vacancy rates in Kampala. A case study of Kisenyi 1 and the Central Business District* (Doctoral dissertation, Makerere University).

Pallant, J. (2005). "SPSS Survival manual: A step by step guide to data analysis using SPSS version 12, the second edition". *Open University Press, UK*

Paul B. Paolo B. Nicola B. and Paola C. (2018) "Behavioral Public Administration ad fontes, A Synthesis of Research on Bounded Rationality, Cognitive Biases, and Nudging in Public Organizations, Public Administration Review", Vol.79, No. 3 pp 304-320, Philip M. Håkan N. Juslin P. (2019) "The decision paradoxes motivating Prospect Theory: The Journal prevalence of the paradoxes increases with numerical ability, Judgement and Decision-Making" Vol. 14, No. 4, July 2019, pp. 513–533

Raghunathan, S. (1999). "Impact of information quality and decision-maker quality on decision quality: a theoretical model and simulation analysis". *Decision support systems*, Vol.*26 No*.4, pp. 275-286.

Reddy, W., Higgins, D. and Wakefield, R. (2014), "An investigation of property-related decision practice of Australian fund managers", *Journal of Property Investment & Finance*, Vol. 32 No. 3, pp. 282-305.

Samina G. Muhammad K. K. Shahid M. Arfan A. (2018), "Factors Effecting Investment Decision Making Behavior: The Mediating Role of Information Searches", *European Online Journal of Natural and Social Sciences* 2018; Vol.7, No 4 pp. 758-767

Saunders, M., Lewis, P., and Thornhill, A. (2009). *Research methods for business students*. Pearson education.

Schulz-Hardt, S., Frey, D., Lüthgens, C., & Moscovici, S. (2000). "Biased information search in group decision making". *Journal of Personality and Social Psychology,* Vol.*78* No.4, pp. 655–669.

Schwartz, B., Ben-Haim, Y., and Dasco, C. (2011), "What makes a good decision? Robust satisficing as a normative standard of rational decision making", *Journal for the Theory of Social Behaviour,* Vol.*41, pp*. 209-227.

Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., Whiet, K. and Lehman, R.D., (2002), "Maximizing Versus Satisficing: Happiness Is a Matter of Choice", *Journal of Personality and Social Psychology* Vol. 83, No. 5, 1178–1197

Scott, S. G., and Bruce, R. A. (1995). "Decision-making style: The development and assessment of a new measure". *Educational and psychological measurement*, Vol. *55* No.5, pp. 818-831.

Shaharudin, J., Tinggi, M., Tak, H.A and Yi, W.C. (2018), "Fundamental Analysis VS Technical analysis: The Comparison of Two Analysis in Malaysia Stock Market", *UNIMAS Review of Accounting and Finance* Vol. 1 No. 1, pp. 12-27

Simon, H.A. (1947), *Administrative behavior* (1st edition), Free Press, New York.

Simon, H.A. (1955), "A behavioral model of rational choice", *The Quarterly Journal of Economics*, Vol. 69, No. 1, pp. 99-118.

Simon, H.A. (1957), *Administrative behavior* (2nd edition), Free Press, New York.

Simon, H.A. (1983), "On the behavioral and rational foundations of economic dynamics", *Journal of Economic Behavior and Organization*, Vol. 5, No. 1, pp. 35-55.

Soukup A., Maitah, M., and Svoboda R., (2015). The Concept of Rationality in Neoclassical and Behavioral Economic Theory Modern Applied Science; Vol. 9, No. 3; pp. 1-9

Starry, P (2013), "Maximizing and Satisficing in Decision-Making Dyads," Wharton Research Scholars.98. http://repository.upenn.edu/wharton_research_scholars/98. Accessed 26/12/2020

Taylor, J. W. (1974). “The role of risk in consumer behavior: A comprehensive and operational theory of risk taking in consumer behavior”. *Journal of marketing*, Vol.*38* No. 2, pp.54-60.

Thornhill, A., Saunders, M., and Lewis, P. (2009). “Research methods for business students”. *Essex: Pearson Education Ltd*.

Tversky A., and Kahneman, D. (2007), “Rational Choice and the Framing of Decisions, the Journal of Business”, Vol. 59, No. 4, Part 2: *The Behavioral Foundations of Economic Theory (2007), pp. S251-S278*.

Yang, C., Tseng, S. and Yang, C. (2011), “The role of information searches in investment choice variation: Digital information, advice seeking and heuristics”, African *Journal of Business Management*, Vol.*5* No.12, pp. 4934-4944.

Verweij, M, Senior, T.J, Domínguez, D.J.F and Turner, R., (2015), “Emotion, rationality, and decision-making: how to link affective and social neuroscience with social theory”, Frontiers in Neuroscience, Vol.9 article 332 pp.1-13.

Von Neumann, J., and Morgenstern, O. (1947), “*Theory of games and economic behavior* (2nd rev. ed.),” Princeton University Press

_Walras, L. (1883), *Théorie mathématique de la richesse sociale*, Duncker & Humblot: Lausanne.

Waweru, N. M., Mwangi, G. G., and Parkinson, J. M. (2014), “Behavioral factors influencing investment decisions in the Kenyan property market”, Afro-*Asian Journal of Finance and Accounting*, Vol. *4 No*. 1, pp. 26-49.

Yaniv, I. (2004). “Receiving other people’s advice: Influence and benefit”. *Organizational behavior and human decision processes*, Vol.*93* No.1, pp.1-13.

Zakay, D., (1984). “The evaluation of managerial decisions' quality by managers”. *Acta Psychological*, Vol.*56* Nos.1-3, pp.49-57.

Zeinab R. (2013), “The study of behavioral financial effect on individual investment”, *European Online Journal of Natural and Social Sciences*, Vol. 2, No. 3, pp. 232-236.

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The Moderating Effect of Board Size on the Relationship between CEO Characteristics and Sustainability Disclosures

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Abstract
Purpose: The paper examined the moderating effect of board size on CEO characteristics (CEO power (shareholdings and tenure), CEO gender and expertise) and sustainability disclosures in Nigeria.
Design/Methodology/Approach: The research design was ex-post facto with data collected from the annual reports of 70 non-financial listed companies in ten industrial sectors of the Nigeria Stock Exchange from 2013 to 2017. The theoretical frameworks were the agency theories, social roles, resource dependence and managerial power theories. The data was analyzed using the multiple regression analysis.
Findings: The findings revealed that CEO gender, shareholdings and tenure had a positive and a significant relationship with sustainability disclosures, CEO expertise had negative and significant relationship with sustainability disclosures. Moreover, the board size had no moderating effect on the relationship between CEO characteristics and sustainability disclosures.
Research limitations: The use of 7 items, disclosure indices to measure sustainability disclosures and delimitation of the study to the non-financial sector.
Practical Implications: There should be policy to appoint more female directors and CEOs as well as highly skilled and experienced independent and non-executive directors to the board. This will help to curtail CEO power and positively impact on the sustainability disclosures.
Originality: The paper examined how the board size moderates the relationship between CEOs' characteristics (gender, expertise, power - shareholdings and tenure) and sustainability disclosures using evidence from an emerging market like Nigeria
Key Words: CEO power, CEO gender, CEO expertise, CEO shareholdings, sustainability disclosures, board size.
Article Classification: Research Paper

1.0. Introduction

There are increased discussions about the issues of sustainability because of the importance for modern corporations. The terms sustainable development goals (SDGs), sustainability reporting (SR), sustainable development (SD) and corporate social reporting (CSR) have become increasingly popular. Also, at various international fora like the 1997 Kyoto Protocol, Global initiatives for gas flaring reduction, Rio and Bali Declarations, Paris Agreement and the recent World Economic Forum all raised alarms and serious concerns on global environmental sustainability, climate change among many other issues. For instance, the pollutions, gas flaring and environmental degradation by oil companies in Niger Delta region of Nigeria have sparked up escalating agitations and protests by a vast group of stakeholders consisting of investors, shareholders, host communities, government, employees and customers (Bassey, Effiok & Eton, 2013; Odia, 2016).These stakeholders have raised concerns on the threats being created by several companies that were initially credited for their inputs to technological and economic growth (Abiola & Ashamu, 2012; Hackston & Milne, 1996), and have upped the need for better sustainable practices and subsequent disclosures. In response some of the oil companies like Shell petroleum have signed memorandum of understanding with the local communities on achieving the sustainable development goals (Allen & Eze, 2019).

Sustainability disclosures can be described as the willingness of a company to show accountability to its stakeholders. It requires that organizations find a way to control the negative impacts of their economic, social and environmental activities (Michael, 2013). Based on the legitimacy theory, sustainability disclosures can be used as a communication tool by the firms to shape the impression stakeholders have of the responsibilities of corporations, legitimate their operations and obtain license to operate, decrease information asymmetries between managers and investors and decrease agency problems and information costs in capital markets, enhance company's reputation, increase stock value and manipulate external opinion about firms (Jensen & Meckling, 1976; Jizi, 2017; Reverte, 2012).

Basically, the board plays major roles in corporate social responsibility (CSR) and sustainability reporting, and the allocation of resources to sustainability issues (Rao & Tilt, 2016). Strand (2013) asserts that a company's strategic decisions and directions are typically made by the board and the top management team. The recent Nigeria Code of Corporate Governance (NCCG, 2018), unlike the previous codes of 2003, 2006 2011 and 2014, mandates the board to pay special attention to sustainability because it can ensure successful long-term business performance and project the company as a responsible citizen. Jamali, Safieddine and Rabbath (2008) argued that corporate governance mechanisms drive managers and executives to set goals and objectives regarding CSR, and the board was key in the decisions regarding CSR disclosures. Gray, Kouhy and Layers (1995) suggested that an efficient board will support CSR reporting by companies whose objective is to legitimize their operations and send signal to all stakeholders and society that their needs are being met.

A key constituent of the board is the chief executive officer (CEO), who is the head of the management team. The board may delegate any of its power to the CEO for the smooth operation of the company; to influence the way and manner firms act in terms of their focus, priorities and decision making. As a critical member of the top management team, the CEO can take decisions that could influence organisational outcomes (Ben et al., 2014). Although, the CEO is primarily to generate economic returns or maximize shareholders' wealth, there is also the argument that the economic return should be pursued in a socially responsible manner (Quigley & Hambrick, 2015). According to the agency theory, CEOs may want to only invest in short-term projects with lower risks and quick returns. They may avoid or reduce investment in long-term sustainability projects because these investments will affect the bottom line in the short-term even though they could generate greater benefits to the firm later (Gracia-Sanchez et al, 2020). Admah, Rashid and Gow (2017) concluded that CEOs have little interest to promote CSR as it is not cost free and may lead to loss of individual wealth. However, García-Sánchez and Martínez-Ferrero (2019) found that CEO ability moderates the relationship between investment in CSR and financial performance.They found that whereas most able CEOs make investments in social and environmental practices that lead to greater financial performance, the less able CEOs can overinvest or underinvest in an opportunistic way for personal benefit at shareholders' expense.

Many recent studies especially from developed countries have showed that CEOs characteristics play key roles in the process of preparing quality financial information which greatly influences corporate transparency. The CEOs also play important roles in explaining the diversity of environmental practices (Delmas & Toffel, 2004; Lewis, Walls & Dowell, 2014; Li, Gong, Zhang, & Koh, 2018). Although prior studies have established that CEOs demographic and personal attributes such as gender, age, educational background, experience, personality, political ideology, religious beliefs, experience, leadership style, power, choices, motives, and values and media exposure affect firm's performance or value, CSR investment, CSR strategies and CSR disclosure policies (Nelson,2005; Lewis et al, 2014; Li et al,2018; Gracia-Sanchez et al, 2020), a gap exists in the Nigeria's context on the relationship between CEO characteristics and sustainability disclosures as most of these studies were carried in developed countries.

Long tenured CEO has been found to result in lower sustainability or CSR disclosures (Rashid, Sham, Bose & Khan, 2020). An effective board in terms of the size and presence of more non-executive directors could enhance the board's capacity to monitor and curtail CEO power, and propel CEOs to invest and report on sustainability matters with more long-term benefits (Williams, Fadil & Armstrong, 2005; Zeng & Tsai, 2019). But there is paucity of empirical studies in existing literature based on Nigeria's evidence. Hence a research gap exists on the moderating influence of board size on CEO characteristics (gender, expertise and CEO power proxy by CEO shareholdings and tenure) to engender more sustainability disclosures by firms listed in the Nigeria Stock Exchange. Therefore, the objective of the paper was to examine the relationship between CEOs characteristics (gender, expertise, power) and sustainability disclosures and show whether this relationship is moderated by board size using a sample of 70 firms list in the Nigeria Stock Exchange from 2013 to 2017 (350 firms' years).

This paper contributes to existing literature on SDG and sustainability disclosures in the following ways. First, by conducting and providing evidence from an emerging market and developing country setting such as Nigeria. Second, by considering CEO characteristics (gender, expertise, and delineating CEO power into tenure and shareholdings) and relating them to sustainability disclosures; moreover, it examined the moderating effect of board size on the relationship between CEO characteristics (gender, expertise, shareholdings and tenure) and sustainability disclosures. The results of the multiple regression analyses indicated that CEO gender, shareholdings and tenure had positive and significant relationship with sustainability disclosures, CEO experience reported negative and insignificant relationship. Moreover, the board size had weak, negative and insignificant moderating influence on the CEO variables with sustainability disclosures. Third, from a theoretical point of view, the study combined different theoretical frameworks: managerial power theory, resources dependence theory and social roles theory, in addition to the agency theory, to explain the influence of CEOs' characteristics (tenure, shareholdings, expertise and gender) on sustainability disclosures.

The rest of the paper is divided into four sections. The immediate section is the literature review, theoretical framework and hypotheses development. The theoretical frameworks of agency theory underling the study is first discussed and followed by the review of relevant literature on CEOs characteristics and sustainability disclosures and the research hypotheses. Section three dwells on the methodology comprising the research design, model specification. Section four is the data analysis and discussion of the results. Section five is the conclusion and recommendations.

2. Literature Review, Theoretical Framework and Hypotheses Development

2.1. Theoretical Framework

The study was anchored on the agency theory because of the conflict of interests and information asymmetries between the principal (shareholders) and the agents (CEOs) (Jensen & Meckling, 1976) in relation to sustainability disclosures. Some studies have also found that CEOs demographic and personal attributes significantly affect CSR investment, strategies and disclosure policies (Nelson,2005; Abatecola & Cristofaro,2019; Lewis et al, 2014; Li et al 2018; Gracia-Sanchez et al, 2020). Also, Lewis et al (2014) found that CEO characteristics of education and tenure affect the firms' likelihood to disclose environmental information. The CEO characteristics determine how external environmental pressures are responded to, interpreted and acted upon (Hoffman, 2001) and whether the disclosure of environmental information is seen as an opportunity or a threat (Sharma et al., 1999). As a critical member of a firm's management team and the board, the CEOs have the power and ability to make decisions which may ultimately influence organizational outcomes including sustainability disclosures.

The study employed social role theory, resource dependence and the managerial power (upper echelon) theories to explain the CEO characteristics. The social role theory posits that are certain character traits, interaction styles, and patterns of reasoning, speaking and communicating that are generally ascribed as feminine attributes (Boulouta, 2013; Eagly, 2009).These traits provide explanations to the emphasis on social and environmental issues which form the bedrock of sustainability disclosures by women directors and CEOs. The resource dependence theory (RDT) establishes the CEO experience in the board. The RDT recognizes the influence of external factors, skills, experiences and critical resources on organizational behavior. Normally, the board enables the firm to depend or gain access to these critical resources (Pfeffer, 1972).

We examined CEO power which was delineated to CEO tenure and shareholdings and explain how it influenced sustainability disclosures based on the upper echelon or managerial power theory. The managerial power theory suggests that the CEO possesses power to influence certain activities of the company like sustainability issues through dominance over the board of directors (Buchholtz et al., 1998; Finkelstein, 1992). The managerial power theory is used to explain the extent to which the CEO can utilise his or her will to influence the activities of the company (Buchholtz, Young, & Powell, 1998; Haynes & Hillman, 2010; Hickson, Hinings, Schneck, & Pennings, 1971). This theory invariably explains power tussle between the board of directors and the CEOs. It purports that the board could be likened to a submissive rubber stamp co-opted by management, which could be easily controlled by a connected CEO (Andriosopoulos, Andriosopoulos, & Hoque,2013).

2.2. CEOs Characteristics and Sustainability Disclosures

CEO Gender: More recently, there are evidences of a movement towards gender equality at top executive positions and corporate boards (International Finance Corporation [IFC], 2019). Adams and Ferreira (2009) found that boards around the world are under immense pressure to appoint female directors and even place them on top as CEO, as a number of proposals for corporate governance reforms have highlighted the need for board diversity in the board room. According to the social role theory, female leadership style and directorship are good drivers of increasing CSR matters and disclosure. According to the agency and stakeholder theories, the female directors are more sensitive, sympathetic, caring, attentive, engaging, democratic, prudent, conservative, responsible, multi-tasking, and sensitive to stakeholders needs than male directors. This implies that women directors are more oriented towards social and environmental matters and CSR disclosures. They are also more likely to influence other directors to become more engaged with social and environmental matters, thus increasing the reporting of CSR information.

Ben-Amar, Chang and Mcllkenny (2017) investigated the effect of female representation on the board on corporate response to stakeholders' demands for increased public reporting about climate change related risks of publicly listed Canadian firms from 2008 to 2014. The study found that the likelihood of voluntary climate change disclosure increases with women percentage on boards. The survey by the International Finance Corporation found that although there are dearth of female CEOs and women on the board in Nigerian listed companies, they tend to bring value beyond financial performance to the board; they are more trustworthy, collaborative and improve board dynamics than men. Other studies have found that board gender diversity or the proportion of female directors in the board had significant impact on philanthropy and CSR disclosures (Odia, 2009) and financial performance in Nigeria (Amake & Odia, 2019). As a result, we anticipate that firms with female CEOs will disclose more on sustainability issues. Thus, we hypothesize as follows:

H₁. There is a positive relationship between Female CEO and sustainability disclosures

CEO Expertise: Based on the resource dependence theory, expertise and knowledge are major sources of an integrator's effectiveness (Lawrence & Lorsch, 1967) which enables to build competence and bring together diverse knowledge domains. The CEO's functional background expertise is likely to determine his/her integrative capabilities and contribute to CSR and sustainability disclosures. García-Sánchez & Martínez-Ferrero (2019) argued that due to CEOs greater knowledge and skills, they will be able to choose better CSR projects that will maximise shareholders' wealth and allocate value resources to society. Prior researches suggest that an executive's background and education can have a significant effect on firm's behaviour, outcomes and corporate disclosure (Finkelstein, Hambrick & Cannella, 2009; Huang, 2013). For instance, Lewis, Walls and Dowell (2014) found that CEOs education and tenure affect firm's likelihood to voluntarily disclose environmental information, focusing on carbon disclosure project. They found that companies governed by newly appointed CEOs and CEOs with MBA degrees have a higher tendency to respond to the carbon disclosure project than those governed by CEOs with law degrees. Moreover, Gracia-Sanchez et al (2020) found that greater CEO ability increases both the socially responsible performance and the relevance with direct and indirect effect on CSR disclosures. Li, Lin and Zhan (2019) found that financial expertise, educational level, and tenure of CEOs were positively correlated with corporate environmental information by companies listed in the stock exchange of Thailand. Accordingly;

H₂. There is a positive relationship between CEO expertise and sustainability disclosures

CEO Power: CEO power refers to the potential for the CEO to leverage ownership or position to pursue her or his own goal. The proxies or indices for CEO power include tenure, board duality, status such as founder, insider or concentration of job titles (Hubbard, Christensen & Graffin, 2017; Huang, 2013). For CEOs, power comes with the job (Daily & Johnson, 1997) and the capacity to implement decisions based on their individual preferences (Haynes & Hillman, 2010). Finkelstein (1992) identified top management team power to include: structural power, ownership power, expert power and prestige power. There is evidence that powerful CEO tend to select fewer independent members on the board (Shivdasani & Yermack, 1999). Managers continue to dominate the board by selecting board members that are allegedly loyal to their style of governance, they grant packages and benefits and develop social relationships with them (Fracassi & Tate, 2012), leading to enfeebled monitoring. Power is a tool that can be used to influence others to do (or believe) something that they otherwise would not (Walls & Berrone, 2017). Powerful CEOs can affect the extent to which the organizations effect strategic change (Haynes et al, 2010), corporate performance (Adams, Almeida & Ferreira, 2005) invest and report on sustainability matters. They also use their advantage of having insider's knowledge of the company's activities to dominate the board who will always rely on them for basic information they need to carry out their duties. With this enormous capacity to exhibit both power and influence, the CEO can maximise personal gains and self-interest even when it contradicts or opposes the views of shareholders and the overall sustainability of the firm. In relation to CSR disclosures, Rashid, Sham, Bose and Khan (2020) have found that "CEO power is negatively associated with the level of CSR disclosure, and that the negative effects of CEO power on the level of CSR disclosure are attenuated by stakeholder influence" based on 986 Bangladeshi firm-year observations. This study concentrates on CEO shareholdings and tenure as sources of power.

The proponents of increased shareholdings for CEO argue that this is necessary in order to align top management incentives with that of shareholders. Shareholder CEOs have been purported to have enormous decision-making power and exert great influence over the entire organization. Proponents of the agency theory contend that a conflict of interest is bound to arise between the principals and agents (Jensen & Meckling, 1976) as the agents (managers) might attempt to pursue their interests at the expense of the principal. Armstrong, Jagolinzer and Larcker (2010) have argued that through the equity holdings by the CEOs may alleviate certain agency problems between executives and shareholders, concerns have arisen amongst researchers, regulators and the business press that high-powered equity incentives might also motivate executives to focus on boosting the reported earnings as against other social and environmental responsibilities.

The relationship between managerial ownership and corporate disclosures has been found to be positive (Chau & Gray, 2002; Jain & Habis, 2009) and also negative

(Eng & Mak,2003; Ullah et al, 2019). Odia (2013) examined the determinants and consequences of corporate social and environmental disclosures quantity and quality by companies listed in the Nigeria Stock Exchange after country signed into the United Nations Global Compact and global reporting initiative (GRI) in 2006. The governance variables examined included CSR committee, directors' ownership, substantial shareholdings, shareholders power among others. The study found CSR committee was more significantly associated with quantity than quality of CSED, directors' shareholdings and the shareholders' power have positive and not significantly associated with the quantity and quality CSED while substantial shareholdings was negatively associated. The study concluded that the increase in directors' shares ownership could help to reduce the agency conflicts between management and shareholders by aligning directors' interest with stakeholders through the disclosure of more corporate social and environmental disclosures. Hence, we anticipate that CEOs with share ownership will be more disposed to sustainability disclosures or activities (Kim & Kim, 2020). Therefore, our hypothesis is stated:

H_{3a} There is a positive relationship between CEO shareholding and sustainability disclosures

Stewardship theorists have argued that long tenured CEO may have greater commitment and firm-specific expertise, leading to enhanced performance with respect to their duties (Cook & Buress, 2013). In addition, long-tenured CEOs who have dedicated their careers to shaping the firm and its strategy may identify their personal success and satisfaction with the success of the firm. Donaldson and Davis (1991) suggest long tenure promotes a merging of individual ego and the corporation, thus melding individual self-esteem with corporate prestige. Huang (2013) carried out a study on the impact of CEO characteristics on corporate sustainable development. The study focused on a large sample of 661 firm-year observation. The results indicated that CEO tenure affects CSR performance. Similarly, Hubbard et al. (2017) provided evidence that CEO power proxy by CEO tenure could influence the boardroom decisions. With regard to CSR disclosures, McCarthy, Oliver and Song (2017) also found a positive relationship between CSR and the CEO tenure in Australia. Lewis et al (2014) also found that CEO characteristics such as education and tenure influenced firms' likelihood to voluntarily disclose environmental information. Nevertheless, Mohd-Saleh et al. (2012) and Ahmad et al (2017) found that long tenured CEOs have negative impact on CSR disclosures. Therefore, given the mixed results as well as the length of CEOs in Nigeria, it is hypothesized as follows:

H_{3b} There is a positive relation between CEO tenure and sustainability disclosures

2.3. Moderating effect of Board Size on CEO characteristics

According to agency theory, CEOs are self-interested, risk averse, and possess goals that diverge from those of shareholders. Thus, CEOs will engage in self-serving actions at shareholders' expense when given an opportunity (Jensen & Meckling, 1976). Thus, CEOs may not want to invest or disclose on sustainability matter except it will positively affect their performance evaluation or their compensation is linked to CSR practices. Boards dominated by outside or independent directors (i.e. directors that are affiliated with the firm only through their board membership) are thought to help protect shareholders from CEOs' self-serving behaviour by monitoring CEOs and offering them incentives to act in shareholders' interests (Fama & Jensen, 1983). Such boards are more concerned with the firm's CSR and less oriented towards economic performance. Post *et al.* (2011) found that firms with higher proportion of outside or non-executive directors and with three or more female directors tend to have higher Kinder Lydenberg.

Basically, firms with powerful CEO's power (in terms of long tenured or shareholdings) have negative (lower) CSR disclosures (Mohd–Saleh et al, 2012; Rashid et al, 2020) because there is a decrease in level of commitment to CSR activities as CEO power increased (Li, Li & Minor,2016). The presence of board with strong leadership structure and more independent directors has the tendency to make firms engage in CSRD practices; a submissive board would lead to diminished transparency and disclosure, resulting in fewer CSR efforts. Larger boards can reduce managerial domination and are effective in mitigating potential conflicts of interest. From the agency theory perspective, where the interests of shareholders and managers are different, agency problem may be more pronounced in a large board. Wang et al. (2018) suggested that the agency problem is correlated to the board's size. However, companies can reduce information asymmetry through voluntary disclosures, thereby protecting stakeholders' interests with lower agency costs incurred (Cormier, Magnan &Van Velthoven, 2005). An increase in the share ownership by board members, directors and CEOs can also lead to increased sustainability disclosures (Kim & Kim, 2020). Therefore, the study proposes the following hypotheses:

***H_{4a}*.**There is a positive moderating effect of board size on the relationship between CEO's shareholdings and sustainability disclosures

***H_{4b}*.**The moderating effect of board size on the relationship between CEO's tenure and sustainability disclosures is positive

When viewed from the resource dependence theory, a large board may be advantageous as it increases the firm' ability to link with other firms and tap resources, skills, experiences that could boost their productivity and development (Wang et al, 2018). Larger boards possess more interlocking directorships with other firms and boards which can assist their external connectivity to obtain critical resources from the external environment that can be used to check the CEO. Large boards instead of smaller boards are more likely to bring in experience and knowledge, not only to monitor but also to advice the CEO on sustainability issues and facilitates inter-organizational imitation of strategies and practices. Large boards are likely to have more members with knowledge, experience and motivations for sustainability issues and reporting. Such boards are likely to support the CEO towards greater sustainability disclosures because they are abreast with the latest sustainability reporting through director network. Thus, it can be stated that:

H_5. Board size positively moderates the relationship between CEO's expertise and sustainability disclosures

From the social role theory, women are likely to encourage greater sustainability. More women on the board will likely have greater influence on board decisions relating to CSR activities and reporting, charity initiatives and higher environmental CSR. While smaller boards are unlikely to have a larger number of female directors, a large board with more female directors will tend to engage in more CSR disclosures and more commitment towards social and environmental disclosures. Post et al (2011) found the boards with three or more female directors tend to have higher Kinder Lydenberg. Thus, we anticipate that a board with more female directors and female CEO will positively affect sustainability disclosure. Hence the hypothesis is stated as follows:

H_6. There is a positive moderating effect of board size on the relationship between CEO's gender and sustainability disclosures

3.0. METHODOLOGY

3.1. Research Design and Data Collection

The population comprised all companies quoted on t the Nigeria Stock Exchange (NSE) for the periods 2013 to 2017. The period is selected following the increased call for sustainability by various stakeholders in recent times. The Nigeria Stock Exchange was chosen considering the size of companies that are found there, and such large firms are often expected by stakeholders to perform well thus facing greater stakeholder pressure (Barbu et al., 2014). They are therefore expected to be have a stronger need for sustainability disclosure than smaller unquoted companies and companies in the alternative securities market, that fail to meet the listing requirements of the main stream exchange. The sample size was determined after excluding financial firms due to the extra regulations governing them (Haniffa & Cooke, 2005), and companies with unavailable annual reports for the period under study. The study arrived at a sample of seventy (70) firms for the five (5) year period resulting in three hundred and fifty (350) firm-year observations. The five-year period (2013-2017) was selected in order to provide for the use of panel data regression (Clarkson, Fang, Li & Richardson, 2013).

The study utilised the company's annual report as its instrument of data collection due to the degree of reliability and the credibility it exhibits. The annual reports are widely accepted by a variety of users (Abdul Rahman, 2001; Deegan & Rankin, 1997). Besides, the annual reports are statutory reports. They can be accessed more easily than other sources of company information (Suttipun & Stanton, 2012), are more frequently produced (Wilmshurst & Frost, 2000) and are the most reliable place stakeholders often extract information (Choi et al., 2013). Data was obtained from the statement issued by the chairman, the profile of the serving directors, the report of the directors, the CEO, the report of director's shareholdings, statistics of shareholders, financial statements and notes to the account. Specifically, data on the chief executive officer's characteristics was collected from the report of directors, CEO statement and corporate governance report. Data on board size was obtained from the board profile and corporate governance report while data on sustainability reporting was extracted from the corporate social responsibility report, environmental reports, chairman's statement, and corporate governance report. Finally, data for the control variables were collected from the final accounts and Nigeria Stock Exchange fact book. The unit of analysis was the firm.

3.2. Measurement of Variables

Sustainability Disclosures: Sustainability disclosure in this study was operationalized using the social, environmental and governance dimensions of sustainability report**.** Content analysis was adopted in assessing the social and environmental items in the annual reports to arrive at a disclosure index. This approach is selected because it is a valuable research technique for gathering and analysing social and environmental data. It measures the quality of disclosure from the volume of disclosure reported on specific topics or categories (Beattie, Mcinnes & Fearney, 2004). Content analysis allows corporate social and environmental information to be determined systematically, classified and compared. It also allows for the measuring of reported items in terms of themes and evidence (Beattie et al., 2004). The study utilized unweighted disclosure index which incorporates a nominal coding scheme in measuring the disclosure of social and environmental information in the annual reports (Haniffa & Cooke, 2002, 2005). This approach has been adopted because it allows narrative text of the annual report to be scrutinized for the presence of social and environmental items and ignore the non-social and environmental items according to specified areas. To enable the replication of content analysis, a checklist was used and applied. The sustainability disclosure index contained 7 items which are believed to adequately capture the major aspects of sustainability disclosures (See Table 1). Where a firm report on a particular item, a score (1) is given. A maximum score of 7 is given to a company that reports on all 7 sustainability items and a minimum score of 0 to a company that did not report on any item.

Table 1: Sustainability Disclosures Checklist

Social Dimension
CSR disclosure policy
Gifts and donations
Employee disclosures
Complaints disclosure
Environmental Dimension
Environmental disclosure policy
Sustainability disclosure policy
Health and safety

Source: Adapted from Haniffa and Cooke (2005)

CEO Gender: CEO gender is operationally defined as the presence of female directors on the board. In the course of this study, CEO gender is measured using a dummy variable of “0” and “1”, with 1 indicating the presence of a female as CEO and 0 indicating otherwise (Ben-Amar, Chang & Mcllkenny, 2017; Gracia-Sanchez et al, 2020).

CEO Expertise: Based on prior studies like Li, Lin and Zhang (2019), CEO expertise is defined as the proportion or percentage of CEOs having specific knowledge of environment or having a strong background in accounting and finance. CEO Expertise was measured using a dummy variable of “0” and “1” with 1 being having having a strong background in accounting and finance or 0 otherwise

CEO Shareholdings: CEO shareholdings is defined as the number of shares owned by the CEO. The study adopted this measure of CEO shareholdings following prior studies (Westphal, 1999). CEO shareholdings was measured as the number of ordinary shares owned by the CEO divided by the total ordinary stock outstanding.

CEO Tenure: CEO power is operationalized using the tenure of the CEO. The study measures CEO tenure as the number of years the CEO has served in the company (Hubbard et al. 2017; Huang, 2013)

Board Size: Board size as a mediating variable was measured as the total number of directors in the board (Zeng Tsai, 2019).

Based on previous studies on CEO characteristics and sustainability disclosures, we include a number of variables such as firm size, profitability, leverage, board size, board independence, institutional shareholdings, sustainability/ CSR committee and industry type to avoid bias.

Firm size: According to the agency theory, the firm size is found to be positively related to disclosure because large firms faces greater public scrutiny as well as stakeholders' responsibility pressures and higher litigation risks. They often require external capital which has a ripple effect on the potential agency cost that results from the conflict of interests existing between management, providers of debt capital and shareholders (Setyorini & Ishak, 2012).The firm's size is proxied by turnover, company's average market value, total assets and number of employees (Kansal et al., 2014; Setyorini & Ishak, 2012). Barbu et al. (2014) provided evidence showing that large firms are likely to comply more with environmental IAS/IFRS than smaller firms in order to reduce societal and political pressure related with environmental issues. In a similar vein, Buniamin (2010) argued that companies that are always in the public view when you consider their size have a higher tendency to provide more disclosures in order to boost their image. Following its extensive use in the prior literature, the logarithm of total assets was used to capture the size of the firm (Ashton et al. 1989).

Profitability: Profitability has been found to have significant effect on voluntary disclosure (see Ahmad et al., 2003; Alarussi, Hanefah, et al., 2009; Haji, 2013; Haniffa & Cooke, 2005; Uwuigbe & Egbide, 2012). It has been captured using a number of measures like return on assets (Setyorini & Ishak, 2012; Uwuigbe & Egbide, 2012), earnings per share (Alarussi, Hanefah, et al., 2009) profit after tax and return on capital employed (Kansal et al.,2014). A good number of the studies found profitability was positively related to disclosure. For instance, Haniffa and Cooke (2005) argued in line with legitimacy theory that there is a tendency for companies with high profit to engage in more disclosures to please their shareholders. Profitability is operationally defined as the return on assets (ROA). The ROA was measured as net profit after tax divided by total assets.

Board independence: From the perspective of agency theory, and in order to reduce opportunism and agency costs of CEOs, the boards should comprise a greater proportion of outside directors. Again, from a resource dependence theory, the outside and independent directors respond more to/promote social and environmental issues due to their long-term benefits. Basically, because of the significant influence of CEOs, a CEO whose power remains unchecked by outside directors is more likely to take self-serving actions that decrease shareholder wealth (Dunn, 2004; Frankforter et al., 2000, Combs et al 2007). The board independence was measured as the proportion of non-executive directors on the board.

Leverage: There are mixed results for leverage with regard to CSR disclosure. It is measured as the ratio of total liabilities to the total assets (Barnea & Rubin, 2010)

Sustainability Committee: The sustainability/CSR committee positively influences the disclosure of CSR/sustainability information. It was measure using a dummy of 1 and 0 with 1 being presence of sustainability or CSR committee or 0 otherwise

Institutional Shareholdings. The presence of institutional investors can enhance and drive CSR disclosure. They have more incentives to demand and monitor information on sustainability issues, and also manage CSR activities than individual investors. Institutional shareholdings were measured as total percentage of shareholdings of 5% and more of the issued share capital.

Industry type: Industries like basic materials, industrial, utilities or nor-cyclic consumer goods and services, and environmental sensitive are considered as high impact to stakeholders and more likely report on CSR to stakeholders (Young & Marais,2012).The ten industry sectors were: agriculture, conglomerates, consumer goods, construction/real estate, industrial goods, ICT, health care, oil and gas, natural resources and services

*3. **Model Specifications***

The model of the effect of CEO characteristics on sustainability reporting is anchored on the managerial power theory which purports that the characteristics of the CEO will have an influence on the decision of the firm to engage in sustainability reporting. The study adapted the model of Herda et al (2013) that focused mainly on board characteristics. The adapted models are presented in the equation below:

$$SD_{it} = \beta_0 + \beta_1 FSIZE + \beta_2 PROF_{it} + \beta_3 LEV + \beta_4 BIND + \beta_5 INSHD + \beta_6 INDTYP + \beta_7 SUBCOM + \varepsilon_{it} \quad \ldots\ldots 1$$

$$SD_{it} = \beta_0 + \beta_1 FSIZE + \beta_2 PROF_{it} + \beta_3 LEV + \beta_4 BIND + \beta_5 INSHD + \beta_6 INDTYP + \beta_7 SUBCOM + \beta_8 CEOGEN_{it} + \beta_9 CEOEXP_{it} + \beta_{10} CEOSHARE_{it} + \beta_{11} CEOTENURE_{it} + \varepsilon_{it} \quad \ldots\ldots 2$$

$$SD_{it} = \beta_0 + \beta_1 FSIZE + \beta_2 PROF_{it} + \beta_3 LEV + \beta_4 BIND + \beta_5 INSHD + \beta_6 INDTYP + \beta_7 SUBCOM + \beta_8 CEOGEN_{it} + \beta_9 CEOEXP_{it} + \beta_{10} CEOSHARE_{it} + \beta_{11} CEOTENURE_{it} + \beta_{12} BSIZE + 5\beta_{13} CEOEXP_{it}{*}BSIZE_{it} + \beta_{14} CEOEXP_{it}{*}BSIZE_{it} + \beta_{14} CEOSHARE{*}BSIZE_{it} + \beta_{16} CEOTENURE{*}BSIZE_{it} + \varepsilon_{it} \quad \ldots\ldots 3$$

Where:

SD=Sustainability disclosures; CEOGEN=CEO gender; CEOEXP= CEO expertise; CEOSHARE=CEO shareholdings; CEOTEN=CEO tenure; BSIZE=Board size; BIND=Board independence; FSIZE = Firm size; PROF=Profitability; LEV=Leverage; INSTSHARE= Institutional shareholdings; SUSTCOM= Sustainability committee; INDTYPE= Industry type, $CEOEXP_{it}$*BSIZE = Interaction of CEOEXP with board size

B0= Constant term, β1 – β15 = Coefficients; Ɛ = Error term

Our *a priori* expectations are as follows: β1>0, β2>0, β3>0, β4< 0, β5>0, β6>0, β7>0, β8>0, which means we expect a positive relationship between all our variables and sustainability disclosures. The pooled regression model assumes that there is homogeneity between the intercepts (Hendersen & Kaplan, 2000). The multiple regression analysis was used to perform the analyses of the moderating effect of board size on the relationship between CEO characteristics and sustainability disclosures.

4.0. Results

4.1. Descriptive Statistics

The descriptive statistics for sustainability disclosures index, CEO characteristics which comprises four variables (CEO gender, CEO expertise, CEO shareholdings and CEO power) as well as the moderating variable board size and control variables profitability and firm size are reported below in Table 2.

Table 2 Descriptive Statistics of Variables

VARIABLE	OBS	MIN	MAX	MEAN	STD. DEV
SD	350	0	9.000	5.173	1.575
CEOGEN	350	0	1	0.04	0.196
CEOEXP	350	0	1	0.56	0.497
CEOSHARE	350	0	0.240	0.006	0.029
CEOTEN	350	1	33	6.146	5.644
BSIZE	350	4	17	8.98	2.47
BIND	330	2	12	5.64	1.907
PROF	350	-0.526	0.540	0.030	0.108
FSIZE	350	5.400	9.220	7.153	0.797
LEV	350	0.000	1.085	0.907	0.227
INSTSHD	330	0.000	98.25	57.563	27.28
SUSCOM	346	0	1	0.07	0.259
INDTYP	340	0	1	4.15	2.600

SD=Sustainability disclosures; CEOGEN =CEO gender; CEOEXP= CEO expertise; CEOSHARE= CEO shareholdings; CEOTEN= CEO tenure; BSIZE= Board size; BIND= Board independence; FSIZE=firm size; PROF= Profitability; LEV=Leverage; INSTSHD= Institutional shareholdings; SUSCOM= Sustainability committee; INDTYP= Industry type.

Source: Researchers' compilation (2020).

Table 2 shows the description statistics. The average sustainability disclosure index for Nigerian quoted companies of 5.173 during the sample period showed that on the average, more Nigerian companies are reporting sustainability issues in the course of their operations. The mean for CEO gender that only about 4% of the sampled companies had female CEOs. The mean of 0.56 for CEO expertise indicates that at least 56% of the CEOs of the sampled companies had a background in accounting and finance, and advanced degree. The CEO shareholdings revealed a minimum value of 0 and a maximum value of 0.240. On the average, the CEOs own about 6% of the shareholdings, indicating that most of the CEOs had stakes in their companies' shareholdings. The CEO power was measured based on tenure and shareholdings of CEO. The CEO tenure showed period ranging from one (1) year to a maximum of thirty-three (33) years. On the average the CEOs tenure of the sampled firms was about 6.146 years. The average CEOS's shareholdings was about 0.06 %. The board size had between 4 and 17 board members. The mean of 8.91 for board size indicated an average of 9 directors on the companies' board. For the control variables, the firm size measured using the natural logarithm of total assets shows a minimum value of 5.4 and a maximum of 9.22 and the mean value was 7.15. Profitability measured using the return on asset had a minimum value of -0.526 and a maximum value of 0.540. The mean value for profitability was 0. 030. The result shows that while some companies made losses, on the average the companies were profitable. The result for leverage showed the companies are highly geared. The average institutional shareholdings were 57.6% and about 7% of the listed companies in the non-financial had sustainability committee.

4.2. Correlation analysis results

Table 3 shows the correlation analysis for all the variables. The results show there was a negative and significant correlation between CEO gender and CEO expertise with sustainability disclosure r= --0.122 and r= -0.124 respectively. There were positive and insignificant correlation for CEO shareholdings (r= 0.041) and CEO tenure (r=-0.0147) with sustainability disclosures. Board size (r=0.355), board independence (r=0.285) and profitability (r=0.i62) had positive and significant correlation with sustainability disclosures (r=-0.1589). Firm size, leverage, institutional shareholdings and sustainability committee were positive and insignificantly correlated with sustainability disclosures. However, the result shows a weak negative relationship for industry types and sustainability disclosure (r=-0.-0.122). The results generally suggest that there is absence of multicollinearity and that the variables are not measuring the same thing. This is also confirmed with the variance inflation factor (VIF) which is below the threshold value of 10

Table 3. Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
SD (1)	1.00												
CEOGEN (2)	$-.122^{b}$	1.00											
CEOEXP (3)	$-.124^{b}$	.034	1.00										
CEOSHARE (4)	.041	-.030	$.122^{b}$	1.00									
CEOTEN (5)	.011	$.109^{b}$	$.146^{c}$	-.036	1.00								
BSIZE (6)	$.355^{c}$	-.047	-.107	$-.127^{b}$	-.045	1.00							
BIND (7)	$.285^{c}$	-.886	$-.094^{a}$	-.072	$-.151^{c}$	$.837^{c}$	1.00						
FSIZE (8)	.302	.168	.054	-.109	-.126	.426	.324	1.00					
PROF (9)	$.162^{c}$	$-.135^{b}$	.034	.018	$-.211^{c}$	.065	$.103^{a}$	$.193^{c}$	1.00				
LEV (10)	.109	.060	.136	.008	-.041	.090	.090	.119	.043	1.00			
INSTSHARE (11)	.060	-.102	.028	.062	-.145	.146	.207	.326	-.051	.279	1.00		
SUSTCOM (12)	.311	.169	.090	-.048	-.057	.132	.139	.092	.158	.078	-.092	1.00	
INDTYPE (13)	-.122	.113	.000	-.052	.250	-.197	-.153	-.103	.055	.043	-.279	.102	1.00

Note: * ** *** (a ,b ,c,) significant at 10%, 5% and 1 % respectively

4.3. Multivariate Regression Results

In Table 4, we present the results of the multiple regression analyses used to test the proposed relationships. The coefficient, t-values and the probability values. Model (1) shows for the control variables, FSIZE (β=0.545, p< 0.001), LEV (β=3.621, P<0.05), BIND (β=0.120, P<0.001) and SUSCOM (β=1.514, P<0.001) had significant positive effect on sustainability disclosures, INDTYP (β= -0.083, p<0.001) and INSTSHD (β= -0.005, P<0.1) had significant negative effect on sustainability disclosures. Model (2) shows that CEOGEN (β = 1.116, p< 0.001), CEOSHARE (β = 7.205, p<0.05) and CEOTEN (β = 0.035, p <0.05) had positive and significant relationship with sustainability disclosure whereas CEOEXP (β = -0.653, p<0.001) was negative and significantly related with sustainability disclosures. Therefore, H_1, H_{3a} and H_{3b} were supported Model (3) presents results for the relationship between control variables and sustainability disclosures and the moderating variable (BSIZE).It showed when BSIZE entered the regression equation, the influences of CEOGEN (β= -0.304, p>0.10), CEOEXP (β= -0.099,p>0.10) and CEOSHARE (β = -0.789,p >0.10) were now negative and insignificant. CEOTEN (β = 0.002, p>0.01) was positive but insignificantly relate to stainability disclosures.

Table 4: CEO Characteristics, Board Size and Sustainability Disclosures

Variables	*Model 1*	*Model 2*	*Model 3*
Constant	-2.348	-1.792	-2.271
	(-1.117)	(-0.865)	(-1.074)
FSIZE	0.545**	0.605***	0.554***
	(5.013)	(6.608)	(4.704)
PROF	1.143	1.039	1.231*
	(1.549)	(1.416)	(1.653)
LEV	3.621*	2.323	2.755
	(1.747)	(0.140)	(1.344)
BIND	0.120***	0.117***	0.038
	(2.752)	(2.799)	(0.513)
INSTSHD	-0.005*	-0.005	-0.004
	(-1.702)	(-1.594)	(-1.127)
INDTYP	-0.083***	-1.108***	-0.111***
	(-2.688)	(-3.546)	(-3.428)
SUSCOM	1.514***	1.576***	1.648***
	(5.024)	(5.363)	(5.518)
CEOGEN		1.116***	3.609**
		(2.897)	(1.726)
CEOEXP		-0.653***	0.246
		(-0.423)	(0.311)
CEOSHD		7.205**	26.465
		(2.802)	(1.044)
CEOTEN		0.035**	0.018
		(2.461)	(0.304)
BSIZE			0.132*
			(1.694)
*CEOGEN*BSIZE*			0.304
			(-1.235)
CEOEXP BSIZE*			-0.099
			(-0.417)
*CEOSHD*BSIZE*			-0.789
			(-0.777)
*CEOTEN*BSIZE*			0.002
			(0.291)
R	0.501	0.572	0.594
R^2	0.252	0.327	0.341
Adj R^2	0.235	0.304	0.318
F-Statistics	15.408***	14.032***	10.111***

Note: * p < 0.10, ** p < 0.05; *** p < 0.001 N= 350

Sensitivity Analysis

The presence of more non-executive directors could enhance the board's capacity to monitor and curtail CEO power, and direct CEOs to invest and report on sustainability matters with more long-term benefits (Zeng & Tsai, 2019). Nevertheless, other studies have also found that board independence has negative relationship with sustainability disclosures. To provide more validity to the results obtained in the previous analysis, we proceeded to examine how the board independence moderates the relationship the CEO characteristics and sustainability disclosures. The results presented in Table 5 showed that board independence had weak and not significant influence on CEO characteristics.

Table 5: Robustness Test on CEO characteristics, Board independence and sustainability disclosures

Variable	Statistic
Constant	-1.231
	(-0.575)
Control Variables	
FSIZE	0.576***
	(4.826)
PROF	0.997
	(1.247)
LEV	1.951
	(0.931)
BSIZE	0.099*
	(1.638)
INSTSHD	-0.004
	(-1.205)
INDTYP	-0.110***
	(-3.420)
SUSCOM	1.648***
	(5.225)
Independent variables	
CEOGEN	0.391
	(0.391)
CEOEXP	0.006
	(0.013)
CEOSHD	-10.63
	(-0.385)
CEOTEN	-0.013
	(-0.294)
Moderator Variable	
BIND	0.023
	(0.230)
Interaction variables	
*CEOGEN*BSIZE*	0.152
	(0.063)
CEOEXP BSIZE*	-0.112
	(-1.324)
*CEOSHD*BSIZE*	3.676
	(0.643)
*CEOTEN*BSIZE*	0.009
	(1.036)
R	0.583
R^2	0.340
Adj R^2	0.318
F-Statistic	10.062***

Note: * $p < 0.10$, ** $p < 0.05$; *** $p < 0.001$ N= 350

4.4. Discussion

The results of the regression results showed that CEO gender had a t-value of 1.116 with a probability value of 0.00. This result showed there is a significant positive effect of CEO gender on sustainability disclosures. Therefore, hypothesis one (H_1) is supported. The results of the multiple regression estimations, the effect of CEO gender on sustainability disclosure is positive and statistically significant which implies that the presence of a female CEO leads to more sustainability disclosures by the firms support the social role theory which argues that there are certain character traits, interaction styles and patterns of reasoning that are generally ascribed as female attributes which provide explanations to the emphasis on social and environmental issues which form the bedrock of sustainability disclosure by women (Boulouta, 2013; Eagly,2009). The result is also in tandem with prior empirical studies such Odia (2009), Lewis et al (2014) who found female CEO positively relate to sustainability disclosures; and Ben-Amar et al. (2017) that found the likelihood of voluntary climate change disclosure to increase with percentage of women on the boards.

Results show that CEO expertise has a significant negative relation with sustainability disclosure. The finding does not support the resources dependence theory which suggest the extent to which the CEO can utilize his or her will, skills to influence the activities of the company (Buchholtz, Young & Powell, 1998; Finkelstein, 1992; Haynes & Hillman, 2010; Hickson, Hinings, Schneck & Pennings, 1971). The negative and significant effect on sustainability disclosure implies CEOs expertise and knowledge on financial matters did not lead to improved sustainability disclosures. The result is also not in tandem with prior studies like Finkelstein et al (2009), Huang (2013), Lewis et al (2014), Li, Lin and Zhan (2019), García-Sánchez & Martínez-Ferrero (2019), Gracia-Sanchez et al (2020) which found that CEOs education background and financial experience have a significant effect on firm's behavior and outcomes. Therefore, our hypothesis two (H_2) of positive relationship between CEO expertise and sustainability disclosures is not supported.

CEO shareholdings was positive and statistically significant at the 5% level. The result agrees with prior studies such as Chau and Gray (2002); Jain and Habis (2009), Kim and Kim (2020) and Odia (2013) of a positive relation between directors/ managerial ownership and CSR disclosures. As distinct from managerial power theory, the result supports the agency theory that CEOs' shareholdings will help to reduce the information asymmetries between the shareholders and managers as a result of increased sustainability disclosures which can help to protect stakeholders' interest. Thus, hypothesis H_{3a} is supported.

The CEO tenure had a positive and significant effect on sustainability disclosures. This indicates that that the longer tenured CEO leads to increase in sustainability disclosures. The result is at variance with the position of the stewardship theorists and managerial power theory that long-tenured CEOs will lead to lower sustainability disclosures. The results agree with McCarthy, Oliver and Song (2017) and Lewis et al (2014) who found a positive relationship between CEO tenure and CSR disclosure but contradict the findings of Mohd-Saleh et al. (2012) and Ahmad et al (2017) that long tenured CEOs have negative impact on CSR disclosures. Thus hypothesis (H_{3b}) is supported.

The negative and insignificant results showed that board size failed to moderate the relationship between CEO characteristics of gender, expertise shareholdings on sustainability disclosures. Therefore, hypotheses *H_{4a}, H_5* and *H_6* are not supported. The negative results may be due to the presence of powerful CEO with a submissive and weak board thereby leading to diminished transparency and sustainability disclosure. However, board size has a positive but not a significantly moderated relationship of CEO tenure on sustainability disclosures. This indicates that as the tenure increases, and CEO become more powerful, the presence of a large board is still vocal enough to curtail decisions and policies that are not geared towards improving sustainability disclosures. Thus, hypothesis *H_{4b}* is not supported. The results do not agree with previous studies that have found board size to positively influence sustainability disclosures (Zeng & Tsai, 2019; Wang et al. 2018; Haji, 2013; Ajibolade & Uwuigbe, 2013).

5.0. Conclusion and recommendations

5.1. Conclusion

The study examined the moderating role of board size on the relationship between CEO characteristics and sustainability disclosures in Nigeria. The overall results from the multiple regression analyses revealed that CEO gender, shareholding and tenure were positive and significantly related with sustainability disclosure supporting the social role theory and prior studies; CEO expertise had negative and significant relationship with sustainability disclosures. The results also revealed board size failed to moderate the relationship between CEO and characteristics of gender, experience, shareholdings and sustainability disclosure unlike the relationship between CEO shareholdings and sustainability disclosure.

5.2. Implications

The results of the study add to the growing body of corporate governance, CEO characteristics and sustainability literature within an emerging economy. The study offers some practical suggestions to various stakeholders, in particular to the firms, shareholders and policy makers in ensuring that their investments are managed by the CEOs as powerful figures in the board in a manner that will ensure a sustainable future. First, the results confirm that CEO gender or the presence of a female CEO can increase sustainability disclosures. Therefore, there is need for policy makers to facilitate the appointment of more female CEOs and directors to drive the board and firm towards a sustainable future. Second, since CEOs' shareholdings showed positive and statistically significant effect on sustainability disclosures, it is recommended that the CEOs should be compensated with more than share ownership as this can help to align their interests with other stakeholders by reducing the information asymmetry between them and the shareholders and by positively influencing sustainability disclosures. Third, the negative effect of CEO expertise on sustainability disclosures bring to the fore the need to re-oriented CEOs and board members with the requisite skill and experiences on corporate sustainability in order to engender improved sustainability disclosures. Lastly, board size was found to have no effect on the relationship between CEO characteristics and sustainability disclosure. The study recommends that companies should be increase the number of female directors in their board, with the necessary experience, skills and education considering such vast boards can re-direct and control even a long serving CEO.

5.3. Limitations and directions for future studies

This study's results should be interpreted carefully because this research is subject to certain limitations. First, we measure sustainability disclosures using only seven indices which may not capture the whole area of sustainability reporting. Future studies should use a more detailed measure to test the robustness of our findings. Second the measure of CEO experience using the possession of accounting or finance knowledge. This may have affected the results. Future studies could consider using other measures like formal and profession education. Third, this study recommends the investigation of SMES and companies in the financial sector of the Nigeria Stock Exchange. Future studies might consider examining these sectors to bridge the gap in knowledge. Lastly, the current study examined four CEO characteristics; CEO gender, CEO expertise, CEO shareholdings and CEO power. Future studies may consider other CEO characteristics such as the CEO age, insider CEO etc and also examine the moderating effect of other corporate governance mechanisms on sustainability disclosures.

References

Abatecola, G and Cristofaro,M. (2019), "Ingredients of sustainable CEO behaviour: Theory and practice", *Sustainability*, Vol.11, pp 1-15

Abdul Rahman, A. (2001), "The use and perceived importance of annual reports by accountants in the service industry in Malaysia". *Asian Review of Accounting*, Vol.*9*,No. 2, pp 117– 128.

Adams, R. B., Almeida,H and Ferreira, D. (2005), "Powerful CEOs impact on corporate performance", *Review of Financial Studies,Vol.*18, No.4, pp1403-1432

Adams, R. B., and Ferreira, D. (2009), "Women in the boardroom and their impact on governance and performance", *Journal of Financial Economics*, Vol.*94*,No.2, pp291–309.

Agrawal, A. and Knoeber, C. (1996), "Firm performance and mechanisms to control agency problems between managers and shareholders", *Journal of Financial and Quantitative Analysis*, Vol.31., No.3, pp 377-397.

Ahmad, N,B.J., Rashid, A and Jeff Gow (2017), "CEO duality and corporate social responsibility reporting: Evidence from Malaysia", *Corporate Ownership & Control*, Vol.14, No.2,pp 68-81

Ajibolade, S. O., and Uwuigbe, U. (2013), "Effects of corporate governance on corporate social and environmental disclosure among listed firms in Nigeria", *European Journal of Business and Social Sciences*,Vol.*2, No*.5, pp 76–92

Allen Fidelis and Eze Prince (2019), "Achieving sustainable development goals in the Niger Delta: A corporate social responsibility pathway*", European Journal of Sustainable Development Research,* Vol.3 No.4, pp 1-6

Amake, C.C., and Odia, J.O. (2019), "Board diversity and corporate financial performance: The moderating effects of firm's life cycle," *Quarterly Journal of Contemporary Research,* Vol.7, pp 59-82

Andriosopoulos, D., Andriosopoulos, K., and Hoque, H. (2013), "Information disclosure, CEO overconfidence, and share buyback completion rates", *Journal of Banking & Finance*, Vol.*37,No*.12, pp5486–5499.

Antonio, A., and Heidi, V. H. (2009), "Corporate social responsibility: one size does not fit all. Collecting evidence from Europe", *Working Paper*.

Baldini, M., Dal Maso, L., Liberatore, G., Mazzi, F., and Terzani, S. (2018), “Role of country-and firm-level determinants in environmental, social, and governance disclosure” *Journal of Business Ethics*, Vol.*150, No*.1, pp 79-98.

Barnea, A., and Rubin, A. (2010),” Corporate social responsibility as a conflict between shareholders” *Journal of Business Ethics*, Vol.97, No.1, pp71–86

Bassey, B. E., Effiok, S. O., and Eton, O. E. (2013), “The impact of environmental accounting and reporting on organizational performance of selected oil and gas companies in Niger Delta Region of Nigeria”, *Research Journal of Finance and Accounting*, Vol.*4, No*.3, pp 57–74.

Beattie, V., McInnes, B., and Fearnley, S. (2004), “A methodology for analysing and evaluating narratives in annual reports: A comprehensive descriptive profile and metrics for disclosure quality attributes”, *Accounting forum*, Vol.28,No.3, pp 205-236.

Ben-Amar, W., Chang, M.,and McIlkenny, P. (2017), “Board gender diversity and corporate response to sustainability initiatives: Evidence from the carbon disclosure project”, *Journal of Business Ethics*, Vol.*142,No*.2, pp 369-383.

Borghesi, R., Houston, J. F.,and Naranjo, A. (2014), “Corporate socially responsible investments: CEO altruism, reputation, and shareholder interests”, *Journal of Corporate Finance*, Vol.*26*, pp 164–181.

Boulouta, I. (2013), “Hidden connections: The link between board gender diversity and corporate social performance”, *Journal of Business Ethics*, Vol.*113*, pp185–197.

Brammer, S., and Pavelin, S. (2006),“Voluntary environmental disclosures by large UK companies”, *Journal of Business Finance & Accounting*, Vol.*33,No*.7-8, pp 1168–1188

Brooks, C.,and Oikonomou, I. (2018),“The effects of environmental, social and governance disclosures and performance on firm value: A review of the literature in accounting and finance” *The British Accounting Review*, Vol.*50,No*.1, pp 1-15.

Carroll, A. B. (1979), “A three-dimensional model of corporate performance”,*Academy of Management Review*, Vol.*4,No*.4, pp 497-505.

Carroll, A.B. (1991), “The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders”, *Business Horizons*, July-August

Che-Ahmad, A., & Osazuwa, N.P. (2016), “The moderating effect of profitability and leverage on the relationship between eco-efficiency and firm value in publicly traded Malaysian firms”, *Social Responsibility Journal*,Vol.*12, No*.2.

Choi, B. B., Lee, D., & Psaros, J. (2013), “An analysis of Australian company carbon emission disclosures”, *Pacific Accounting Review*, Vol.*25,No*.1, pp 58–79.

Clarkson, P. M., Fang, X., Li, Y., & Richardson, G. (2013), “The relevance of environmental disclosures: Are such disclosures incrementally informative?”, *Journal of Accounting and Public Policy*, Vol.32, No.5, pp 410–431.

Combs,J.G.,Ketchen Jr, D.J.,Perryman,A.A.and Donahue,M.S. (2007), “The moderating effect of CEO power on the board composition–firm performance relationship”, *Journal of Management Studies* ,1-25 doi: 10.1111/j.1467-6486.2007.00708.

Cormier, D.,Magnan, M., and Van Velthoven,B. (2005), “Environmental disclosure quality in large german companies: Economic incentives, public pressures or institutional conditions?”, *European. Accounting Review* , Vol.14, pp 3–39.

Cook, M.L., and Burress, M.J. (2013), “The impact of CEO tenure on cooperative governance”, *Managerial and Decision Economics*, Vol.*34, No*.3-5, pp 218-229.

Deegan, C., and Rankin, M. (1997), "The materiality of environmental information to users of annual reports", *Accounting, Auditing & Accountability Journal*, Vol.10,No.4, pp 562–583.

Delmas, M., and Toffel, M. W. (2004), "Stakeholders and environmental management practices: an institutional framework", *Business strategy and the Environment*, Vol.*13, No*.4, pp 209-222.

Donaldson, L., and Davis, J. (1991), "Stewardship theory or agency theory: CEO governance and shareholder returns", *Australian Journal of Management, Vol.16, No*.1, pp 49–64.

Dunn, P. (2004), "The impact of insider power on fraudulent financial reporting", *Journal of Management, Vol.*30, pp 397–412.

Eagly, A. H. (2009), "The his and hers of prosocial behaviour: an examination of the social psychology of gender", *American Psychologist*, Vol.*64, No*.8, pp 644

Eng, L.L. and Mak, Y.T., (2003), "Corporate governance and voluntary disclosure", Journal of Accounting and Public Policy, Vol.22, pp 325-345

Fama,E.F.and Jensen,M.C.(1983), "The separation of ownership and control", *Journal of Law and Economics,Vol.*26, pp 301–25.

Finkelstein,S. (1992), "Power in top management teams: dimensions, measurements, and validation", *Academy of Management Journal*, Vol.35, pp 505–38

Finkelstein, S. and D'Aveni, R. A. (1994), "CEO duality as a double-edged sword:how boards of directors balance entrenchment avoidance and unity of command", *Academy of Management Journal* ,Vol.37, pp 1079–108.

Finkelstein, S., Hambrick, D. C., and Cannella, A. A. (2009), "*Strategic leadership: Theory and research on executives, top management teams, and boards"*. Strategic Management (Oxford University).

Firstenberg, P.B., and Malkiel, B.G (1994), "The twenty-first century boardroom: Who will be in charge?" *Sloan Management Review, Vol.36, No*.1, pp 27.

Fracassi, C., and Tate, G. (2012), "External networking and internal firm governance",*The Journal of Finance*, Vol.67,No.1, pp 153–194.

Galbreath, J., Singh, I., and Van Der Zahn, J. L. (2008), "The link between corporate governance and sustainability: Evidence from the oil and gas industry".

García-Sánchez, I. M., and Martínez-Ferrero, J. (2019). Chief executive officer ability, corporate social responsibility, and financial performance: The moderating role of the environment. *Business Strategy and the Environment*, Vol.28, No.4, pp 542–555.

García-Sánchez I-M, Aibar-Guzmán B, Aibar-Guzmán C, Azevedo T-C.(2020), "CEO ability and sustainability disclosures: The mediating effect of corporate social responsibility performance", *Corporate Social Responsibility and Environmental Management* Vol.27, pp 1565–1577

Gray R, Kouhy R., and Lavers, S. (1995), " Corporate social and environmental reporting a review of the literature and a longitudinal study of UK disclosure", *Accounting, Auditing and Accountability Journal*, Vol.8,No.2, pp 47–77.

Hackston, D.,and Milne, M. J. (1996),"Some determinants of social and environmental disclosures in New Zealand companies", *Accounting, Auditing & Accountability Journal*, Vol.*9, No*.1, pp 77–108

Haniffa, R. M., and Cooke,T.E. (2002), "Culture, corporate governance and disclosure in Malaysian corporations", *Abacus*,Vol.*38, No*.3, pp 317–349.

Haniffa, R. M., and Cooke, T. E. (2005),"The impact of culture and governance on corporate social reporting", *Journal of Accounting and Public Policy*, Vol.24,No.5, pp 391–430

Haynes, K. T., & Hillman, A. (2010),"The effect of board capital and CEO power on strategic change", *Strategic Management Journal*, Vol.31,No.11, pp 1145–1163

Herda, D. N., Taylor, M. E., and Winterbotham, G. (2013),"The effect of board independence on the sustainability reporting practices of large U.S. firms", *Issues in Social and Environmental Accounting*, Vol.6,No.3, pp 25–44.

Hickson, D. J., Hinings, C. A., Schneck, R. E., and Pennings, J. M. (1971),"A strategic contingencies' theory of intraorganizational power", *Administrative Science Quarterly*, Vol.16,No.2,pp 216–229

Hopkins, M. (2004), "Corporate social responsibility: an issue paper". Working Paper No.27 Retrieved from http//:www.ilo.org

Huang, S. K. (2013), "The impact of CEO characteristics on corporate sustainable development",*Corporate Social Responsibility and Environmental Management*, Vol.*20, No*.4, pp 234-244.

Hubbard, T. D., Christensen, D. M., and Graffin, S. D. (2017), "Higher highs and lower lows: The role of corporate social responsibility in CEO dismissal",*Strategic Management Journal*, Vol.38,No.11, pp 2255-2265.

International Finance Corporation (2019)." *Women on boards in Nigeria*". International Finance Corporation, Washington DC, USA.

Jamali, D., Safieddine, A., and Rabbath, M. (2008), "Corporate governance and corporate social responsibility synergies and interrelationships", *Corporate Governance: An International Review*, Vol.16, No.5, pp 443–459.

Jensen, M. C., and Meckling, W. H. (1976), "Theory of the firm: Managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol.3,No.4, pp 305–360.

Jiang, H. and Habib, A., (2009), "The impact of ownership concentration on voluntary disclosure practices in New Zealand", *Accounting Research Journal*, Vol.22, No.3, pp 275-304

Jizi, M. (2017). The influence of board composition on sustainable development disclosure. *Business Strategy and the Environment,* Vol.26,pp 640-655.

Keeney, R. L. (1992), "On the foundations of prescriptive decision analysis", In *Utility theories: Measurements and applications* (57-72). Dordrecht, Springert.

Kim, K. H., and Rasheed A.A. (2014), "Board heterogeneity, corporate diversification and firm performance", *Journal of Management Research,* Vol.14, No.2, pp 121–139.

Kim,M., and Kim,T (2020), "When do CEOs engage in CSR activities? Performance feedback, CEO ownership, and CSR", *Sustainability*, *Vol.12, No*.19*,* pp 8195.

Lewis, B. W., Walls, J. L.and Dowell, G. W. (2014), "Difference in degrees: CEO characteristics and firm environmental disclosure", *Strategic Management Journal*, Vol.35, No.5, pp 712-722.

Li, Y., Gong, M., Zhang, X. Y., and Koh, L. (2018), "The impact of environmental, social, and governance disclosure on firm value: The role of CEO power" *The British Accounting Review,* Vol.50, No.1, pp 60–75.

Li, D., Lin, A. & Zhang, L. (2019), "Relationship between chief executive officer characteristics and corporate environmental information disclosure in Thailand", *Frontlier Engineering Management, Vol.* 6, pp**.** 564–574

Li, F., Li, Tand Minor, D. (2016). CEO power, corporate social responsibility, and firm value: A test of agency theory. International Journal of Manag. Finance

McCarthy, S., Oliver, B., and Song, S. (2017), “Corporate social responsibility and CEO confidence”, *Journal of Banking & Finance*, Vol.*75*, pp 280-291.

McWilliams, A., and Siegel, D. (2001), “Corporate social responsibility: A theory of the firm perspective”, *The Academy of Management Review, Vol.26, No*.1, pp 117 – 127.

Michael, F. (2013), “Corporate social responsibility and sustainability: The new bottom line?”, *International Journal of Business and Social Science,* Vol.*4,* No.4, pp 110-119.

Mohd–Saleh, N., Mohd–Sanusi, Z., Abd–Rahman, R. and Bukit, R. (2012), "Firm performance, CEO tenure and corporate governance reporting in Malaysia", *International Journal of Management Practice*, Vol. 5 No. 2, pp. 170-189.

Nelson,J.(2005),”Corporate governances practices, CEO characteristics and firm performance”, *Journal of Corporate Finance*,Vol.11, pp 197-228

“Nigerian Code of Corporate Governance 2018”. Federal Government of Nigeria.

Odia,J.(2009),”Corporate social responsibity and stock prices: An empirical analysis of Nigerian listed companies”, *Management Sciences Review(MSR)*, Vol.2., No. 1&2, pp.74 87

Odia, J.O.(2013),”*Corporate sociall and environment disclosures in Nigeria.The determinants and consequences*”, Unpublished PhD Thesis,University of Benin, Nigeria

Odia, J. O. (2014), “A survey of shareholders’ requirements for corporate social and environmental disclosures in Nigeria”, *The Journal of Accounting and Management*, Vol.*4, No*.1, pp15-29.

Odia, J. O. (2016). Foreign direct investments, corporate social responsibility and economic developments:Exploring the relationship and mitigating the expectation Gaps in M.Ojo (edited). *Analyzing the relationship between corporate social relationship and foreign direct investment*. Business Science Reference (IGI-Global), USA

Post, C., Rahman, N. & Rubow, E. (2011). “Green governance: Boards of directors’ composition and environmental corporate social responsibility”, *Business & Society*, Vol.50, No.1, pp 189-223.

Pfeffer, J. (1972),” Size and composition of corporate boards of directors”, Administrative *Science Quarterly*, Vol.17, pp 218-229

Rao, K. and Tilt, C. (2016), “Board composition and corporate social responsibility: The role of diversity, gender, strategy and decision making”, *Journal of Business Ethics*, Vol.138, pp. 327-347.

Rashid, A., Shams, S., Bose, S. and Khan, H. (2020), "CEO power and corporate social responsibility (CSR) disclosure: does stakeholder influence matter?", *Managerial Auditing Journal*, Vol. https://doi.org/10.1108/MAJ-11-2019-2463

Reverte, C. (2009), “Determinants of corporate social responsibility disclosure ratings by Spanish listed firms”, *Journal of Business Ethics*, Vol.*88, No*.2, pp. 351-366.

Saidu,S.(2019), “CEO characteristics and firm performance: focus on origin, education and ownership”, *Journal of Global Entrepreneurship Research*,Vol.9,No.29, pp 1-15

Shamil, M., M. Shaikh, J., Ho, P. L., and Krishnan, A. (2014), “The influence of board characteristics on sustainability reporting: Empirical evidence from Sri Lankan firms”, *Asian Review of Accounting*, Vol.*22, No*.2, pp 78-97.

Strand, R. (2013), “The chief officer of corporate social responsibility: A study of its presence in top management teams”, *Journal of Business Ethics*, Vol.112, No.4, pp 721-734.

Suttipun, M., and Stanton, P. (2012), “Determinants of environmental disclosure in Thai corporate annual reports”, *International Journal of Accounting and Financial Reporting*, Vol.*2,No*.1, pp 99–115

Ullah, M.S., Muttakin, M.B. and Khan, A. (2019), "Corporate governance and corporate social responsibility disclosures in insurance companies", *International Journal of Accounting & Information Management*, Vol. 27 No. 2, pp. 284-300. https://doi.org/10.1108/IJAIM-10-2017-0120

Walls, J. L., and Berrone, P. (2017), “The power of one to make a difference: How informal and formal CEO power affect environmental sustainability”, *Journal of Business Ethics*, Vol.145, No. 2, pp 293-308.

Wang, J., Chen, M. H., Fang, C. Y., and Tian, L. (2018), “Does board size matter for Taiwanese hotel performance? Agency theory or resource dependence theory”, *Cornell Hospitality Quarterly*, Vol.59, No.4, pp 317-324.

Westphal, J. D.(1999),“Collaboration in the boardroom:Behavioural and performance consequences of CEO board social ties. *Academy of Management Journal*”,Vol.*42,No*.1,pp 7–24.

Williams, R. J., Fadil, P.A. and Armstrong, R.W. (2005), “Top management team tenure and corporate illegal activity: The moderating influence of board size”, *Journal of Managerial Issues,Vol.17,No*.4, pp 479–493.

Wilson, M., and Lombardi, R. (2001), “Features-globalization and its discontents: The arrival of triple-bottom-line reporting- What gets measured, gets managed” reflects a company’s social, environmental and economic performance. *Ivey Business Journal*, Vol.66, No.1, pp 69-72.

Wood, D.J. (1991), “Corporate social performance revisited”, *Academy of management review*, *16*(4), 691-718.

Young, S. and Marais, M. (2012), “A multi-level perspective of CSR reporting: The implications of national institutions and industry risk characteristics”, *Corporate Governance: An International Review*, Vol.20, No.5, pp 432–450

Zheng, C., and Tsai, H. (2019),” The moderating effect of board size on the relationship between diversification and tourism firm performance”. *Tourism Economics*,

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Professional Skepticism and Audit Quality in an Emerging Economy

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Abstract

Purpose – Motivated by the increasing questioning of audit quality and the suspected non-application of sufficient professional skepticism by auditors to drive audit quality, the study sought to examine the relationship between professional skepticism and audit quality in an emerging economy.

Design/methodology/approach – The study adopted a cross-sectional survey methodology using a close-ended data collection instrument containing tested measures of audit quality and professional skepticism to generate quantitative data from a randomly selected sample of 201 accountants in practice and business in Uganda. Quantitative data was analyzed with the aid of a quantitative data analysis tool SPSS 22©.

Findings. Underpinned by Mindset theory, the study has revealed that both types of professional skepticism i.e. Situational/contextual and inherent personality traits professional skepticism, are significant and positive determinants of audit quality. The two types of professional skepticism explain 51.4% of the variance in audit quality. The study has further shown that with the exception of a *questioning mind* (which is not significant), all the other five inherent personality traits of professional skepticism are significant and positive determinants of audit quality, revelaed in order of importance as *Self-determining*, *Interpersonal understanding*, *Self-confidence*, *Search for knowledge* and *Suspension of judgement*. It has also been established that there are no marked differences between accountants in practice and those in employment on professional skepticism and audit quality.

Originality/Value - The study illuminates the underpinnings of professional skepticism and audit quality. It has shown the situational and inherent trait factors that enhance professional skepticism which practitioners ought to emphasize to audit staff in order to improve audit quality. The study has shown regulators of auditors a basis of evaluating auditor's application of professional skepticism so as to improve audit quality in emerging economies.

Key Words: Audit Quality, Professional Skepticism, Mind set theory, Emerging economies, Uganda

1.0 Introduction

The external auditor's opinion on financial statements is meant to provide a reasonable level of assurance to the users that the financial statements give a true and fair view and contain quality information that can be used as a basis for decision making. However, users will only believe in the assurance if they have confidence in the quality of the audit and trust that the audit is performed in accordance with the applicable auditing standards, laws, and regulations. Despite the undisputable importance of audited financial statements, there is continued questioning of the quality of audits performed by external auditors. Successive audit investigation reports by the International Forum of Independent Audit Regulators (IFIAR) and its members i.e. oversight bodies from all over the World, like the Public Company Accounting Oversight Board (PCAOB) in the United States, the Netherland's Authority for Financial Markets (AFM) and the UK's Financial Reporting Council (FRC) show that audit firms deliver audits that contain a significant number of deficiencies (IFIAR, 2020; PCAOB,2019a; PCAOB 2019b; AFM,2019; FRC, 2019). In Uganda, the phenomenon of questionable audits was first highlighted in the findings of the Judicial Commission of Inquiry into the Closure of banks in 1999 and it is still continuing. All the three closed and investigated banks [International Credit Bank, Greenland Bank and Cooperative Banks] had questionable but unqualified financial statements and audited by the same auditors over a long time (Judicial Commission of Inquiry into the Closure of Banks, 1999). The Institute of Certified Public Accountants of Uganda (ICPAU)'s auditor monitoring program continues to unearth a lack of strict adherence by the auditors to the auditing standards (Kyamanywa, 2020**).** This implies that for a high number of audits auditors formulate opinions on the financial statements based on insufficient audit evidence.

Since DeAngelo (1981) a number of studies on the antecedents of audit quality have focused on the audit firm, audit client and the auditor as an individual (see Alareeni, 2019 and Mahdi, Mohamad and Gah, 2019) with mixed findings. At audit firm level, studies proxing audit quality with differing measures (for example Li *et al*., (2008), Al-Ajim, 2009; Francis and Yu, 2009) have provided evidence of a positive relationship between audit firm size and audit quality. Others for example Kaawaase et al, (2016); Salehi *et al*., (2008); and Khurana & Raman (2005) have argued that "big audit firms" might not always provide higher quality audit services than their counterparts, the Small and Medium audit firms. At audit client level, provision of non-audit services like management advisory services, tax and accounting services to an audit client are reported to be impairing auditor's independence and subsequently audit quality (Al-Eissa, 2009; Habib, 2012; Krauss & Zulch, 2013). However, (Bell et al.,2015 and Alareeni ,2019) reveal that audit quality is positively associated with provision of non-audit services because it enhances the auditor's knowledge of the client, which should increase audit quality. Studies of the influence of auditor tenure on audit quality have posted mixed results. Pham et al., (2014) and Bell et al., (2015) post a positive relationship between audit tenure and audit quality, while others like Carey and Simnett (2006) and Adeniyi et al., (2013) post a negative relationship between the two. Ndaba, Harber and Maroun (2021) post results that show that mandatory audit firm rotation after a certain tenure does not bolster auditor independence and or contribute more to audit approach, and therefore audit quality.

At individual auditor level, prior research has concentrated on explicit and easy to discern archival individual auditor characteristics e.g. age, experience, gender, task-specific knowledge and industry specialization and have ignored the behavior effects like professional skepticism. Goodwin and Wu (2016) and Sundgren and Svanström (2014) document a negative association between partner age and audit quality, while Chi, Myers, Omer and Xie (2017) document a positive association between a partner's years of prior experience (as a partner) at the start of the current engagement and audit quality. The association between gender and audit quality is unclear as well (Olsen and Gold 2018). Archival research examining the impact of industry expertise on audit quality finds positive effects of industry expertise on audit quality (Bratten, Causholli, and Myers 2020; Chen, Hou, Richardson, and Ye 2018; Stein 2019).

The above motivates us for a study on audit quality from the individual auditors' perspective specifically through the lenses of professional skepticism. Professional skepticism has been put forward as a force that drives auditors to recognize potential errors and irregularities and to investigate misstatements, should they exist (Nolder and Kadous, 2018). Despite being such an important aspect in audits, International Standards on Auditing (ISAs) offer little guidance on how it can be applied in practice and there is no clear consensus regarding what it is and how it can be measured (IAASB, 2015), yet auditors are increasingly criticized for not applying sufficient professional skepticism by regulatory bodies (ACCA, 2017). Prior studies that have considered the impact of professional skepticism on auditing are sending mixed signals. For example, Payne and Ramsay (2005) report a decline in skepticism as auditors age and gain more experience. Similarly, Shaub and Lawrence (1999) find that lower staff are significantly more skeptical than higher-ranked auditors. Alternatively, older partners might accumulate portfolios of higher-quality clients (Lennox and Wu 2018), for which professional skepticism is less critical and therefore less salient. Calls are made for more research on the impact of individual auditor characteristics on audit quality (for example by Francis 2011; Knechel *et al.* 2013). DeFond and Zhang (2014) specifically call for future research to consider additional individual auditor characteristics, such as professional skepticism especially in emerging economies. This is because it is not known whether issues identified in developed economies are relevant to all auditors across the globe (Brazel and Schaefer, 2017) yet latest meta-analytic studies are documenting evidence of differing audit quality findings depending on the study settings (for example see Rajgopal, Srinivasan and Zheng, 2020; Alareeni, 2019).

The current study utilises data sourced from a questionnaire survey of 201 practicing accountants and base on the Mind set theory (Gollwitzer, 1990) to investigate the contribution of professional skepticism to audit quality. This is because decision quality is higher when there is a good match between the decision maker's mindset and the demands of the decision at hand (Nodeler and Kadous, 2018). Specifically, the study investigates how a skeptical mind triggered by situational / contextual factors at audit firm or audit client level (which we term situational/contextual professional skepticism) and traits specific to the individual auditor which we term (inherent personality traits professional skepticism) drives audit quality. We further test the validity of professional skepticism measures and indicators by Hurtt (2010) and the three International regulators of accountants (i.e. the International Auditing and Assurance Standards Board (IAASB), the International Accounting Education Standards Board (IAESB) and the International Ethics Standards Board for Accountants (IESBA) within an emerging economy (International Federation of Accountants [IFAC], 2017). Results of the study show that the scale items used are valid and reliable measures of professional skepticism.

Further using, multivariate analysis the study revealed that the two types of professional skepticism i.e. Situational/contextual and inherent personality traits professional skepticism are significant and positive determinants of audit quality. It has also been established that there are no marked differences between accountants in practice and those in employment on professional skepticism and audit quality.

The contributions of the study are; first unlike most previous studies that are based on archival secondary data to proxy audit quality, this study utilises views of the practicing accountants themselves on tested and valid measures of professional skepticism and audit quality. Secondly, the study answers calls for more auditor level studies of audit quality and extends our understanding of the phenomenon by illuminating the underpinnings of professional skepticism to drive audit quality in emerging economies.

The rest of this paper is organized into the following sections: The next section presents the literature review. Section three presents the methodology of the study. Results are presented in section four and discussed in section five. The final section six presents a summary of the study and conclusion thereof.

2.0 Literature review

2.1 Theoretical framework

DeAngelo (1981) provides a theory that has underpinned the understanding of audit quality and formed a basis of much of the studies of the phenomenon. DeAngelo's theory states that audit quality is the market-assessed joint probability that a given auditor will both discover a breach in the client's accounting system, and report the breach. Discovering the breach is seen as a function of the auditor's competence, while reporting the breach is premised on the degree of independence between the auditor and the client. That it is the fear to lose a client that will lead the auditor to accept breaches and not report them. DeAngelo's theory has been criticized for ignoring the conflicting roles of the various players in the audit market and within the financial reporting chain (Sutton 1993). Francis (2011) indicates that it is a theory of fraud rather than audit quality because an auditor who knowingly fails to report a material breach has committed fraud in some jurisdictions like the USA. And that it ignores the multiple factors that affect an auditor's capacity to detect misstatements (Francis, 2011). These multiple factors include factors at the audit client level, audit firm level, audit engagement level and individual auditor level like those specific and inherent to the auditor himself/herself for instance a skeptical mind set.

The Mindset theory may provide an alternative explanation to the problem of audit quality and its antecedents that relate to the auditor's state of mind. A mindset is a state of mind, or cognitive orientation that facilitates performance of a particular task. These cognitive orientations are made up of particular judgement criteria and cognitive processes and procedures (Gollwitzer, 1990). Nodeler and Kadous (2018) indicates that several types of mindsets have been identified including holistic mindsets that facilitate big picture thinking, abstract mindsets that facilitates making and evaluating decisions in line with one's principles, deliberative mindsets that facilitates identification of the best course of action and implemental mindsets that facilitate efficient completion of a chosen course of action. And that decision quality is higher when there is a good match between the decision maker's mindset and the demands of the decision at hand. Dweck, Chiu and Hong (1995) have further shown that individuals hold mindsets of many attributes, including intelligence, personality traits, anxiety, morality, and writing ability, to name just a few. These mindsets appear to be domain-specific, meaning for example that the same individual can hold and apply more of each depending on the problem at hand e.g. delivering incontestable audited financial statements.

Drawing from mindset theory this study argues that auditor's skeptical state of mind is essential for audit quality and can be triggered by situational / contextual factors (i.e. situational/contextual professional skepticism) as well as cognitive traits of the auditor i.e. inherent personality traits professional skepticism.

2.2 Audit quality

Audit quality is a complex phenomenon with no commonly accepted definition. DeAngelo (1981) treats audit quality as a binary outcome (i.e. audit success or audit failure) yet others (for example Kaawaase *et al*, 2016; DeFond & Zhang, 2014; Francis, 2011) consider audit quality to be on a continuum that ranges from low to high quality. Consequently, scholars utilizing secondary data have adopted a number of proxies to characterize their understanding of audit quality. These have included for example size of audit fees, size of the audit firm, level of earnings quality/low discretionary accruals, qualified /unqualified audit opinions, going concern opinions, restatements of financial statements and litigations against audit firms (see Rajgopal, Srinivasan and Zheng, 2020; Alareeni, 2019; Mahdi, Mohamad and Gah, 2019; Francis & Yu, 2009). Scales of audit quality tapping into behavioral parameters of preparers, auditors and users of audited financial statements have also been developed (e.g. Knapp, 1991; Kaawaase et. al 2016). Accountancy regulators (for example by the IAASB, 2014) have taken a normative approach and indicated that audit quality is a function of factors like audit inputs, audit process, audit outputs, key interactions of the auditor within the financial reporting supply chain and contextual factors. The practitioners view compliance with auditing standards as a sign of high audit quality (Rajgopal *et al*., 2020).

The above indicates that audit quality has troubled and continues to challenge scholars, regulators and practitioners. Each of the espoused meaning and indicators of audit quality has limitations (see DeFond & Zhang,2014 for a summary of the pros and cons of these measures) and could be specific to particular research settings and hence the inconclusive findings witnessed this far.

2.3 Professional Skepticism

Stakeholders in an audit of financial statements understand professional skepticism differently. Standard setters and regulators of accountants understand it as an attitude required of auditors that includes having a questioning mind as well as being alert to conditions which may indicate possible misstatements due to error or fraud and a critical assessment of audit evidence (PCAOB, 2006; IAASB, 2015; IAASB,2016). Practitioners understand professional skepticism as a mindset that influences auditors' professional judgement (Nolder & Kadous, 2018; Glover &Prawitt, 2014). Academics are inconsistent in defining professional skepticism, some have adopted the regulator's view (Hurtt et al. 2013) and others adopt a "presumptive doubt" perspective which presumes some level of client dishonesty (Nelson 2009) with an emphasis on the need to gather further evidence before accepting client-provided explanations (e.g. Peecher 1996, Turner 2001). Others refer to professional skepticism as the opposite of trust hence implicitly equating it to distrust (Choo and Tan 2000). Other scholars take a “neutral” perspective of professional skepticism (e.g. Hurtt 2010) which assumes an unbiased and objective mindset - neither assuming the client is honest or dishonest. This makes it difficult to determine the antecedents of professional skepticism and to demonstrate its appropriate level auditors should apply. It is evident from all the perspectives that professional skepticism sits within the mind of an auditor. In this paper we follow previous scholars and take a neutral perspective of professional skepticism. We argue that professional skepticism is a mindset aroused by situational factors and personality traits identified by Hurtt (2010) that are inherent in an individual auditor.

2.3.1 Situational / Contextual Professional Skepticism and Audit quality

Auditing standards give a clue to the effect that some situations may trigger more professional skepticism than others. For instance, ISA 240 states that higher fraud risk engagements should be audited with increased professional skepticism (IAASB, 2016). This suggests that there are audit circumstances that should result in changes in auditors' behaviors. Professional skepticism can therefore be aroused and emerge in reaction to particular circumstances. Marks, Mathieu and Zaccaro (2001) indicate that an emergent state is a cognitive, motivational, and affective state that is dynamic and vary as a function of situational characteristics. In auditing, such situational circumstances may be at audit firm level or audit client level.

At audit firm level, a firm's approach to training of auditors, including mentoring, reflective activity and practical on-the-job training, may also enhance the effective development of professional skepticism. Regulators of accountants have shown that resource constraints; a firm's tone at the top; local culture and groupthink are some of the factors that can affect professional skepticism (IFAC 2017). Nelson, Proell and Randel (2016) show that auditors who perceive their team leader to be more team-oriented are more likely to speak up and raise audit issues (i.e. engage in skeptical actions). Similarly, it has been shown that auditors whose audit partner stresses the importance of professional skepticism are more efficient and effective in the identification of relevant fraud risks as well as in their choice of relevant audit procedures (Carpenter and Reimers 2013). Further a number of authors have shown that audit firm and engagement culture may also significantly influence the level of professional skepticism exercised on engagements, as auditors respond to the rewards and incentives they face on specific engagements and within the overall firm structure (e.g., Nelson 2009; Brazel et al. 2016, Brazel and Schaefer, 2017). Collectively this suggests that audit firms can, to some extent, influence auditors' application of skepticism.

At audit client level, international regulators of accountants have shown that today's complex and first changing business environment requires alertness of auditors and an increased attention to business acumen. And that professional skepticism can be impeded by tight financial reporting deadlines imposed by clients (IFAC 2017). Prior academic research has found that auditors confronted with either a weak control environment or overly optimistic management assertions arrive at more skeptical judgments and engage in more skeptical actions (Quadackers et al. 2014; Feng and Li 2014). Bennett and Hatfield (2013) in an experiment of staff-level auditors interacting with client management found less professional skepticism is exercised (reduced evidence collection) to avoid interactions with management when the client is intimidating. Shaub and Lawrence (1999) in an experiment that manipulate risk factors such as related party transactions and financially stressed clients, found that greater professional skepticism is significantly associated with risk in five of the nine scenarios they presented to auditors. Olsen & Stuart (2017) document results that show in high risk settings, client personality / behavior is irrelevant to the application of professional skepticism, but in low risk settings, an overtly nice / available client induces greater professional skepticism in auditors and therefore high audit quality. Moreover, when auditors perceive management of a client as more similar to themselves (for example, upon assessment of the qualifications and experience of the Chief Finance Officer) this reduces auditors' skepticism guard (Olsen & Gold, 2018) and may affect audit quality. In light of the above we state our first hypothesis as:

***H1**: Situational/contextual professional skepticism is a positive and significant determinant of audit quality.*

2.3.2 Inherent Personality Traits Professional Skepticism and Audit quality

At a personal level, auditor personality traits are documented to have an effect on the required skepticism to drive audit quality. Ciołek (2017) and Hurt (2010) have identified the personality traits that are crucial for professional skepticism and therefore audit quality. These include trait of suspension of judgement (Ciołek, 2017; Hurt, 2010). Bunge (1991) indicates that skeptics are characterized by psychologists as individuals who do not accept naively the first things they perceive or think, but as critical individuals who want evidence before believing. The self-confidence trait enables an auditor to resist persuasive attempts and to challenge another's assumptions and conclusions and thereby improve audit quality. Self-determining trait relates to autonomy of an auditor i.e. moral independence. A prudent practitioner takes all appropriate steps to remove from his own mind any doubtful impressions or unanswered questions (Mautz and Sharif, 1961) and undertakes additional investigation and evidence until he or she is personally satisfied (Bunge, 1991).

It is also documented that skeptics have a desire to seek for knowledge and to investigate (Johnson, 1978; Bunge, 1991). This is a characteristic of search for knowledge that is required of auditors in line with having a sense of general curiosity or interest and problem-solving ability (Libby and Luft 1993) when looking for and evaluating audit evidence. The trait of inter-personal understanding is about understanding the motivation and integrity of individuals who provide evidence and recognizing that there could be many incentives and opportunities to clients' personnel to present misleading evidence or to commit fraud. The IAASB (2015) requires auditors to approach the audit with a questioning mind attitude. This requires being alert to conditions which may indicate possible misstatements due error or fraud, and a critical assessment of evidence (IAASB, 2015). Quadackers *et al*, (2014) documents evidence of the importance of trait skepticism in an audit of financial statements. They indicate that trait skepticism explains auditor's assessment of explanations provided by management depending on the audit risk environment. In light of the above, we hypothesize thus:

***H2**: Inherent personality trait professional skepticism is a positive and significant determinant of audit quality*

***H2a**: Suspension of judgement is a positive and significant determinant of audit quality.*

***H2b**: Self-confidence is a positive and significant determinant of audit quality.*

***H2c**: Self-determining is a positive and significant determinant of audit quality.*

***H2d**: Search for knowledge is a positive and significant determinant of audit quality.*

***H2e:** Interpersonal understanding is a positive and significant determinant of audit quality.*

***H2f**: Questioning mind is a positive and significant determinant of audit quality.*

2.5 Control variables

We follow Bartov, Gul Tsui (2000) and control for confounding effects of size of the firm. It is documented that audit quality could be affected by size of the audit firm and audit client (Kaawaase *et al,* 2020 and Bartov, Gul & Tsui, 2000). We also control for effects of respondents' age, experience, level of education, accounting professional qualification and employment status since prior research has shown that various auditor characteristics for example, Partners' age (Goodwin and Wu;2016; Sundgren and Svanström,2014); years of prior experience (Chi, Myers, Omer and Xie 2017); position in the firm (Knapp and Knapp, 2001); gender (Olsen and Gold 2018); and industry expertise (Bratten, Causholli, and Myers 2020) have an effect on audit quality.

3. Methodology

3.1 Research design, population and sample size

The study adopted a cross sectional and quantitative survey research design to examine the set hypotheses. The population constituted 350 accountants on register as of 31st March 2018 (ICPAU, 2018). In line with the guidance of Krejcei & Morgan (1970) a randomly selected sample of 250 accountants was taken for the study. 201 useful questionnaires were returned resulting into a response rate of 80%. **Table 1** presents the demographic characteristics of respondents.

Table 1 : Profile of the Respondents (n = 201)

Category	**Item**	**(100%)**
Gender	Male	143(71%)
	Female	58(29%)
Age of the respondent	20 to 30 years	28(14%)
	31 to 40 years	74(37%)
	41 to 50 years	67(33%)
	51 to 60 years	22(11%)

	61 and above	10(5%)
Highest Academic Qualification	Certificate	6(3%)
	Diploma	16(8%)
	Bachelor's degree	100(50%)
	Master's degree	78(38%)
	Ph.D.	1(1%)
Professional Qualification	CPA	124(62%)
	ACCA	66(33%)
	Others	5(2%)
	None	6(3%)
Work Experience	5 Years and below	26(13%)
	6 - 10 Years	56(28%)
	11 – 15Years	39(19%)
	16 – 20 Years	42(21%)
	21 – 25 Years	17(9%)
	26 years and above	21(10%)
Employment status	Accountant in practice	133 (66%)
	Accountant in business	68 (34%)
Employer Type	Big 4 Audit firm	10 (5%)
	Mid-tier - Int. network	24 (12%)
	SMP – 3+ Partners	7 (3%)
	SMP – 2 Partners	48 (24%)
	SMP – 1 Partner	44 (22%)
	Corporate Entity	68 (34%)
Employer Size	0 – 15 Employees	114 (57%)
	16 – 35 Employees	39 (19%)
	36 + Employees	48 (24%)

The majority of the respondents (71%) were male aged and aged between 31-50 years (70%). This reflects the structure of the accounting profession in the country, as a male and middle-age dominated profession and relatively nascent. Majority of the respondents (89%) have at least a bachelors' degree. The most dominant professional qualification is CPA (62%) followed by ACCA (33%). This reflects the current legal regime that requires 'localization' of externally obtained accounting professional qualifications before one is allowed to be registered as a practicing accountant in Uganda. There is a high possibility that respondents have more than one professional qualification. Majority of the accountants (59%) have worked for more than 10 years, and are employed in audit firms (66%) as opposed to corporate entities (34%). Of those employed in audit firms, majority work with Small and Medium audit practices (61%). Collectively, the profile of the respondents suggests that useful and relevant data was sourced for the study therefore its findings can inform policy and practical direction of the profession.

3.2 The questionnaire and variables measurements

This study is based on primary data collected with the help of a close-ended questionnaire with measurement items anchored on a 6-point Likert-type scale. Section one of the questionnaire collects background information about the respondents, their firms and employment status. Section two collects data on audit quality utilizing audit quality measurement items of the International Auditing and Assurance Standards Board [IAASB] (2014) and Kaawaase *et al*, (2016). IAASB (2014) and Kaawaase *et al*, (2016) indicate that quality audits require *inputs* such as appropriate values, ethics and attitudes of auditors. Such auditors should be sufficiently knowledgeable, skilled, experienced and having sufficient time allocated to them to perform the audit work. Further, quality audits involve auditors applying a rigorous *audit process* and quality control procedures that comply with laws, regulations and applicable standards. The *output element* of audit quality is about the auditor producing useful reports to those charged with governance, management, regulators and other stakeholders e.g. the audited financial statements and reports that describe weaknesses on say effectiveness of internal controls. *Interactions* within the financial reporting supply chain is about auditor interacting with people and processes involved in the preparation, approval, audit, analysis and use of financial reports. Such interactions include both formal and informal communications that participants in the supply chain can influence the behavior and views of others and thereby contribute to improvements in audit quality. Environmental factors or *contextual factors* include business practices, formal and informal commercial laws in a country which have the potential to impact the nature and quality of financial reporting and directly or indirectly audit quality. Auditors respond to these factors (see Table 2) when determining how best to obtain sufficient appropriate audit evidence.

Section three of the data collection instrument collects data on situational /contextual professional skepticism and Inherent personality traits professional skepticism. Situational / contextual professional skepticism is measured using contextual factors identified by the International Auditing and Assurance Standards Board (IAASB), the International Accounting Education Standards Board (IAESB) and the International Ethics Standards Board for Accountants (IESBA) as central in arousing a skeptical mind to apply professional skepticism in an audit (IFAC, 2017) (see Table 3). Inherent personality traits professional skepticism is measured using Hurtt (2010)'s *Professional Skepticism* 30 items scale of trait professional skepticism. Hurtt (2010)'s professional skepticism scale presents it as a multi-dimensional construct made up six inherent personality traits: suspension of judgment, self-confidence, self-determining, search for knowledge, inter-personal understanding and a questioning mind. All the original Hurtt (2010) measurement items loaded on the respective components except two items under *questioning mind* did not load (i.e. *I often reject statements unless I have proof that they are true*; and *I enjoy trying to determine if what I read or hear is true*), one reverse coded measurement item under *interpersonal understanding* did not load (i.e. **Other people's behavior doesn't interest me*) and one reverse coded item under *self-confidence* did not load (i.e. **I don't feel sure of myself*)(see Table 4). The measurement items that loaded on each variable are shown in Tables 2 to 4 below and had an average variance explained of greater than 0.5 which means that, all the retained items correctly estimate what they are supposed to measure (Fornell & Larcker, 1981).

3.3 Tests of factorability, validity and reliability

Data was analyzed with the aid of a quantitative data analysis tool SPSS 22©. Factor analysis was used to test for reliability and validity of data collection instrument. Results in Tables 2 to 4 below show that all measures attained a Cronbach's alpha (**α**) coefficient (Cronbach, 1951) of greater than 0.7 [Audit quality: **α** = 0.97, Situational/contextual professional skepticism: **α** = 0.70**,** Inherent personality traits professional skepticism**:** **α** = 0.97]. These results imply that the measurement instruments are reliable (Field, 2009). To establish convergent validity and to reduce the data to a manageable level, the principal components for each variable were extracted by running Principal Component Analysis (PCA) using varimax rotation method. The PCA enabled the reduction of items to a small set of components that capture as much information as possible in the measured variables with as few components as possible. Factor loadings below 0.5 coefficients were suppressed to avoid extracting factors with weak loadings. All constructs attained acceptable convergent validity with an Average Variance Extracted (AVE) of above 0.5 (Fornell and Larcker, 1981). The AVE indicates how much of the variance in the indicators is explained by the underlying latent variable (Fornell & Larcker, 1981).

Prior to performing the principal component analysis for scales, we assessed the suitability of the data for factor analysis based on sample size adequacy, the Kaiser–Meyer–Olkin (KMO) and Bartlett tests. Tables 2 to 4 show results the KMO values of Audit quality scale (0.926), Situational/Contextual Professional skepticism scale (0.822) and Inherent personality trait skepticism scale (0.914). The Bartlett's test of sphericity in all the scales reached statistical significance (p = 0.000). Collectively, these results supported the factorability of the correlation matrices because the correlation matrices are significantly different from the identity matrices in which the variables would not correlate with each other. The individual scale items therefore correspond to the content of the constructs they were designed to cover (Field, 2009).

Table 2: Rotated Component factors of Audit Quality

1 = Input Factors 2 = Contextual factors 3 = Output factors 4 = Key Interactions 5 = Process factors : FRC = Financial Reporting Supply Chain	Component				
	1	2	3	4	5
I believe audit quality is driven by the values of the audit team	.852				
I believe audit quality is driven by skills and experience of audit team	.836				
I believe audit quality is driven by knowledge of the audit team	.810				
I believe compliance with applicable standards drives audit quality	.797				
I believe audit quality is driven by the ethical orientation of the audit team	.780				
I believe compliance with applicable regulations drives audit quality	.748				
I believe quality control process drive audit quality	.741				
I believe audit supervision is essential for audit quality	.735				
I believe audit documentation drives audit quality	.721				
I believe audit quality is influenced by attitude of audit team	.691				
I believe compliance with laws by auditors drives audit quality	.659				
I believe audit teams using appropriate Technology during the audit drives audit quality	.590				
I believe audit quality is driven by time allocated for the audit exercise	.573				
I believe audit quality is much about culture prevailing within the audit firm	.525				
I believe business practices of the audit client drive audit quality		.811			
I believe I.T systems used by the audit client drive audit quality		.775			
I believe the financial reporting framework of the audit client drives audit quality		.768			
I believe cultural environment within the audit client drives audit quality		.712			
I believe regulations governing an audit client drive audit quality		.708			
I believe audit client's corporate governance practices drive audit quality		.624			
I believe audit quality is about useful and timely audited financial statements			.726		
I believe a quality leads to improvements in Internal controls over financial reporting			.704		
I believe audit quality is about transparent audit reports			.675		
I believe a quality audit results into useful improvements in financial reporting practices			.543		
I believe interactions with users of audit reports drives audit quality				.744	
I believe auditors interactions with regulators of an audited entity drives audit quality				.685	
I believe where the auditor Interacts with shareholders in an AGM drives audit quality				.570	
I believe support of those involved in the preparation of financial reports is essential					.726
I believe audit quality is achieved when auditor interacts appropriates with those in the FRC					.675
I believe the rigor of the audit process drives audit quality					.577
I believe formal interactions with Those Charged with Governance drives audit quality					.507
Eigen Values	**16.88**	**3.65**	**1.40**	**1.32**	**1.18**
Variance Explained (%)	**46.89**	**10.13**	**3.89**	**3.66**	**3.28**
Cumulative Variance explained (%)	**46.89**	**57.02**	**60.90**	**64.56**	**67.84**
Cronbach Alpha (Overall α = 0.97)	**.96**	**.92**	**.89**	**.84**	**.86**

KMO = .926, Bartlett's Test of Sphericity (*Chi-Square = 6350.475, df = 630, p = 0.000*): Rotation Method: Varimax with Kaiser Normalization.

Table 3: Rotated Component factors of Situational/Contextual Professional Skepticism

1 = Business insight/acumen 2: Audit firm/client environmental factors	Component	
	1	2
I believe education and continuing effective training are vital in enhancing PS	.832	
I believe understanding of relevant standards, laws and regulations enables PS	.827	
I believe practical experience is critical to PS	.753	
I believe failure to understand the client's business model inhibits application of PS	.694	
I believe resource constraints impend professional skepticism	.620	
I believe the 'tone at the top' in audit firms impend professional skepticism	.608	
I believe culture within audit firms affects PS	.605	
I believe having strong professional competencies is vital in applying PS		.756
I believe tight financial reporting deadline impend professional skepticism		.725
I believe audit firm leadership does matter in the application of PS		.718
Eigen Values	**3.69**	**1.74**
Variance Explained %	**36.90**	**17.35**
Cumulative Variance Explained %	**36.90**	**54.25**
Cronbach Alpha (Overall α = .70)	**.84**	**.62**

Notes: KMO = .822, Bartlett's Test of Sphericity (*Chi-Square = 657.156, df = 45, p = 0.000*)
Rotation method: Varimax Rotation with Kaiser Normalization

Table 4: Rotated Component factors of Inherent Personality Traits Professional Skepticism

1 = Suspension of Judgement 2 = Self-Confidence 3 = Self Determining 4 = Search for Knowledge 5 = Interpersonal Understanding 6 = Questioning mind	Component					
	1	2	3	4	5	6
I don't like to decide until I've looked at all of the readily available information	.795					
I dislike having to make decisions quickly	.791					
I wait to decide on issues until I can get more information	.754					
I take my time when making decisions	.729					
I like to ensure that I've considered most available info. before taking a decision	.717					
I am confident on my abilities		.788				
I am self-assured		.779				
I have confidence in myself		.722				
I feel good about myself		.718				
*It is easy for other people to convince me			.843			
*I often accept other people's explanations without further thought			.808			
*I tend to immediately accept what other people tell me			.767			
*Most often I agree with what others in my group think			.742			
*I usually accept things I see, read or hear at face value			.594			
Discovering new information is fun.				.779		
I enjoy learning				.703		
I think that learning is exciting				.609		
The prospect of learning excites me.				.551		
I like searching for knowledge				.527		
I like to understand the reason for other people's behavior					.754	
I am interested in what causes people to behave the way that they do					.741	
The actions people take and the reasons for those actions are fascinating					.739	
*I seldom consider why people behave in a certain way					.511	
I frequently question things that I see or hear						.764
My friends tell me that I often question things that I see or hear						.744
I usually notice inconsistencies in explanations						.595
Eigen values	**11.99**	**3.02**	**1.54**	**1.30**	**1.27**	**1.11**
Variance extracted %	**39.95**	**10.05**	**5.14**	**4.32**	**4.22**	**3.69**
Cum Var. extracted %	**39.95**	**50.00**	**55.15**	**59.47**	**63.69**	**67.38**
Cronbach Alpha (Overall α = .94)	**.91**	**.91**	**.86**	**.88**	**.73**	**.82**

Notes: KMO = .914, Bartlett's Test of Sphericity (*Chi-Square = 3949.363, df = 435, p = 0.000*)
Rotation method: Varimax Rotation with Kaiser Normalization * Item is reverse coded

3.4 The Models

This study utilises multivariate regression analysis in models 1 and 2 to test the study hypotheses H_1 and H_2 and to determine the contribution of situational/contextual professional skepticism and Inherent personality traits professional skepticism to audit quality after controlling for the cofounding effects of age, experience, level of education and Accounting professional qualification, as well as size of their firm and employment status i.e. working as auditors or otherwise). To test the sub-hypotheses $H2_{a, b, c, d, e, f}$ and to establish the contribution of each of the components of Inherent personality traits professional skepticism to audit quality a hierarchical regression analysis is utilized (models 3 and 4).

Models for testing study hypotheses

Model 1

$$AudQual = \beta_0 + \beta_1 Age + \beta_2 Educ + \beta_3 PrfQual + \beta_4 Exp + \beta_5 Size + \beta_6 Empy + \varepsilon_j$$

Model 2

$$AudQual = \beta_0 + \beta_1 Age + \beta_2 Educ + \beta_3 PrfQual + \beta_4 Exp + \beta_5 Size + \beta_6 Empy + \beta_7 SitCtxps + \beta_8 IPTps + \varepsilon_j$$

Model 3

$$AudQual = \beta_0 + \beta_1 Age + \beta_2 Educ + \beta_3 PrfQual + \beta_4 Exp + \beta_5 Size + \beta_6 Empy + \beta_7 SitCtxps + \varepsilon_j$$

Model 4

$$AudQual = \beta_0 + \beta_1 Age + \beta_2 Educ + \beta_3 PrfQual + \beta_4 Exp + \beta_5 Size + \beta_6 Empy + \beta_7 SitCtxps + \beta_8 IPTsj + \beta_9 IPTsc + \beta_{10} IPTsd + \beta_{11} IPTsk + \beta_{12} IPTiu + \beta_{13} IPTqm + \varepsilon_j$$

Table 5: Definition of variables

Variable	Acronym	Variable description
Dependent Variable Audit Quality	*AudQual*	Measured by average rating on a six-point Likert scale of questions on Input factors, Contextual factors, Output factors, Key Interactions, Process factors and Financial Reporting Supply Chain
Predictor Variables		
Situational/Contextual Professional Skepticism	*SitCtxps*	Measured by average rating on a six-point Likert scale of questions on business acumen and environmental factors at audit firm and audit client level affecting professional skepticism
Inherent Personality Traits Professional Skepticism	*IPTps*	Measured by average rating on a six-point Likert scale of questions on inherent personality traits of Suspension of judgement, Self-confidence, Self-determining, Search for Knowledge, Interpersonal understanding and Questioning mind that drive professional skepticism of an individual.
	IPTsc	Self Confidence component of IPTps
	IPTsd	Self-Determining component of IPTps
	IPTsk	Search for Knowledge component of IPTps
	IPTiu	Interpersonal Understanding component of IPTps
	IPTqm	Questioning Mind component of IPTps
	Age	Respondent's age in years

Educ	Respondent's highest level of education
PrfQual	Respondent has an accounting prof. qualification: 1=Yes, 0 = No
Exp	Respondent's working experience in years
Size	Size of the respondent's firm by number of employees
Empy	Respondent's employer: 1 = Audit firm 0 = Others
εj	Error term

4. Results

4.1 Descriptive statistics

Means and standard deviations were determined to summarize the observed data. **Table 6** below gives a summary of the means and standard deviations.

Table 6: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	201	1	5	2.56	1.023
Education level	201	1	5	3.26	.737
Accounting Prof. Qualification	201	0	1	.91	.286
Work experience	201	1	6	3.15	1.507
Employment status	201	0	1	.662	.474
Size of employer	201	1	3	2.84	1.475
Situational/Contextual Professional Skepticism	**201**	**1.00**	**6.00**	**4.559**	**.857**
IPT Suspension of Judgement	201	1.00	6.00	4.910	1.096
IPT Self-Confidence	201	1.00	6.00	5.169	1.079
IPT Self Determining	201	1.00	6.00	4.671	1.171
IPT Search for Knowledge	201	1.00	6.00	5.163	1.004
IPT Interpersonal Understanding	201	1.00	6.00	4.272	1.072
IPT Questioning Mind	201	1.00	6.00	4.579	1.255
IPT Professional Skepticism	**201**	**1.28**	**6.00**	**4.794**	**.826**
Audit Quality - Input factors	201	1.00	6.00	5.128	.987
Audit Quality - Contextual factors	201	1.00	6.00	4.400	1.278
Audit Quality - Output factors	201	1.00	6.00	4.828	1.221
Audit Quality - Key Interactions in the FRC	201	1.00	6.00	4.078	1.372
Audit Quality - Process factors	201	1.00	6.00	4.813	1.086
Audit Quality	**201**	**1.00**	**6.00**	**4.650**	**.977**

PS = Professional Skepticism IPT = Inherent Personality Trait FRC = Financial Reporting Chain

The mean scores for the variables of study range between 3.96 and 5.16 on a six-point Likert scale. In comparison to the mean, the standard deviations range from 0.83 to 1.72. The small standard deviations relative to the mean values indicate that the data points are close to the means which is an indication that the means represent the data observed.

4.2 Correlation analysis results

Preliminary analysis was performed to ensure that assumptions of normality, linearity and homoscedasticity (Field, 2009; Pallant, 2007) are not violated. Results in Table 7 below show that professional skepticism in total has a strong and positive relationship with audit quality ($r=.631^{**}$, $p < 0.01$) providing preliminary support for the study that professional skepticism drives audit quality.

Table 7: Zero-order Pearson Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Business insight factors	(1)	1														
Environmental factors	(2)	.107	1													
Situational/Contextual PS	**(3)**	**.658****	**.819****	**1**												
IPT Suspension of Judgement	(4)	.571**	.058	.374**	1											
IPT Self-Confidence	(5)	.614**	.176*	.488**	.600**	1										
IPT Self Determining	(6)	.235**	.460**	.484**	.328**	.470**	1									
IPT Search for Knowledge	(7)	.686**	.170*	.525**	.682**	.651**	.358**	1								
IPT Inter- Understanding	(8)	.430**	.024	.266**	.483**	.384**	.084	.474**	1							
IPT Questioning Mind	(9)	.521**	.192**	.446**	.573**	.510**	.340**	.620**	.419**	1						
IPT Professional Skepticism	**(10)**	**.679****	**.248****	**.580****	**.817****	**.805****	**.588****	**.839****	**.629****	**.787****	**1**					
Professional Skepticism	**(11)**	**.752****	**.611****	**.897****	**.661****	**.721****	**.601****	**.761****	**.496****	**.687****	**.881****	**1**				
Adt Quality_Input factors	(12)	.777**	.158*	.568**	.713**	.750**	.353**	.778**	.468**	.568**	.807**	.769**	1			
Adt Quality_Env_Contx factors	(13)	.599**	-.078	.287**	.406**	.399**	.037	.420**	.434**	.399**	.465**	.420**	.555**	1		
Adt Quality_Output Factors	(14)	.617**	.114	.442**	.488**	.541**	.200**	.613**	.417**	.518**	.619**	.593**	.710**	.574**	1	
Adt Quality_Interact. in FRC	(15)	.481**	-.107	.197**	.346**	.277**	-.053	.353**	.433**	.226**	.347**	.303**	.438**	.692**	.528**	1
Adt Quality_Process factors	(16)	.663**	.107	.464**	.552**	.546**	.171*	.613**	.531**	.509**	.649**	.622**	.682**	.607**	.654**	.517**
Audit Quality	**(17)**	**.750****	**.034**	**.459****	**.592****	**.590****	**.154***	**.656****	**.552****	**.525****	**.681****	**.637****	**.799****	**.847****	**.837****	**.797****

**. Correlation is significant at the 0.01 level (2-tailed) PS = Professional Skepticism IPT = Inherent Personality Trait

*. Correlation is significant at the 0.05 level (2-tailed) Interact. In FRC = Interactions in Financial Reporting Supply Chain

Specifically, the findings have revealed a significant positive relationship between situational/contextual professional skepticism and audit quality (*r = .459**, p < 0.01*). This suggests that improvements in situational/contextual professional skepticism are likely to lead to increases in audit quality. For Inherent personality trait professional skepticism results also show a strong and significant positive relationship with audit quality (*r=.681**, p < 0.01*). Suggesting that an improvement in Inherent personality trait professional skepticism may lead to improvement in audit quality. Further, all dimensions of inherent personality traits professional skepticism have a significant positive relationship with audit quality i.e. for suspension of judgment (*r=.592**, p<0.01*), for self-confidence (r= *0.590**, p <0.01*), for self-determining (*r = 0.154*, p <0.05*), for search for knowledge (*r = .656**, p < 0.01*), for interpersonal understanding (*r =.552**, p < 0.01*), and for questioning mind (*r = .525**, p < 0.01*). This result suggests that high levels of any of the personality traits are likely to lead to high audit quality.

4.3 Regression analysis results

Results in Table 8 show a non-significant effect of control variables on audit quality as revealed by their respective standardized beta (β) coefficients in model 2 (Age: $\beta = 0.117, p > 0.05$; Level of education: $\beta = 0.000, p > 0.05$; Accounting professional qualification: $\beta=0.049, p > 0.05$; Experience: $\beta = -0.107, p > 0.05$; Employment status: $\beta = 0.064, p > 0.05$; Size of the firm: $\beta = -0.025, p > 0.05$). This suggests that control variables do not have a confounding effect on the results of the study. After controlling for the control variables, under model 2, situational/contextual professional skepticism ($\beta = 0.343, p < 0.001$) and Inherent personality trait professional skepticism ($\beta = 0.448, p < 0.001$) are both significant and positive predictors of audit quality. Both types of professional skepticism explain a significant 51.4% of the variance in audit quality (Adjusted $R^2 = 0.514, F = 27.474, p < 0.001$). These results support H_1 which states that situational/contextual professional skepticism is a positive and significant determinant of audit quality. This implies that an increase in *situational/contextual professional skepticism* will result into an increase in audit quality. Similarly, H_2 is also supported which states that inherent personality trait professional skepticism is a positive and significant determinant of audit quality, suggesting that an increase in *Inherent personality trait professional skepticism* results into an increase in audit quality.

Table 8: Multiple Regression analysis (DV = Audit quality)

Item	Model 1	Model 2	Model 3	Model 4	VIF	Tol.
Constant	4.191***	.068	1.020**	.130	na	na
Age	-.015	.117	.130	.096	2.563	.390
Education level	.031	.000	.011	.003	1.134	.882
Accounting Prof. qualification	.118	.049	.079	.066	1.190	.840
Work experience	-.047	-.107	-.191	-.070	2.643	.378
Employment status	.073	.064	.051	.026	1.060	.943
Size of the employer	-.005	-.025	-.029	-.017	1.067	.937
Situational/Contextual PS		.344***				
IPT Professional Skepticism		.448***				
Situational/Contextual PS			.653**	.341***	2.146	.466
IPT Suspension of Judgement				.128**	2.304	.434
IPT Self Confidence				.186**	2.387	.419
IPT Self-determining				.217***	1.430	.699
IPT Search for Knowledge				.169**	2.947	.339
IPT Interpersonal Understanding				.200***	1.472	.679
IPT Questioning mind				.067	1.928	.519
R	.142	.731	.657	.797		
R^2	.020	.534	.432	.636	**Durbin Watson Test 2.005**	
Adjusted R^2	-.010	.514	412	.610		
R^2 Change	.020	.534	.412	.203		
F-Statistic change	0.663	27.474	140.137	17.386		
Sig. F-Change	0.680	0.000	0.000	0.000		

Results in table 8 under model 4 further show that sub-hypothesis H_{2a} is supported i.e. *Suspension of judgement* is a positive and significant determinant of audit quality ($\beta = 0.128, p < 0.05$). This suggests that the more auditors withhold/suspend judgement until all facts are clear the higher will be audit quality. H_{2b} is supported i.e. *Self-confidence* is a positive and significant determinant of audit quality ($\beta = 0.186, p < 0.001$). This implies that the more confident auditors are and resist persuasion in situations of unclear audit evidence the higher will be audit quality. H_{2c} is supported i.e. *Self-determining* is a positive and significant determinant of audit quality ($\beta = 0.217, p < 0.001$). This implies that the more auditors are self-determining, act autonomously and independent the higher the audit quality. H_{2d} is supported i.e. *Search for knowledge* is a positive and significant determinant of audit quality ($\beta = 0.1693, p < 0.001$). This result shows that the more inquisitive auditors are the higher will be audit quality. H_{2e} is supported i.e. *Interpersonal understanding* is a positive and significant determinant of audit quality ($\beta = 0.200, p < 0.001$), implying that the more auditors understand individuals they interact with say of their integrity and motivation the higher will be audit quality. Surprisingly H_{2f} is not supported i.e. *Questioning mind* is a not a significant determinant of audit quality ($\beta = 0.067, p > 0.05$). This result, interpreted together with the correlation result for a questioning mind suggests that when acting alone, the trait of a questioning mind has some influence on audit quality, however in the presence of the other five inherent personality traits, auditors need not be very curious when evaluating audit evidence.

Collectively the above results imply that increases in professional skepticism aroused by audit firm and audit client level situational factors, and factors inherent to the individual auditor's mind, will result into higher audit quality. Results in Table 8 further show that all the diagnostic tests for multi-collinearity confirm non-violation of the assumptions for a valid regression and hence buttress the results above. Variance Inflation Factors – VIF are well below 10, all Tolerance factors are well above 0.1; and the Durbin-Watson statistic (DW test) is 2.005 confirm validity of the regression results (Field, 2009; Pallant, 2007).

4.4 Supplementary ANOVA analysis

Further analysis was carried out to determine if there are significant differences in professional skepticism and audit quality mean scores of accountants in practice (practicing as auditors) and accountants in business and employment (e.g. practicing as Chief Finance Officers or Accountants). Results of ANOVA tests carried out show that the Levene's test was insignificant for audit quality ($F=027$, $t = 910$, $df = 199$, $P > 0.05$) and also insignificant for professional skepticism ($F= 397$, $t = -.307$, $df = 198$, $P > 0.05$). These results indicate that there are no significant differences in views and attitudes on professional skepticism and audit quality between all registered accountants in practice and those in employment in Uganda.

5. Discussion of findings

This study has established that professional skepticism (triggered by factors at audit client, audit firm and individual auditor personality traits level) is a positive and significant determinant of audit quality. The findings support Cohen, Dalton and Harp (2017) who document results to the effect that professional skepticism has a positive and significant influence on the accuracy of audit opinions. In emerging economies, the study supports Kusumawati & Syamsuddin (2018) and Mardijuwono & Subianto (2018) who document results of a positive relationship between professional skepticism and audit quality in Indonesia and that the relationship is also moderated by auditors' ethical behavior (Puspitasari et al (2019). This is because at audit client level, when auditors exhibit heightened professional skepticism, they are more conservative and stand more resolute during negotiations over the financial statements with client management (Brown-Liburd et al., 2013) hence leading to higher audit quality. This study has indicated that to achieve the requisite heightened professional skepticism, auditors ought to fully understand the client's business model, have adequate financial resources and be worry of tight financial reporting deadlines imposed by the audit client. At the audit firm level, this study supports Carpenter and Reimers (2013) who show that firms with partners who emphasize professional skepticism are more efficient and effective in identifying fraud risks as well as in selecting relevant audit procedures, and hence improving audit quality. The current study has shown and confirmed that within the audit firm, firm leadership, tone at the top and a culture that promotes professional skepticism are essential to spur the requisite professional skepticism and hence audit quality. In addition, audit firms have to ensure that staff have the necessary training, professional competence and experience in order to drive professional skepticism and audit quality. This is in line with the mindset theory in that when the auditor's cognitive mind is oriented towards the objective of the audit exercise, they will be more inclined to perform the audit in line with expected standards and there by improve audit quality

The results of a positive relationship between inherent personality traits professional skepticism and audit quality supports Hurtt *et al*., (2013) who posts results to the effect that auditors that rate higher on trait professional skepticism i.e. have a higher skeptical behavior, detect more inconsistencies when reviewing audit documentation and therefore more able to offer higher audit quality. And results further support Quadackers et al. (2014) and Rose (2007) who using the inverse of trust to measure professional skepticism, show that less trusting auditors are more likely to arrive at skeptical judgments in an audit task, and they pay more attention to instances of aggressive financial reporting in financial statements thereby rendering quality audits. To achieve this, the current study has shown, in a sequential order, the requisite mind set personality traits auditor must have as self-determining, interpersonal understanding, self-confidence, search for knowledge and suspension of judgement. In particular, the study has shown that auditors need to defer judgement until one has looked at all available information; auditor have to have confidence in themselves and their abilities; they should not easily accept explanations; not to tire when looking for evidence and have an interest in understanding the motives and behaviors of those supplying the audit evidence. This result aligns with the mindset theory in that the same individual may hold and apply more of each of the personality trait attributes to trigger a skeptic behavior and identify the best audit quality course of action (Dweck, Chiu and Hong, 1995) during an audit.

6. Summary and conclusion

This study sought to examine the relationship between professional skepticism and audit quality. Drawing from the mindset theory and utilizing data obtained from 201 practicing accountants the study specifically examined the relationship of situational/contextual professional skepticism and inherent personality traits professional skepticism with audit quality. It has been established that both aspects of professional skepticism are significant and positive determinants of audit quality. Additionally, with the exception of a questioning mind, all inherent personality traits of professional skepticism (i.e. self-determining, interpersonal understanding, self-confidence, search for knowledge and suspension of judgement) are significant and positive determinants of audit quality.

This study has important implications for academics, practitioners and regulators. For academics, it has calibrated and shown validity of two scales of professional skepticism (situational / contextual professional skepticism and inherent personality trait professional skepticism) and that both aspects of professional skepticism are key determinants of audit quality. And that the significant personality traits that underpin professional skepticism to drive audit quality in their order of importance are: self-determining, interpersonal understanding, self-confidence, search for knowledge and suspension of judgement. For practitioners and regulators of accountants in emerging economies, the results of the study are important to owners of audit firms, since they show the situational and inherent professional skepticism factors practitioners should be emphasizing in order to improve audit quality. The study has shown regulators of auditors a basis of evaluating auditor's application of professional skepticism to improve audit quality.

Like any other study, results of this should be interpreted taking into account the following limitations. First, this study was limited to practicing accountants in Uganda; the results may only be applicable to Uganda. Second, although the study sought pertinent views from practicing accountants there could be self-report bias and the study missed the view of other stakeholders in the audit processes. Third, the study was cross-sectional and used a quantitative research approach which limits respondents' freedom to express their opinions and yet behaviors may change over time. Future studies could adopt a mixed methods approach including use of interviews and focus group discussions to obtain a deeper understanding of professional skepticism and audit quality. However, the use of established measures and scales in both academic and normative literature as well as the diagnostic steps taken to ensure validity of our findings implies that the study's results are important for Uganda and could be generalized in other similar environments.

References

Adeniyi, S. I., & Mieseigha, E. G. (2013). "Audit tenure: An assessment of its effects on audit quality in Nigeria". *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *3*(3), 275-283.

Association of Chartered Certified Accountants [ACCA] (2017), "Banishing Bias? Audit, objectivity and the value of Professional Skepticism" *The Association of Chartered Certified Accountants, UK.* Available at www.accaglobal.com Accessed : 15th April, 2017

Al-Ajim, J. (2009), "Audit firm size, corporate governance, and audit quality: Evidence from Bahrain", *Advances in Accounting, incorporating Advances in International Accounting,* Vol. 25, pp 64-74

Alareeni, B. A (2019), "The associations between audit firm attributes and audit quality-specific indicators: A meta-analysis" *Managerial Auditing Journal* Vol. 34 No. 1, 2019 pp. 6-43

Al-Eissa, A. I. (2009). "*Non-audit services and auditor independence: the case of Saudi Arabia*" (Doctoral dissertation, Victoria University) Available at : https://vuir.vu.edu.au/2008/1/Abdulazia.pdf Accessed : 6th July, 2020

Authority for Financial Markets (AFM) (2019), "2019 Annual Report" Available at : https://www.afm.nl/en/professionals/nieuws/2020/april/jaarverslag-2019 Accessed 30th March 2021.

Bartov, E., Gul, F.A. and Tsui, J.S.L. (2000). "Discretionary-accruals models and audit Qualifications", *Journal of Accounting and Economics*, 30(3), 421-452.

Bell, T. B., Causholli, M., & Knechel, W. R. (2015). Audit firm tenure, non-audit services, and internal assessments of audit quality. *Journal of Accounting Research*, *53*(3), 461-509.

Bennett, G. B., and R. C. Hatfield (2013), "The effect of the social mismatch between staff auditors and client management on the collection of audit evidence". *The Accounting Review* Vol. 88, No.1. Pp 31-50.

Bratten, B., Causholli, M., & Myers, L. A. (2020), "Fair value exposure, auditor specialization, and banks' discretionary use of the loan loss provision". *Journal of Accounting, Auditing & Finance*, Vol. 35 No.2, Pp 318-348.

Brazel, J. F., S. B. Jackson, T. J. Schaefer, and B. W. Stewart (2016), "The outcome effect and professional skepticism". *The Accounting Review* Vol. 91. No.6, Pp 1577-1599

Brazel, J.F., and Schaefer, T.J., (2017), "Research Insights—Auditor Professional Skepticism : Competence (Fraud Detection), Traits, and Conclusions & Future Research" Available at IFAC's Global Knowledge Gateway https://www.ifac.org/global-knowledge-gateway/audit-assurance/discussion/research-insights-auditor-professional-1. Accessed 10th March, 2021.

Bunge, M (1991), "A skeptic's beliefs and disbeliefs". *New Ideas in Psychology* Vol.9, No. 2. Pp 131-149

Carey, P., & Simnett, R. (2006). Audit partner tenure and audit quality. *The accounting review*, *81*(3), 653-676.

Carpenter, T.D., and J.L. Reimers. 2013. Professional skepticism: The effects of a partner's influence and the level of fraud indicators on auditors' fraud judgments and actions. *Behavioral Research in Accounting* 25(2): 45–69

Chen, F., Y. Hou, G. Richardson, and Ye, M., (2018). "Auditor experience and the timeliness of litigation loss contingency disclosures". *Contemporary Accounting Research,* 35 (2): 956– 979

Chi, W., L.A. Myers, T.C. Omer, and H. Xie. (2017), "The effects of audit partner pre-client and client-specific experience on audit quality and on perceptions of audit quality". *Review of Accounting Studies* 22(1): 361–391.

Choo, F. and K. Tan. (2000). "Instruction, skepticism, and accounting students' ability to detect frauds in auditing". *The Journal of Business Education 1 (Fall):* 72-87

Ciołek, M. (2017), "Professional skepticism in auditing and its characteristics". *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, (474), 33-40.

Cohen, J.R., Dalton, D.W. and N.L. Harp (2017), "Neutral and Presumptive doubt perspectives of Professional Skepticism and Auditor Job Outcomes," *Accounting, Organization and Society*, vol. 62, pp. 1-20

Cronbach, L.J. (1951), "Coefficient alpha and the internal structure of tests", *Psychometrika*, Vol. 16, pp. 297-334

DeAngelo, L.E. (1981), "Auditor size and audit quality", *Journal of Accounting and Economics*, Vol. 3 No. 3, pp. 183-199

DeFond, M., & J. Zhang (2014). "A review of archival auditing research". *Journal of Accounting and Economics*, Vol. 58. No. 2, Pp 275–326

Dweck, C.S., C. Chiu & Y.Hong (1995) "Implicit Theories and Their Role in Judgments and Reactions: A Word From Two Perspectives", *Psychological Inquiry,* Vol.6 Np.4, pp 267-285, DOI: 10.1207/s15327965pli0604_1

Feng, M., and C. Li. (2014). "Are Auditors Professionally Skeptical? Evidence from Auditors' Going-Concern Opinions and Management Earnings Forecasts". *Journal of Accounting Research* 52(5): 1061–1085

Fornell, C., & Larcker, D. F. (1981), "Evaluating structural equation models with unobservable variables and measurement error". *Journal of marketing research*, Vol.18, No1 Pp 39-50

Francis, J.R. (2011), "A framework for understanding and researching audit quality", *Auditing: A Journal of Practice and Theory*, Vol. 30 No. 2, pp. 125-152.

Francis, J. R and Yu, M. D, (2009), "The Effect of Big Four Office Size on Audit Quality", *The Accounting Review,* Vol.8, Pp 1521

Field, A. (2009), *Discovering Statistics Using SPSS*, 3rd ed., Sage Publications, London.

Goodwin, J. and D. Wu. (2016). "What is the relationship between audit partner busyness and audit quality?" *Contemporary Accounting Research* 33: 341–377.

Glover, S.M., & Prawitt, D.F (2014), "Practitioner Summary-Enhancing auditor professional skepticism: The professional skepticism continuum" *Current Issues in Auditing* Vol.8. No.2 pp1-10

Gollwitzer,P.M.(1990), "Action phases and mind-sets" *Handbook of motivation and Cognition* Vol. 2 (pp.53-92) Foundations of social behavior.

Habib, A. (2012). "Non-audit service fees and financial reporting quality: A meta-analysis". *Abacus*, *48*(2), 214-248.

Hurtt, R.K., (2010), "Development of a scale to measure professional skepticism". *Auditing: A Journal of Practice & Theory*, *29*(1), pp.149-171.

Hurtt, R.K., H. Brown-Liburd, C.E. Earley, and G. Krishnamoorthy (2013). "Research on auditor professional skepticism: Literature synthesis and opportunities for future research". *Auditing: A Journal of Practice and Theory* Vol. 32: Pp 45–97.

International Auditing and Assurance Standards Board (IAASB) (2014). "A Framework for Audit Quality: *Key Elements That Create an Environment for Audit Quality February 2014*

International Auditing and Assurance Standards Board (IAASB) (2015) "*Invitation to comment*: *enhancing audit quality in the public Interest – A focus on Professional skepticism, quality control, and group audits*. New York, NY

International Auditing and Assurance Standards Board (IAASB) (2016) "*Handbook of International Quality Control, Auditing, Review, Other Assurance, and Related Services Pronouncements*. New York, NY: International Federation of Accountants.

Institute of Certified Public Accountants of Uganda [ICPAU], (2018), "List of Accounting Firms and Practicing Accountants as at 26th March, 2018" Available on www.icpau.ug accessed 31st March 2018.

International Federation of Accountants [IFAC] (2017), "Towards Enhanced Professional Skepticism", Available at : https://www.ifac.org/system/files/publications/files/Toward-Enhanced-Professional-Skepticism-IAASB-IAESB-IESBA.pdf Accessed 20th Dec, 2017

International Forum of Independent Audit Regulators [IFIAR] (2020), "Report on 2020 Survey of Inspection Findings" Available at https://www.ifiar.org/?wpdmdl=12436 Accessed 30th March 2021.

Johnson, O.A. (1978), "*Skepticism and Cognitivism"* Berkeley, CA: University of California Press, Ltd.

Kaawaase, K.T., Mussa, J., Assad, E. G., Kitindi., Nkundabanyanga, K.S. (2016). "Audit quality differences amongst audit firms in a developing economy", *Journal of Accounting in Emerging Economies,* Vol. 6 No.3 pp. 269 – 290

Khurana, I.K, & Raman, K.K (2005), "Are big four audits in ASEAN countries of higher quality than Non-big four audits?", *Asia-Pacific Journal of Accounting and economics,* Vol.11, pp 139 - 166

Knapp, M. (1991), "Factors that Audit Committees Use as Surrogates for Audit Quality", Auditing: A Journal of Practice & Theory, Vol 10 No. 1, pp. 35-52

Knapp, C.A., and M.C. Knapp (2001). "The effects of experience and explicit fraud risk assessment in detecting fraud with analytical procedures". *Accounting, Organizations and Society* Vol. 26: Pp 25–37.

Knechel, W.R., G.V. Krishnan, M. Pevzner, L.B. Shefchik, and U.K. Velury (2013), "Audit quality: Insights from the academic literature". *Auditing: A Journal of Practice and Theory* 32(S1): 385–421.

Krauss, P., & Zulch, H. (2013). Non-Audit services and audit quality: blessing or curse? *Journal of Applied Business Research (JABR)*, *29*(2), 305-326.

Krejcie, R.V. & Morgan, D.W. (1970), "Determining Sample Size for Research Activities", *Educational and Psychological Measurement*, Vol. 30 pp 607-610

Kusumawati, A. and S. Syamsuddin, (2018) "The effect of auditor quality to professional skepticism and its relationship to audit quality", *International Journal of Law and Management*, Vol. 60 Issue: 4, pp. 998-1008

Kyamanywa, S.(2020), "Audit quality: Findings and initiatives for improvement" Available at http://todaysaccountant.com/audit-quality-findings-and-initiatives-for-improvement/ Accessed 30th March 2021

Lennox, C. and X. Wu. 2018. A review of the archival literature on audit partners. *Accounting Horizons* 32(2): 1–35.

Li, C. Song, F.M. & Wong, S.M.L. (2008), "A Continuous Relation between Audit Firm Size and Audit Opinions: Evidence from China", International *Journal of Auditing,* Vol. 12: pp 111-127.

Libby, R., & Luft, J. (1993). "Determinants of judgment performance in accounting settings: Ability, knowledge, motivation, and environment". *Accounting, organizations and society*, Vol. 18 No.5, Pp 425-450.

Mahdi, S., Mohamad Reza Fakhri Mahmoudi, and Gah, A. D (2019) "A meta-analysis approach for determinants of effective factors on audit quality: Evidence from emerging market", *Journal of Accounting in Emerging Economies*, Vol. 9 Issue: 2, pp.287-312,

Marks, M. A., Mathieu, J. E., & Zaccaro, S. J. (2001). A temporally based framework and taxonomy of team processes. *Academy of management review*, *26*(3), 356-376.

Mardijuwono, A.W. and Subianto, C. (2018), "Independence, professionalism, professional skepticism: The relation toward the resulted audit quality", *Asian Journal of Accounting Research*, Vol. 3 No. 1, pp. 61-71

Mautz, R.K., and H.A. Sharaf (1961), *"The Philosophy of Auditing"* American Accounting Association Monograph No.6. Sarasota, FL: American Accounting Association.

Ndaba, H., Harber, M. and Maroun, W. (2021), "Audit quality implications of regulatory change in South Africa", *Journal of Accounting in Emerging Economies*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JAEE-11-2020-0290

Nelson, M.W. (2009). "A model and literature review of professional skepticism in auditing". *Auditing: A Journal of Practice & Theory*. Vol.28 No.2. Pp 1-34.

Nelson, M.W., C.A. Proell, and A.E. Randel. 2016. Team-oriented leadership and auditors' willingness to raise audit issues. *The Accounting Review* 91(6): 1781–1805

Nolder, C.J., and K. Kadous (2018), "Grounding the professional skepticism construct in mindset and attitude theory: A way forward" Accounting*, Organizations and Society* Vol. 67: pp 1–14

Olsen, C., and A. Gold. (2018) "Future research directions at the intersection between cognitive neuroscience research and auditors' professional skepticism". *Journal of Accounting Literature* 41: 127–141.

Olsen, C., & Stuart, I. (2017). The Effects of Situational Professional Skepticism and Effect on Auditor's Skeptical Judgments: A Two-System Theory Perspective. In C. Olsen (Ed.), A Study of Professional Skepticism: Springer International Publishing.

Pallant, J. (2007). Survival manual. *A step by step guide to data analysis using SPSS*, *4*. McGraw-Hill, Berkshire England.

Payne, E.A., and R.J. Ramsay. 2005. Fraud risk assessments and auditors' professional skepticism. *Managerial Auditing Journal* 20(3): 321–330.

Peecher, M. E. (1996). “The influence of auditors' justification processes on their decisions: A cognitive model and experimental evidence”. *Journal of Accounting Research*, Vol. 34 No.1, PP 125-140.

Pham, H., Amaria, P., Bui, T., & Tran, S. (2014), “A study of audit quality in Vietnam”. *International Journal of Business, Accounting, & Finance*, *8*(2).

Public Company Accounting Oversight Board (PCAOB) (2019a). “Release No. 105-2019-031. Order instituting disciplinary proceedings, making findings, and imposing sanctions. Available at https://pcaobus.org/Enforcement/Decisions/Documents/105-2019-009-REM.PDF Washington, DC: PCAOB, Accessed 30th March 2021

Public Company Accounting Oversight Board (PCAOB). 2019b. Release No. 2019-002. *Annual Report on the Interim Inspection Program Related to Audits of Brokers and Dealers*. Washington, DC: PCAOB. Available at https://pcaob-assets.azureedge.net/pcaob-dev/docs/default-source/enforcement/decisions/documents/105-2019-031-pmb.pdf?sfvrsn=b4254b9e_0 Accessed : 30th March 2021.

Puspitasari, A., Baridwan, Z., & Rahman, A. F. (2019). “The Effect of Audit Competence, Independence, and Professional Skepticism on Audit Quality with Auditor’s Ethics as Moderation Variables”. *International Journal of Business, Economics and Law*, *18*(5), 135-144.

Quadackers, L., M. Groot, and A. Wright. (2014), “Auditor’s professional skepticism: Neutrality versus presumptive doubt”. *Contemporary Accounting Research* Vol.31No.3 Pp 639–657

Rajgopal, S., Srinivasan, S. and X. Zheng (2020), “Measuring Audit Quality” *Review of Accounting Studies* (Forthcoming): Available at https://ssrn.com/abstract=3504037 or http://dx.doi.org/10.2139/ssrn.3504037. Accessed 07th April, 2021

Rose, J. M. (2007). “Attention to evidence of aggressive financial reporting and intentional misstatement judgments: Effects of experience and trust”. *Behavioral Research in Accounting,* 19: 215–229.

Salehi M, Mansoury A and Pirayesh (2008), “Factors affecting quality of audit: Evidence from Iran”, *Journal of Business Research,* Vol. 2, No 1, pp 1-25

Shaub, M.K., and J.E. Lawrence (1999), “Differences in auditors’ professional skepticism across career levels in the firm” *Advances in Accounting Behavioral Research* Vol.2: Pp 61–83.

Stein, S.E., (2019). “Auditor industry specialization and accounting estimates: Evidence from asset impairments. *Auditing: A Journal of Practice & Theory*, Vol 38 No.2: Pp 207-234.

Sundgren, S. and S. Svanström (2014). “Auditor-in-charge characteristics and going-concern reporting”. *Contemporary Accounting Research* Vol.31No.2, Pp 531–550.

Sutton, S.G. (1993), “Toward an understanding of the factors affecting the quality of the audit process”, *Decision Sciences*, Vol. 24 No. 1, pp. 88-105.

Turner, C. W. (2001). “Accountability demands and the auditor's evidence search strategy: The influence of reviewer preferences and the nature of the response (belief vs. action)”. *Journal of Accounting Research* Vol.39 No.3 Pp 683-706.

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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.

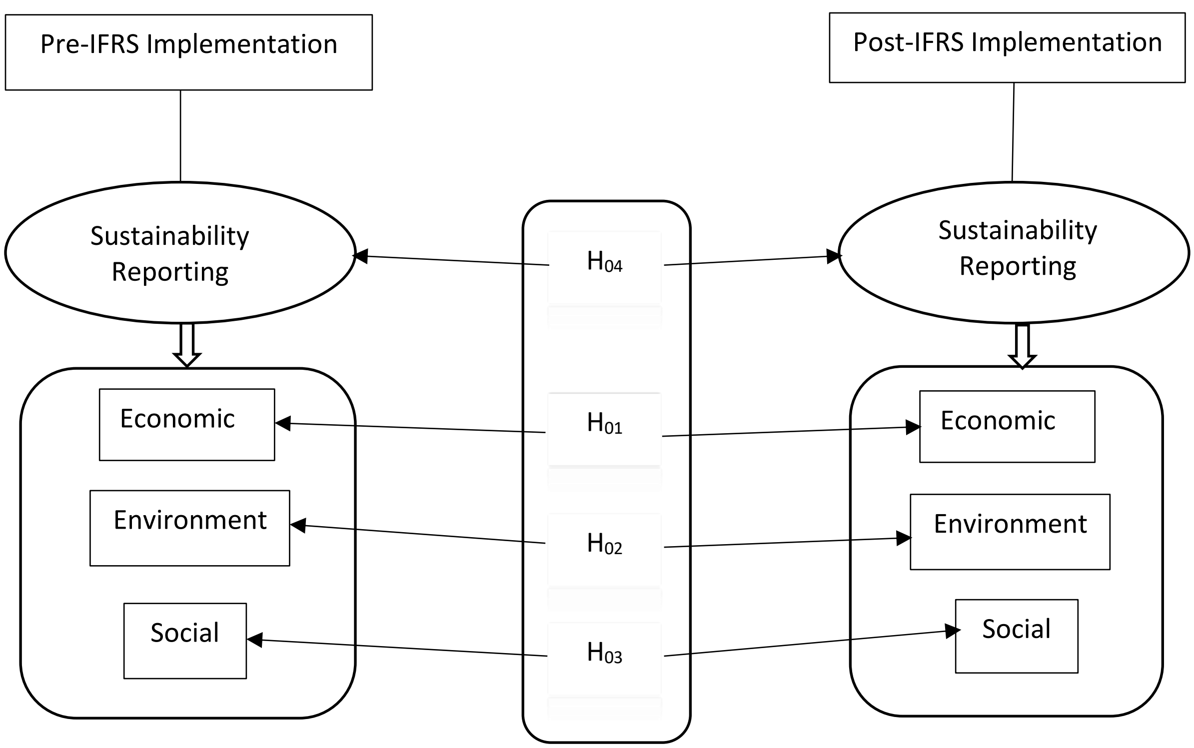
The remainder of the paper consists of five sections. Section 2 embodies literature review and development of hypothesis and section 3 describes the research methodology. The results and findings are presented in section 4, section 5 gives a comprehensive discussion of the results, while the conclusion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

References

Agnihotri, A. (2014) 'Corporate reputation based theory of choice between organic, hybrid and inorganic growth strategies', *Corporate Communications: An International Journal*, 19(3), pp. 247–259.

Akisik, O. and Gal, G. (2011) 'Sustainability in businesses, corporate social responsibility, and accounting standards: An empirical study', *International Journal of Accounting and Information Management*, 19(3), pp. 304–324. doi: 10.1108/18347641111169287.

Al-Shaer, H. (2020) 'Sustainability reporting quality and post-audit financial reporting quality: Empirical evidence from the UK', *Business Strategy and the Environment*, 29(6), pp. 2355–2373. doi: 10.1002/bse.2507.

Ankarath, N. *et al.* (2010) *Understanding IFRS Fundamentals*. Hoboken, New Jersey: John Wiley & Sons, Inc.

Asaolu, T. O. *et al.* (2011) 'Sustainability Reporting in the Nigerian Oil and Gas Sector', in *Proceedings of the Environmental Management Conference, Federal University of Agriculture, Abeokuta, Nigeria, 2011 Sustainability*.

Bebbington, J., Larrinaga-González, C. and Moneva-Abadía, J. M. (2008) 'Legitimating reputation/the reputation of legitimacy theory', *Accounting, Auditing and*

Accountability Journal, 21(3), pp. 371–374. doi: 10.1108/09513570810863969.

Beredugo, S. B. and Mefor, I. P. (2012) 'The Impact of Environmental Accounting and Reporting on Sustainable Development in Nigeria', *Research Journal of Finance and Accounting*, 3(7), pp. 36–43. doi: 10.5539/ijbm.v7n20p36.

Bondy, K. and Jackson, G. (2009) *Isomorphism in the Practice of Corporate Social Responsibility : Evidence of an Institution and its Decline*.

Bowers, T. (2010) 'From Image to economic value: a genre analysis of sustainability reportin', *Corporate Communications: An International Journal*, 15(3), pp. 249–262.

Cherepanova, V. (2017) 'A Case for International Financial Reporting Standard on Sustainability: A Critical Perspective', *Journal of Management and Sustainability*, 7(2), p. 78. doi: 10.5539/jms.v7n2p78.

Cho, C. H. *et al.* (2015) 'Organized hypocrisy, organizational façades, and sustainability reporting', *Accounting, Organizations and Society*. Elsevier Ltd, 40, pp. 78–94. doi: 10.1016/j.aos.2014.12.003.

Christensen, H. B., Hail, L. and Leuz, C. (2019) 'Adoption of CSR and Sustainability Reporting Standards: Economic Analysis and Review', *SSRN Electronic Journal*, (August). doi: 10.2139/ssrn.3427748.

Christofi, A., Christofi, P. and Sisaye, S. (2012) 'Corporate sustainability: Historical development and reporting practices', *Management Research Review*, 35(2), pp. 157– 172. doi: 10.1108/01409171211195170.

Dobre, E., Stanila, G. and Brad, L. (2015) 'The Influence of Environmental and Social Performance on Financial Performance: Evidence from Romania's Listed Entities', *Sustainability*, 7(3), pp. 2513–2553. doi: 10.3390/su7032513.

Ghanbari, M. *et al.* (2016) 'PAT (Positive Accounting Theory) and Natural Science', 10(2), pp. 177–182.

Global Reporting Initiative (2016) 'Consolidated set of GRI'.

GRI Global Reporting Initiative (2015) *Sustainability Reporting Guidelines*. Available at: www.globalreporting.org.

Hahn, R. and Kühnen, M. (2013) 'Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research', *Journal of Cleaner Production*, pp. 5–21. doi: 10.1016/j.jclepro.2013.07.005.

Harvey, W. *et al.* (2017) 'Lens or prism? How organisations sustain multiple and competing reputations', *European Journal of Marketing,* 51(4), pp. 1–43.

Ioannou, I. and Serafeim, G. (2011) *The Consequences of Mandatory Corporate Sustainability Reporting*, *SSRN*. doi: 10.2139/ssrn.1799589.

Khaveh, A. *et al.* (2012) 'Voluntary Sustainability Disclosure, Revenue, and Shareholders Wealth - A Perspective from Singaporean Companies', *Business Management Dynamics*, 1(9), pp. 6–12.

Kılıç, M. and Kuzey, C. (2018) *Factors Influencing Sustainability Reporting: Evidence from Turkey*, *SSRN*. doi: 10.2139/ssrn.3098812.

Kothari, C. (2004) *Research methodology: methods and techniques*. 2nd edn, *New Age International*. 2nd edn. New age international limited, publisher. doi: http://196.29.172.66:8080/jspui/bitstream/123456789/2574/1/Research%20Methodology. pdf.

Kouki, A. (2018) 'IFRS and value relevance : A comparison approach before and after

IFRS conversion in the European countries', *Journal of Applied Accounting Research*, 19(1), pp. 60–80.

Kwaghfan, A. (2015) *Impact of Sustainability Reporting on Corporate Performance of Selected Quoted Companies in Nigeria*. University of Nigeria, Enugu Campus.

Kythreotis, A. (2014) 'Measurement of financial reporting quality based on IFRS conceptual framework's fundamental qualitative characteristics', *European Journal of Accounting, Finance & Business*, 2(3), pp. 4–29.

Lanis, R. and Richardson, G. (2013) 'Corporate social responsibility and tax aggressiveness: A test of legitimacy theory', *Accounting, Auditing and Accountability Journal*, 26(1), pp. 75–100.

Lee, W. J. (2019) 'Toward sustainable accounting information: Evidence from IFRS adoption in Korea', *Sustainability (Switzerland)*, 11(4), pp. 1–17. doi: 10.3390/su11041154.

Lemus, E. (2016) 'The Importance of CSR in Financial Reporting Standards', *Global Journal of Management and Business Research: D Accounting and Auditing*, 16(2)..

Martínez-Ferrero, J., Garcia-Sanchez, I. M. and Cuadrado-Ballesteros, B. (2015) 'Effect of financial reporting quality on sustainability information disclosure', *Corporate Social Responsibility and Environmental Management*, 22(1), pp. 45–64. doi: 10.1002/csr.1330.

Negash, M. (2012) 'IFRS and environmental accounting', *Management Research Review*, 35(7), pp. 577–601. doi: 10.1108/01409171211238811.

Nnamani, J. N., Onyekwelu, U. L. and Ugwu, O. K. (2017) 'Effect of sustainability accounting and reporting of financial performance of firms in Nigeria brewery sector', *European Journal of Business and Innovation Research*, 5(1), pp. 1–15.

Nwobu, O. A. (2017) *Determinants of corporate sustainability reporting in selected companies in Nigeria*.

Nwobu, O. A., Owolabi, A. A. and Iyoha, F. O. (2017) 'Sustainability reporting in financial institutions: a study of the Nigerian banking sector', *Journal of Internet Banking and Commerce*, 22(S8), pp. 1–15.

Okwuosa, I. and Amaeshi, K. (2018) 'Sustainability reporting and the professional accountant in Nigeria'.

Olayinka, M. *et al.* (2014) 'Firms ' performance and corporate social disclosures : cross-sectional evidence of Nigerian firms', *Int. J. Management Practice*, 7(4), pp. 341–365.

Owolabi, F. *et al.* (2016) 'Assessment of Sustainability Reporting in Nigerian Industrial Goods Sector', *3rd International Conference on African Development*, 3, pp. 383–386.

Pérez-Calero, L., Villegas, M. del M. and Barroso, C. (2016) 'A framework for board capital', *Corporate Governance (Bingley)*, 16(3), pp. 452–475. doi: 10.1108/CG-10-2015-0146.

Saleh, K. (1993) 'Environmental Accounting for Sustainable Growth and Development with Special Reference to a System of Integrated Environmental and Economic Accounting (SEEA): The Indonesian Experience

Senkl, D. (2010) *Essays on Earnings Quality and Corporate Social Responsibility Reporting*. Available at: http://ediss.sub.uni-

hamburg.de/volltexte/2017/8473/pdf/Dissertation.pdf.
Tsalavoutas, I. and Dionysiou, D. (2014) 'Value relevance of IFRS mandatory disclosure requirements', *Journal of Applied Accounting Research*, 15(1), pp. 22–42. doi: 10.1108/JAAR-03-2013-0021.
Watts, P. and Holme, Lord (1999) *Corporate Social Responsibility: Making Expectations Meet, World Business Council for Sustainability Development*. doi: 1998.
Weerathunga, P. R. *et al.* (2020) 'Do the IFRS promote corporate social responsibility reporting? Evidence from IFRS convergence in India', *Journal of International Accounting, Auditing and Taxation*. Elsevier Inc., 40, p. 100336. doi: 10.1016/j.intaccaudtax.2020.100336.
Žák, M. (2009) *Sustainability Accounting and Reporting (at Macroeconomic and Microeconomic level)*. doi: 10.1007/978-1-4020-4974-3.

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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