ANAN CORPORATE HEADQUARTERS
PLOT 559, MABUSHI DISTRICT, OFF AHMADU BELLO WAY,
ABUJA, FCT.

N800 UK£5 US$8

THE CERTIFIED NATIONAL ACCOUNTANT, VOL. 29 NO 3, JULY - SEPTEMBER, 2021

Volume 29, Number 3

The Certified National Accountant

A Quarterly Journal of Association of National Accountants of Nigeria

ANAN
a premium brand of choice

ISSN 0189-0662

JULY - SEPTEMBER, 2021

ANAN President, Prof. Benjamin Chuka Osisioma, FCNA, commissioning the Primary Health Care Centre built by The Nigerian College of Accountancy, the Training Arm of ANAN at Ouree-Dam Kwall, Bassa LGA

COUNCIL MEMBERS

The Certified National Accountant

Volume 29 Number 3, July - September, 2021

Content Page

EDITORIAL

The editorial board heartily send her warm greetings to her comrades and to all her esteemed contributors and avid readers. You are all welcome once again to this edition of our educative Journal – The Certified National Accountant, Volume 29, Number 3. This quarterly publication is to continually abreast its members and the entire accounting professional bodies on track for the purpose of learning and research work to achieve efficient and effective professional productivity.

The editorial board has again selected very important and educative papers/articles full of emerging issues. These articles aim at enriching and widening the knowledge of its esteem members on professional practice, providing new ideas on our professional field to aid all accounting bodies, institutions and esteemed readers on a proper effective contribution to our national economy.

The articles for this third edition are:

* Effect of Foreign Exchange Rate instability on the Nigerian Economy, 1986-2020. (An empirical analysis using error correction model)

* Addressing global warming menace through environmental education and taxation: The current status and way forward.

* Governance sustainability disclosures and corporate performance of quoted oil and gas companies in Nigeria.

* Investors' reaction to information disclosures on human and social factors in the annual reports: evidence from the Nigerian capital market.

* Financial innovation and performance of deposit money banks in Nigeria.

* Response of firm productivity to human capital expenditures in oil and gas firms in Nigeria.

The board hereby welcomes you all to these interesting and professionally educative selected papers, which will enhance our professional productivity.

Professor Joseph Offiong Udoayang, FCNA
FRC/2015/ANAN/00000010896
Chairman, Editorial Board /Editor-in-Chief
e-mail: josephudoayang@yahoo.com
Phone: +2348034194911

CALL FOR PAPER

The Certified National Accountant Journal (CNAJ) invites unpublished, original, empirical, professional and high quality research work written in English from interested and related scholars, researchers and practitioners for publication on quarterly basis. The research areas of the papers for publication include among others: Current Challenges and Emerging Issues in the Accounting Profession, Financial Accounting and Reporting, Forensic Accounting and Internal Control Systems, Cost and Management Accounting and Management Information System. Financial Management and Control. Energy Finance and Renewable energy. Taxation, Tax Policy and Implementation. Corporate Governance and Economic Development, Corporate Social Responsibility and Financial Reporting, Accounting Theory and Disclosure. Electronic Accounting, Environmental, Petroleum and Solid Minerals Accounting, Human Resource Accounting. Public Sector Accounting and Reporting. Budgeting System and Implementation Crisis, Contemporary Issues in Accounting. Auditing and Accounting Standards and Institutions. Accounting Ethnics, The Position of IFRS in the Nigerian Accounting Practice, Financial Reporting and the Nigerian Financial Regulations and any other accounting related areas.

FORMAT OF THE MANUSCRIPT

Manuscript should be written in English (if it is written in French, English translation must be included). The Manuscript should not be more *than 16 pages on A4 type paper with 1 inch margin for the top and bottom while the right and left hands margin should* take 1.25 inches each. The reference should be in the current APA style. Times New Roman with 12 font size of one and half line spacing are to be adopted. There should be separate cover page to contain the title of the work, the author(s)' full names and titles, addresses, institutional affiliation, phone number and e-mail address and abstract of the work should not be more than 300 words. The keywords of four to six words should also be included in alphabetical order. Microsoft words should be used. The work should be structured into Introduction, Literature review. Methodology, Results, Discussion and Conclusion, References and Appendices (where applicable). The manuscript should be numbered consecutively on the bottom centre. Manuscript that does not conform to these guidelines may be returned to the author for compliance before review. All manuscripts are subjected to blind review by experts in the specialized area to ensure relevance, contribution, acceptance or otherwise before final necessary action by the Editorial Board of CNAJ.

ONLINE SUBMISSION

All manuscripts should be submitted electronically as attachment to our e-mail: ananpubcommittee2021@gmail.com. The journal is quarterly: submission of manuscript shall be acknowledged within two days. Authors should note that publication in CNAJ is free of charge as contribution of ANAN to the development of accounting research in Nigeria.

Effect of Foreign Exchange Rate Instability on the Nigerian Economy, 1986-2020
(An Empirical Analysis using Error Correction Model)

*Agu, Bertram Onyebuchi, Abugu, James .O.**

Abstract
The study investigated the impact of exchange rate instability on the Nigerian economy for the period 1986-2020 employing Error correction model. Annual time series data was used and the study specifically sought to, determine the effect of Monetary Policy Rate instability on the Nigerian Economy, ascertain the impact of Interest Rate instability on the Nigerian Economy, determine the causal relationship between Inflation Rate instability and the Nigerian Economy. Gross Domestic Product is the dependent variable of this study, while inflation rate, interest rate monetary policy rate are the independent variables. We applied in our analysis, Phillips- Perron unit root Test, Johansen test for co-integration among variables, Error Correction Model (ECM) was adopted to investigate the linkage of these variables to the Nigerian economy. The co-integration test confirms that there is a long run relationship between Exchange Rate instability and the Nigerian Economy. The estimated result shows that the exchange rate instability has no significant and negative influence on Gross Domestic Product in Nigeria during the period. The result therefore suggested that devaluation of the domestic currency does not lead to improvement in the Exchange Rate stability and hence GDP position of the country. It was therefore recommended that measures to stabilize exchange rate and check its continuous free fall should be carefully considered as a policy option.

Keywords: Exchange Rate, Interest Rate, ECM, Inflation Rate and Monetary Policy Rate, Instability

Introduction

The instability of exchange rate has been one of the controversial matters in developing countries in 1980's and the instrumental policy was made with stiff opposition to devaluation to avoid its inflationary implications, among other reasons (Usman and Adegbite, 2013). Nigeria faces such a situation and there has been interest, therefore, in economic performance as a result of exchange rate volatility in the process. This instability is a topical issue and it is a key determinant that is affecting price signals in a market driven economy. It is generally accepted that exchange rate is a variable, which affects the rate of economic activity and developmental impact on investments, savings, production and consumption and inflation.

Nigerian economy has consistently faced important policy issue with respect to devaluation of exchange rates and their subsequent impact on the economy. Trade deficits imply choosing between exchange rate devaluation and the internal or external financing of the deficit, which are challenging policy decisions to undertake, manage or sustain, especially in the long run for a developing country like Nigeria (Usman and Adegbite 2013). There is also a general agreement that there are differences between the short-run and long-run effects of a depreciating exchange rate on trade balance in that there is no specific pattern that the trade balance follows in the short-run after devaluation.

Statement of the problem

Nigeria's exchange rate instability has affected the valuation of the Naira. It has encouraged imports and discouraged exports and also encourages over dependence of Nigerians on imported goods and services. (Owolabi and Adegbite, 2013)

Naira exchange rate has exhibited the features of continuous depreciation and instability. This singular action has resulted in the declines in the standard of

Agu, Bertram Onyebuchi, is a lecturer at the Department of Banking and Finance, Enugu State University of Science and Technology, ESUT Enugu, while, Abugu, James .O. is a lecturer at the Department of Marketing FBA, Enugu Campus, University of Nigeria, Nsukka, Nigeria

living of the populace, increased cost of production which also leads to cost push inflation. Exchange rate instability undermines the international competitiveness of non-oil export and make planning and projections difficult on both micro and macro levels of Nigerian economy (Nwobia, Ogbonnaya and Okoye, 2020)

The huge inflow of foreign exchange revenues that accompanied the oil boom in Nigeria in the 1970s diverted the attention of the government from its traditional agriculture commodities to crude oil exploitation. A considerable number of the producers of these commodities such as groundnut, cotton, oil palm moved into activities aimed at exploiting the economic opportunities created by increased oil revenues. This development brought about the decline of agricultural production and the resultant drop in both volume and value of traditional export commodities. The resultant effect of this is a mono-product economy with the national revenue in excess of eighty percent from crude oil earnings alone.
Nigeria has a large population coupled with large number of insurgency and imports, virtually everything including toilet tissues and toothpicks. In fact, in some quarters, the consumption of imported goods has become a status symbol.

Objectives of the study
The broad objective of the study is to investigate the impact of Exchange Rate Instability on the Nigerian Economy from 1986 to 2020. The Specific Objectives were to:

- Determine the effect of Monetary Policy Rate Instability on the GDP in Nigeria.
- Ascertain the impact of Interest Rate Instability on the GDP in Nigeria.
- Examine the causal relationship between Inflation Rate Instability and the GDP in Nigeria

Statement of hypotheses
In line with the objectives above, the following hypotheses guided this study.

H01: Monetary Policy Rate Instability has no significant effect on the GDP in Nigeria

H02: Interest Rate Instability has no significant Effect on the GDP in Nigeria

H03: There is no causal relationship between Inflation Rate Instability and the GDP in Nigeria Economy

2.0 Review of related literature

2.1 Conceptual review

Exchange rate: According to Ezu (2012) Exchange rate is the price of a nation's currency versus another currency. It is the required amount of units of a currency that can buy another amount of units of another currency. Powell (1993) defined exchange rate simply as the external price of a currency expressed in terms of an artificial unit such as weighted average of “sample” or “basket of leading trade currencies”. Olukole (l992) observed that exchange rate is the numerical expression of the value of the currency of one country at any given time.
Okonkwo (1991) defined exchange rate as “the price of one currency in terms of the other”. To him, exchange rate is the rate at which one currency exchanges for another. This view is corroborated by Usman (1991) when he said that “the exchange rate is the value of a country's domestic currency in terms of a foreign, currency”. Elumelu (2002) saw exchange rate as any other price that is determined by the forces of demand and supply in a perfectly competitive market and in a world where free international exchange is the rule. Daniels et al (1976) defined exchange rates as the number of units of currency, at which another currency can be bought. It is also defined as the price of the currency in terms of another (CBN, 1997)

Interest rate
Interest rate is a macroeconomic concept that is defined as the amount that a bank charges on the amount it lends. It is the rate at which commercial banks make funds available to customers. Interest rate is an important economic price; which can either be seen as a cost of capital or as an opportunity cost of funds. Also, interest rate can be viewed as the price paid for the use of money. It is the opportunity cost of borrowing money from a lender. It can also be seen as the return being paid to the provider of financial resources (Bosco and Emerence, 2016).

Inflation rate

Inflation refers to an overall increase in the Consumer Price Index (CPI), which is a weighted average of prices for different goods. The set of goods that makes up the index depends on which are considered representative of a common consumption basket. Therefore, depending on the country and the consumption habits of the majority of the population, the index will comprise different goods. Some goods might record a drop in prices, whereas others may increase, thus the overall value of the CPI will depend on the weight of each of the goods with respect to the whole basket. Annual inflation refers to the percent change of the CPI compared to the same month of the previous year (Faraji, 2014).

Monetary policy rate

MPR is the formal and authorized interest rate of the CBN, which helps all other financial institutions in the country to determine the rate of interest at which facilities should be given to the firms and individuals. This is the interest rate at which CBN lends to commercial banks. The MPR is the benchmark against which other lending rates in the economy are pegged and is usually used as an instrument to moderate inflation in the economy (CBN, 2006).

Theoretical framework

The Study was anchored on the Monetary Model of exchange rates, to this, Nzotta posits that it assumes that changes in the supply of money affect the exchange rate either directly or indirectly. The model tries to explain the changes in exchange rates in terms of changes in the demand for and supply of money between two currencies (Olisadebe, 1991). Conceptually, an increase in real income given a fixed nominal money supply, leads to a fall in prices, thus making exchange rates to appreciate. Conversely, an increase in money demand, leads to increase in prices, which eventually leads to exchange rates depreciation.

Empirical review

Babatunde, Abuh, Ekpenyong and Ehinomen (2016) focused their study on the nexus between exchange rates and economic growth in Nigeria throughout 1978 to 2014. It analyzed the data for Nigeria using Ordinary Least Square (OLS) method and found out that Exchange Rates positively and significantly influence Economic Growth and vice versa. The study revealed the non-spuriousness of our regression via the stationarity of the residuals. Cointegration technique employed also showed the long-run equilibrium among the series used. The short-run directional relations were established between the exchange rates and economic growth in the country via Pairwise granger causality tests.

Danladi, Akomolafe, Bablola and Akpan (2016) evaluated the impact of exchange rate volatility on international trade in Nigeria on the basis of annual data from 1980 to 2013, which was obtained from World Bank Development Indicators (WDI). Exchange rate volatility, gross national product (GDP), investment, interest rate, import and export were used to capture the causal relationship between exchange rate volatility and international trade and also the long-run and short-run relationship between exchange rate volatility and international trade. The co-integration test indicated that the variables are co-integrated which implies that a long-run relationship exists between the variables while the granger causality test showed that a causal relationship exists between international trade and exchange rate volatility. It was observed from the ECM analysis that exchange rate volatility negatively affects international trade. The study therefore recommends that the government should put in place exchange rate and trade policies that will promote greater exchange rate stability and trade conditions that will promote domestic production in the economy. In other to achieve this, the government should provide efficient infrastructural services like energy resources.

Nwobia, Ogbonnaya and Okoye (2020) examined the effect of exchange rate fluctuation on Nigeria external trade from 2000 to 2019. The study made use of secondary data sourced from Central Bank of Nigeria's statistical bulletin of various issues from 2000 being the year of monetary authority regime of flexible exchange rate to 2019. The correlation and regression analysis of the Ordinary Least Square (OLS) were used to analyze the data. The result shows that the three variables; exchange rate, balance of payment, and inflation rate have significant effect on the Gross Domestic Product (GDP). Exchange rate has a negative effect on the GDP because as it increases, the external trade is negatively affected.

Methodology

Research design

The type of research design used in this study is ex-post facto research design which is the type of research involving events that have already taken place and for which data already exists, and the researchers are merely involved in data gathering.

Data used in this study were sourced from the Central Bank of Nigeria Statistical Bulletin of various issues. The models of study are estimated using annual data on some macro-economic indicators, which includes: Gross Domestic Products (GDP); Interest Rate (INTR), Inflation Rate (INFR) and Monetary Policy Rate (MPR) and Exchange Rate (EXCR) for the period 1986 - 2020. Error Correction Model (ECM) was the technique employed in this study to determine the degree of adjustment of the dependent variable to changes in the independent variables. This is to preserve the long-run relationship of the model

Model specification

This study attempts to ascertain the impact of exchange rate instability on Nigerian Economy covering the period between 1986 and 2020, using Nigerian data. For this purpose, the model adopted by Onwe (2014) that carried out similar study in Nigeria for the period from 1970 to 2013 was employed as our models with little modifications which include INFR, INTR, MPR and EXCR. Therefore the mathematical specification of the model for this study is as shown thus;

$Yt = f(Xt1, Xt2, Xt3, Xt4, Xt5) + \mu t$. - - - - - - -Equ.3.2.1

Rewriting the above econometric models to regression models, we have;

$GDPt = \beta o + \beta 1INTRt + \beta 2MPRt + \beta 3INFRt + \mu t$ - - - - - - - - (equ 3.2.2)

Where

GDPt = Gross Domestic Product
INTRt = Interest Rate -- Control Variable
MPRt = Monetary Policy Rate
INFRt = Inflation Rate
t = Time Series
μt = Error or Disturbance Term

The variables in the model were log-transformed so as to keep them at the same level of measurement and make provision for easy interpretation. Hence, log-transforming the variables in equation 3.2.2 to log form their real terms is given:

$GDPt = \beta 0Log + \beta 1 \; LogINTR)t + \beta 2Log(MPR) + \beta 3 \; Log(INFR) + \mu$ - (equ.3.2.3)

Equation 3.2.2 implies that (GDP) in Nigeria depends on Monetary Policy Rate, Interest Rate, and Inflation Rate. Since the study among other things is interested in investigating relationship between Exchange Rate and the GDP.

4.0 Data presentation and analysis

Table 4.1. Data for the Study consists of inflation rate, GDP, Monetary Policy Rate, Exchange Rate and Interest Rate from 1986 - 2020

Year	GDP	MPR	INFR	INTR
1986	144.83	10	5.72	2.02
1987	154.98	12.75	7.46	4.02
1988	163.00	12.75	6.83	4.54
1989	170.38	18.50	8.15	7.39
1990	192.27	18.50	7.36	8.04
1991	202.44	14.50	13.01	9.91
1992	249.44	17.50	44.59	17.30
1993	320.33	26.00	57.17	22.05
1994	419.20	13.50	57.03	21.89
1995	499.68	13.50	72.84	21.89
1996	596.04	13.50	29.27	21.89
1997	909.80	13.50	8.53	21.89
1998	1,259.07	14-31	10	21.89
1999	1,762.81	18.00	6.62	92.69
2000	2,895.20	13.50	6.93	102.11
2001	3,779.13	14.31	18.87	111.94
2002	4,111.64	19.00	12.88	120.97
2003	4,588.99	15.75	14.03	129.36
2004	5,307.36	15.00	15	133.50
2005	6,897.48	13.00	17.86	132.15
2006	8,134.14	12.25	8.24	128.65
2007	11,332.25	10.00	5.38	125.83
2008	13,301.56	10.00	11.58	118.57
2009	17,321.30	13.00	11.54	148.88
2010	22,269.98	13.00	13.72	150.30
2011	28,662.47	13.00	10.84	153.86
2012	32,995.38	13.00	12.22	157.50

Year	GDP	MPR	INFR	INTR
2013	39,157.88	13.00	8.48	157-31
2014	44,285.56	13.00	8.06	158.55
2015	54,612.26	11.00	9.01	195.52
2016	62,980.40	14.00	15.7	305.00
2017	71,713.94	14.00	15.3	305.79
2018	36,477	14.00	16.90	306.08
2019	57,980	15.00	17.00	306.10
2020	45,876	16.00	17.05	306.10

Source: CBN Statistical Bulletin various issues, 2021

Descriptive statistics

Table 4.2

	LNGDP	LNINFR	LNINTR	LNMPR
Mean	8.173707	2.607169	4.094497	2.645268
Median	8.431415	2.555676	4.795543	2.602690
Maximum	11.18044	4.288265	5.723912	3.258097
Minimum	4.975561	1.682688	0.703098	2.302585
Std. Dev.	2.185811	0.670706	1.453917	0.198363
Skewness	-0.161667	0.996985	-0.777388	0.740953
Kurtosis	1.545356	3.413692	2.360299	4.419331
Jarque-Bera	3.053234	5.702204	3.886502	5.789496
Probability	0.217269	0.057781	0.143238	0.055313
Sum	269.7323	86.03659	135.1184	87.29384
Sum Sq. Dev.	152.8886	14.39509	67.64398	1.259133
Observations	33	33	33	33

Table 4.2 The descriptive characteristics of the variables are presented in table 4.2 above. The mean values are INTR 4.094497, MPR 2.645268, and INFR 2.607169 and GDP 8.173707. The median variables which measures the centrality of variables are distributed in the following pattern; INFR (2.555676), INTR (4.795543), MPR (2.602690) and GPD (8.431415) respectively. The probability corresponding to Jarque-Berra (JB) shows that all the variables were normally distributed. The p-values of the variables are significantly greater than 0.05. INTR and GDP are positively signed while INFR and MPR are positively skewed towards normality as evidenced by the positive sign of the skewness. The kurtosis that measured the peak of the distribution of each variable is, 1.545356, 3.413692, 2.360299 and 4.419331 respectively.

4.1 Data analysis

4.1.1 Analysis of unit root test

The unit root test was performed to ascertain the stationrity of the time series data under study so as to avoid running a spurious regression. Phillps-Perron method was used in the process. In considering the levels the data could be integrated of, Phillps-Perron test statistics was compared with the critical values at 5% and 10% level of significance. A situation whereby the (PP) test statistics is greater than the critical values with consideration on the absolute values, the data at the tested order will be said to be stationary.

Table 4.3 Summary of unit root test

Unit Root Test using Phillips-Perron Test

Variables	PPT	5% C.V	10%C.V	p-Value	Order of integration
LNGDP	-5.827596	-2.967767	-2.622989	0.0000	1(1)
LNINFR	-4.600398	-2.967767	-2.622989	0.0010	1(1)
LNINTR	-4.768582	-2.981038	-2.629906	0.0008	1(1)
LNMPR	-8.082658	-2.981038	-2.629906	0.0000	1(1)

Source: Author's Compilation, 2021

Table 4.3 reports the test for stationarity properties of the series following the PPT statistics. It indicates that all the variables attained stationarity at the same order as reported; the PPT statistics for the respective variables were more negative than the critical values at 5% and 10% level of significance. The reported p-value is all less than 0.05 for which cause the null hypotheses with the presence of unit root in all the variables were rejected. Based on the fact that the variables attained stationarity at first level first intercept I(1) it is advisable to test for cointegration using Johensen cointegration test.

Table 4.4: Johensen co-integration test.

Date: 08/12/21 Time: 17:30
Sample (adjusted): 1986 2020

Included observations: 27 after adjustments
Trend assumption: Linear deterministic trend
Series: GDP EXCR INFR INTR MPR
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.815286	99.19159	69.81889	0.0000
At most 1 *	0.583464	53.59006	47.85613	0.0131
At most 2 *	0.508805	29.94394	29.79707	0.0481
At most 3	0.322320	10.74927	15.49471	0.2274
At most 4	0.009000	0.244106	3.841466	0.6213

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values

Table 4.4 on page 9 test identifies the number of long-run relationship that exists among the sets of integrated variables. The above trace result on Johensen cointegration test indicates 3 cointegrating eqn(s) at the 0.05 level, having three (3) equations that have a p-value less than 0.05. The implication of the analysis is that there is a long-run equilibrium relationship between Inflation Rate instability and GDP and therefore we are not accepting the null hypothesis of no cointegrating relationships among the variables. Thus we are advised to use VECM regression analysis to test our hypotheses.

Table 4. 5 VECM regression analyses

Dependent Variable: D(GDP)
Method: Least Squares
Date: 08/12/21 Time: 17:14
Sample (adjusted): 1986 - 2020
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	755.4428	1511.238	0.499884	0.6221
D(GDP(-1))	-0.775701	0.153544	-5.051987	0.0000
D(INTR(-1))	178.6100	59.93799	2.979914	0.0069
D(INFR(-1))	-40.87953	105.9217	-0.385941	0.7032
D(MPR(-1))	-210.3695	344.3029	-0.611001	0.5475
ECM(-1)	5410.804	1751.607	3.089051	0.0054

R-squared	0.583810	Mean dependent var	987.2590
Adjusted R-squared	0.470303	S.D. dependent var	8715.500
S.E. of regression	6343.164	Akaike info criterion	20.55465
Sum squared resid	8.85E+08	Schwarz criterion	20.88469
Log likelihood	-291.0424	Hannan-Quinn criter.	20.65801
F-statistic	5.143407	Durbin-Watson stat	1.866545
Prob(F-statistic)	0.001941		

Source: Author's Compilation, 2021

Table 4.5 shows the dynamic model of the impact of Exchange Rate instability on Nigerian Economy using ECM. Every variable was set at lag 1 in accordance with the lag selection. According to the result, the ECM (-1) has the correct sign of negative meaning that about 54.10% of the errors are corrected yearly. Precisely, this speed of adjustment shows that about 54.10% of errors generated in each period is automatically corrected by the system in the subsequent period and is statistically significant at 0.005

The adjusted coefficient of determination (R^2) value of 0.470303 shows that all the variables are jointly fitted as explained by 47% of GDP output. The Durbin-Watson value of 1.86 implies that the model does not suffer from autocorrelation problem. The overall models are seen to be statistically significant at 5% level giving the f-stat of 5.14

Equation model

D(GDP) = 755.442826483, 0.77570078543*D(GDP(-1)) + 178.610028467*D(INTR(-1)) - 40.8795266874*D(INFR(-1)) - 8.76812872757*D(EXCR(-1)) - 210.369546233*D(MPR(-1)) + 5410.80364689*ECM(-1)

4.2 Test of hypothesis

This section tested the hypotheses stated in chapter one and modeled in chapter three. Three steps were utilized in interpreting the Vector Error Correction Model (VECM) results. The steps involved are:

Test of hypothesis was carried out as follows;
Step 1:- Re- statement of the hypothesis in null and alternative form
Step 2:- Statement of decision criteria
Step 3:- Decision

4.2.1 Test of hypothesis one

Step One: restating hypothesis one in null and alternate forms

$H0_1$: Monetary Policy Rate Instability has no significant effect on the GDP in Nigeria

Ha_1: Monetary Policy Rate Instability has significant effect on the GDP in Nigeria

Step 2:- Statement of decision criteria
Reject the null hypothesis if the t- statistics is greater than 2.0 and p-value is less than 5% otherwise accept the null hypothesis.

Step 3:- Presentation of test result

Table 4.5 was used to test hypothesis one

Step 4:- Decision

A decision criterion is to reject H_0 if the t- statistics is > 2.0 and if the probability of the t- statistics is < 0.05. The coefficient MPR is negatively signed with p-value 0.5475>0.05. Thus, we reject the null hypothesis that Monetary Policy Rate has negative and no significant effect on Gross domestic product (GDP) in Nigeria.

4.2.2 Test of hypothesis two

Step One: Restating hypothesis two in null and alternate forms

$H0_1$: Inflation Rate Instability has no significant effect on the GDP in Nigeria.

Ha_2: Inflation Rate Instability has significant effect on the GDP in Nigeria

Step 2: Statement of decision criteria
Reject the null hypothesis if the t- statistics is greater than 2.0 and p-value is less than 5% otherwise accept the null hypothesis

Step 3:- Presentation of test result

Table 4.5 was used to test hypothesis Two

Step 4:- Decision
A decision criterion is to reject H_0 if the t- statistics is > 2.0 and if the probability of the t- statistics is < 0.05. The coefficient INFR is negatively signed with p-value 0.7032>0.05. Thus, we accept the null hypothesis that Inflation Rate has negative and no significant effect on Gross domestic product (GDP) in Nigeria.

4.2.3 Test of Hypothesis Three

Step One: Restating hypothesis two in null and alternate forms

$H0_1$: There is no causal relationship between Interest Rate Instability and the GDP in Nigeria

Ha_2: There is causal relationship between Interest Rate Instability and the GDP in Nigeria

Step 2: Statement of decision criteria
Reject the null hypothesis if the t- statistics is greater than 2.0 and p-value is less than 5% otherwise accept the null hypothesis

Step 3:- Presentation of test result

Table 4.4 Johensen Co-integration test was used to test hypothesis three

Step 4:- Decision
From the table on page 9, the Johansen co integration tests revealed that the maximal Eigen value statistics and rank test show no existence of co integration equations for GDP, INFR, MPR, and EXCR all at the p values greater than 5% level of significance while INTR has p value less than 5% significance level.

The conclusion drawn from this result is that there is no long-run relationship among the explanatory variables in our various models. So we reject the null hypothesis which states that Interest Rate has no causal long-run relationship with the Gross Domestic Product in Nigeria.

4.2 Discussion of result

The following results were generated from the analysis of the study.

(1) **Objective one**: To determine the effect of Monetary Policy Rate Instability on the GDP in Nigeria.

The results of our estimation revealed that Monetary Policy has no significant effect on Gross domestic product in Nigeria. This was explained by the negative coefficient value (0-210.3695) of MPR and its corresponding probability value (0.5475), which is greater than 0.05 significant levels

(2) **Objective Two**: To ascertain the impact of Interest Rate Instability on the GDP in Nigeria

The results of our estimation revealed that Interest Rate instability has significant impact on Gross domestic product in Nigeria. This was explained by the positive coefficient value (178.6100) of INTR and its corresponding probability value (0.0069), which is less than 0.05 significant levels

(3) **Objective three**: To examine the causal relationship between Inflation Rate Instability and the GDP in Nigeria.

The result from the Johansen Co-integration Test showed that there is no long-run relationship among the explanatory variables in our various models. So we accept the null hypothesis which states that Inflation Rate instability has no causal long-run relationship with GDP.

5.0 Summary of the findings, conclusion and recommendations

5.1 Summary of the Findings

The following are the findings of this study:

*&Monetary Policy Rate has negative and no significant effect on Gross domestic produc in Nigeria within the year under review.

* Interest Rate has positive and significant impact on Gross domestic product in Nigeria
* There is no long-run relationship between inflation rate instability and gross domestic product in Nigeria.

5.2 Conclusion

This paper examines the impact of exchange rate instability on gross domestic product in Nigeria within the year 1986-2020, while the study applied the Error Correction Model (ECM). It was found that GDP is negatively affected by positive shocks to Money Policy Rate in the long-run. Meanwhile, interest rate has positive and significant impacts on GDP. Inflation rate was found to have long-run relationship with GDP. We have concluded that exchange rate instability has no significant effect on the gross domestic product of the Nigerian economy even though the influence is not potent in the short-run and the resultants effect of depreciation in Naira exchange rate to Dollar($) on Nigeria's economic growth is positive. The policy implication of this is that, no policy intervention of these macroeconomic variables can be implemented to achieve long-term economic results in Nigeria. As a result, both fiscal and monetary authorities should collectively develop the political will to implement policies that will boost Nigeria's production base to maximize the gains from foreign exchange flow.

5.3 Recommendations

1. Monetary Policy Authorities should develop the political will to ensure Monetary Policy Rate stability and stabilize Nigeria's economy.

2. Fiscal and Monetary authorities should collectively develop the political will to implement policies that will boost the Nigerian production base to maximize the gains from foreign exchange flow.

3. Government should stimulate the productive capacity of the economy, especially the agricultural sector to increase aggregate supply of basic food products to meet the needs of the industrial sectors to bring down prices of goods and services and consequently boost economic growth in the country.

Reference

Anifowose, A.I.D (2021) Economic Growth and Exchange Rate Dynamics in Nigeria. Imo State University/Business and Finance. *ResearchGate, 12(1) 36-60*

Danladi, J.D, Akomolafe, K.J. Babalola,O. and Akpa, E.A (2015) Exchange Rate Volitality and International Trade in Nigeria. *Research Journal of Finance and Accounting. 6(18) 122 131. www.iiste.org*

Eke, I.C., Eke, F.A. and Obafemi, F.N. (2015) Exchange Rate Behaviour and Trade Balance in Nigeria: An Empirical Investigation 5(8) www.ijhssnet.com

Elijah, N. K. (2018). Influence of Exchange Rate on Economic Growth in Kenya, *Journal of Economics and Finance,* 9(6): 34-38

Kalu, U.K. and Anyawaokoro, M (2020) Exchange Rate fluctuations and International Trade in mono-product Economy: Nigeria's Experience, 1986-2018. *South Asian Journal of Social Studies and Economic*s 7(2) 21-48. *www.ijhssnet.com*

Kenny, V.S. (2019) Exchange Rate Management and Economic Growth: An FMOLS Approach. MPRA Paper online at *http:mpra.ub.uni-munch.de/93125/*

Khandare, V. B. (2017). The impact of exchange rate fluctuations on the economic growth of India, *International Journal of Academic Research and Development* 2(2): 80- 84

Nwobia, C.E., Ogbonnaya –Udo-N and Okoye, J.N (2020) Effect of Exchange Rate Fluctuation on Nigeria External Trade. *Internationl Journal of Economics, Business and Management Research*. 4(10) 47-60 www.ijebmr.com

Ogunmuyiwa, M. S. & Adelowokan, O. A. (2018). Measuring the Impact of Exchange Rate of Industrial Output in Nigeria, *European Journal of Marketing and Economics*, 1(2) 87- 93

Okoye, L. U, Okorie, U. E., Okoh, J. I., Olokoyo, F. O. & Eze, F. N. (2019). Exchange Rate Dynamics an Economic Performance-Evidence from Nigeria, Proceedings of SOCIOINT 2019- 6th International Conference on Education, Social Sciences and Humanities, 24-26 June 2019- Istanbul, Turkey. 1174-1183

Trust, R. M. & Eftychia, N. (2018). Real Exchange Rate Volatility and Employment Growth in South Africa. The Case of Manufacturing, Economic Research South Africa working paper 737: 1-23

Addressing Global Warming Menace Through Environmental Education and Taxation: The Current Status And Way Forward

*Elias Igwebuike Agbo, Sergius Nwannebuike Udeh and Blessing Adamaka Anukaenyi**

ABSTRACT
Reports indicated that tax systems in several countries have not adequately provided policy reforms that supported levying taxes across the sources of emission of harmful substances, aligning taxes with redundant external damages and scaling back redundant energy taxes. Another complaint in several quarters had been that environmental education was yet to be adequately employed in attempts to control environmental pollution. To address these issues, many international organizations developed some strategies aimed at using environmental taxation, to the neglect of education, to mitigate the impact of global warming and climate change in their environments. This paper reviewed literature and highlighted the updates on the achievements recorded so far, particularly by Nigeria. It employed the content analysis research design. It found that in spite of the efforts made so far and huge resources committed to this project, every region in the universe experienced some form of climate change and that Nigeria remained one of the most hit by climate change effects. This study noted that climate change would likely increase in all the regions of the globe in the coming decades with devastating consequences if adequate remedial actions were not taken. The study recommended that the inherent complexities and uncertainties of climate change be met by applying an iterative environmental education framework to significantly reduce greenhouse gas emissions. In addition, there is need for reforms and enactment of relevant laws in order to capture the environmental tax regime in Nigeria.

Keywords: Global warming, Climate change, Accounting, Environmental taxation, Environmental education, Nigeria.

1. Introduction

Accounting regulations and the tax system are generally known to be interrelated. Gabriela, Simona and Nicoleta (2012) point out that, while accounting reflects tax obligations, tax regulations point at book profits as they define the taxable portion of a firm's income as reported in the financial statements. The principles of taxation often have the objective of stimulating or discouraging certain activities. Stoian (2001) cited in Gabriel et al. (2012) reports that Directive IV of the EEC established interdependence between accounting and the fiscal right.

Earth environment is a rich heritage passed over to the present generation by previous generations (Bassey, Effiok & Eton, 2013).The present civilization has involved the human communities in varied activities. Many of these activities generate wastes which have potential constituents. According to Pramanil, Shiland and Das (2007), the ultimate disposal of these wastes has caused environmental pollution in many parts of the world. The magnitude of this environmental pollution has already reached an alarming stage.

Arlinghaus and Van Dender (2017) report that governments around the world face mounting environmental challenges currently. These challenges include the global problem of climate change and more local issues such as air and water pollution and waste management. The recognition of the need to take action to limit emissions of greenhouse gases and further reduce emissions of local air pollutants has continued to increase (Williams, 2016). People are becoming more conscious of the fact that using traditional command-and-control environmental regulation to accomplish those goals would be

**** Elias Igwebuike Agbo and Sergius Nwannebuike Udeh are lecturers in Department of Accounting and Finance, Faculty of Management and Social Sciences, Godfrey Okoye University, Enugu, Nigeria, while Blessing Adamaka Anukaenyi is a lecturer in the Department of Education Foundations, Faculty of Education, Godfrey Okoye University, Enugu, Nigeria***

costlier. Environmental taxes are seen to be having the potential to address both of those issues, providing a source of new tax revenue and a cost-effective way to reduce pollution emissions.

According to Amokaiye (2012) cited in Elebiju (2020), the use of law particularly taxation to regulate environmental pollution is not new. Economic techniques involve the use of economic incentives and disincentives as well as mechanisms such as fines, effluent fees, pollution tax, licenses, user charges, loans and grants to bring down the level of pollution to desired standards. Why pollution is encouraged is because the polluter can discharge effluent at no cost to himself, even while a cost accrues to others. Amokaiye (2012) reasons that the introduction of pollution tax and other disincentives is aimed at discouraging firms and individuals from causing pollution. That is done not by persuasion or by prohibiting activity through legislation but by imposing a price or economic cost on such conduct. Through this process, environmental cost is internalized into the production process. The business firms that intend to maximize profits will find ways of polluting less, instead of paying more.

In spite of the efforts of the international community to contain the global warming menace, climate change is seen to be taking place rapidly. Temperatures have continued to rise; drought and wild fires are beginning to occur more frequently, rainfall patterns are shifting, glaciers and snow are melting and the global mean sea level is on the increase (National Research Council, 2011). The environmental, economic, and humanitarian risks posed by climate change make a serious case for substantial action to be taken now to limit the magnitude of climate change and to prepare for adapting to its impacts.

2. Review of related literature

2.1 Conceptual review

2.1.1 Global warming and climate change

Global warming is a concept that has to do with a gradual increase in the overall temperature of the earth's atmosphere. This is generally attributed to the greenhouse effect that is caused by increased levels of carbon dioxide and other pollutants. The principal causes of global warming are changes in the sun's intensity, industrial activity, agricultural activity, deforestation and earth's own feedback loop. Higher temperatures worsen many types of disasters, including storms, heat waves, floods, and droughts. A warmer climate creates an atmosphere that can collect, retain, and drop more water, changing weather patterns in such a manner that wet areas become wetter and dry areas drier. Carbon dioxide is the principal global warming gas.

Climate change is a long-term change in the earth's weather patterns caused by some greenhouse gas emissions (Coppolino, 2019). While climate change includes rising global temperatures, it also comprises many other impacts which those greenhouse gases are having on the planet. It even includes some regions becoming colder. The term refers to unexpected, abnormal, and longer-term changes brought on by human activity.

Even though both of them are often used interchangeably, global warming and climate change are two distinct processes which cannot be totally separated. Both terms have been a part of the climate science lexicon for some time, even stretching back some 100 years. While global warming refers to a single process (rising global temperatures due to increased greenhouse gas production), climate change encompasses all the symptoms experienced as a result of pollution and greenhouse gas production damaging and altering human environment. Global warming connotes a steady and consistent rise in global temperatures and is therefore only one aspect of the broader phenomenon of climate change. Although the earth's temperature fluctuates over long periods of time (hundreds to thousands of years), the term global warming most commonly refers to the rising temperatures brought on by human activities over the last 100 to 150 years. This increase is caused by an excess of greenhouse gas emissions (carbon dioxide, nitrous oxide, methane, ozone, and water vapor) in the earth's atmosphere - mainly due to the burning of fossil fuels since the industrial revolution. As the level of emissions trapped in the earth's atmosphere continues to rise, so do global temperatures. These gases build up and trap in heat from the sun. If not for those gases, that heat would normally be radiated back out into space. Instead, the sun's energy stays within the earth's atmosphere, causing the hothouse (greenhouse) effect. This was first observed by Arrhenius back in the 1800s. Every year over the past decade, CO_2 concentrations (the most common greenhouse gas) have been steeply rising and are now at their highest levels in more than 60 years of observation. The year 2018 was also the fourth hottest year on record globally, and the 3rd, 2nd, and number 1 hottest year last decade.

2.1.2 Greenhouse gas (GHG) emissions

The United Nations Framework Convention on Climate (UNFCC) (1992) cited in Okubor (n.d, p.11) defines greenhouse gases as some 'gaseous constituents of the atmosphere both material and anthropogenic, that absorb and re-emit infrared radiations'. Greenhouse gas (GHG) emissions include carbon dioxide (CO_2), methane (CH4), nitrous oxide (N20), hydro- and perfluoro-carbons (HFCs, PFCs) and sulfur hexafluoride (SF6) emissions from fuel combustion, process reactions and treatment processes. The climate change issue related to increasing concentrations of greenhouse gases is a global concern. As it is closely linked to emissions from energy sources, it is relevant across businesses. The amount of GHG emissions to air from fuel combustion, process reactions and treatment processes, including CO_2, CH4, N20, HFCs, PFCs and SF6 are reported in metric tons of CO_2 equivalents in connection with the value added to get the net value added per unit of metric ton contributed to global warming.

2.1.3 Environmental taxation

Ballandras-Rozet (2021) considers environmental taxation as the main foundations of which are the theory of internalization of externalities and the polluter-pays principle. It has not only a financial but also an economic purpose. It is a behavioral tax which contributes to taxpayers' awareness of the harmful effect of their activities on the environment. Environmental taxation is a monetary response to major environmental issues by developing tools that focus on energy, transport, pollution and natural resources. Over and above its binding nature, it includes dissuasive and incentive measures such as pollution permits, subsidies, subsidies and incentive pricing.

Environmental taxes are a part of the available environmental policy instruments. According to Köppl and Schratzenstaller (2021), two basic categories of environmental policy instruments can be distinguished. They are market based (e.g., fiscal) instruments and non-market-based instruments. The non-market-based instruments are regulatory instruments. The market - based instruments, in turn, can be differentiated into incentives that make environmentally undesirable behavior more expensive (taxes, emissions trading) or that promote environmentally desirable behavior (environmentally beneficial tax incentives, subsidies, grants) (Köppl & Schratzenstaller, 2021). Market-based instruments seek to address the market failure of environmental externalities. They do this either by incorporating the external cost of production or consumption activities through taxes or charges on processes or products, or by creating property rights and facilitating the establishment of a proxy market for the use of environmental services. (OECD, 2007 cited in Arlinghaus & Van Dender, 2017).

By internalizing external costs, the damage caused by pollution is reflected, or at least better reflected, in market prices. Market-based instruments differ from regulation-based approaches to reducing environmental damage because the latter do not directly modify prices, even if compliance of course is costly in general. Arlinghaus and Van Dender (2017) argue that the market-based instruments in general are among the more cost-effective environment policy instruments. The authors opine that market-based instruments should form part of an environment policy package that aims to deliver environmental improvements at the lowest cost. This kind of instruments also interact with broader tax and fiscal policy A strong advantage of market-based instruments is that the revenues accruable from them can be used in several ways, many of which are socially beneficial. However, the risk exists that revenues would not be used well, in which case the appeal of market-based instruments declines considerably (Arlinghaus & Van Dender, 2017.

Environmental taxes are a subset of market-based instruments. They are taxes whose tax base is a physical unit (or a proxy of it) that has a proven specific negative impact on the environment. Four subsets of environmentally related taxes are distinguished, namely energy taxes, transport taxes, pollution taxes and resources taxes (OECD, 2005 cited in Arlinghaus & Van Dender, 2017). Tradable pollution permit systems similarly put a price on processes or products with a proven negative environmental impact. Environmental taxes are taxes that aim to improve alignment of tax rates with (marginal) external costs.

2.1.6 Environmental education

One of the greatest challenges of man is ignorance. Very little number of people give thought to environmental education as an indispensable component of good environmental management practices. Many countries of the world dissipate reasonable efforts in imposing regulations to control environmental pollution with near neglect to environmental education. Mbah (2019) opines that efforts in controlling environmental pollution must be matched with adequate education of the entire citizens and corporate bodies. Since education entails process of change, inculcating good environmental consciousness in the minds of the society has the propensity to produce a reorientation capable of making meaningful impact in the global quest for environmental control. If well coordinated, it can give amazing results with associated cost savings. Previous efforts in environmental control without adequate education appear not only incomplete but defective in approach. While environmental taxation and other regulations enforce physical discipline in the management of environment, education goes beyond that to address the consciousness of the society.

2.2. Theoretical review

2.2.1 Corrective taxation

The idea of using taxation to correct negative externalities, such as pollution, is generally credited to Pigou (1920). Such corrective taxes are sometimes referred to as Pigouvian taxation (Köppl & Schratzenstaller, 2021). A negative externality is a case in which production or consumption of some good harms someone other than the buyer or seller of that good. This represents a market failure since the buyer's and seller's decisions fail to take into account that external cost. Consequently, an unregulated free market will generally result in an inefficiently high quantity of any good with an associated negative externality. This theory claims that imposing a tax on the externality-generating good is capable of correcting the externality. It posits that if the tax rate is made equal to marginal external damage (the total harm to parties apart from the buyer and seller from one additional unit of the good), that external cost is brought into the transaction. There is, therefore, an assurance that the buyer pays the full marginal social cost of the good. Consequently, the incentive provided by the tax ensures that the market produces the efficient level of the good (in the absence of any other uncorrected market failures).

However, a complication would arise if the marginal external damage from a good varies based on who produces the good or how it is produced. For instance, the carbon dioxide (CO_2) emissions from a megawatt-hour of electricity produced from a power plant that burns natural gas are much lower than the CO_2 emissions if the same quantity of electricity is produced by burning coal (and much lower still if produced by a wind turbine).All the same; it is easy to incorporate that apparent complication into this simple theory, either by considering them as different goods (and thus charging different tax rates on electricity produced from different sources) or, by viewing CO_2 emissions as the good with the negative externality, and imposing a tax per ton of CO_2 emissions. In the same manner, if the marginal damage from local air pollutants varies based on where those pollutants are emitted, then emissions in different locations ought to face different tax rates (Köppl & Schratzenstaller, 2021).

2.3 Empirical review

Beredugo and Mefor (2012) evaluated the relationship between environmental accounting and reporting and sustainable development in Nigeria.

Pearson correlation coefficient and Ordinary Least Squares were employed for data analyses. The results of the study show that there is a significant relationship between environmental accounting and reporting and sustainable development, that environmental accounting encourages organizations to track their GHG emissions and other environmental data against reduction targets, and there are consequences for non-compliance with environmental accounting and reporting.

Schaltegger and Sturm (1989) posit that the aim of environmentally sound management is to increase environmental report by reducing the environmental impact while increasing the value of an enterprise.
Middleton (1995) asserts that the benefit from mining must be worth the impact of mining on the environment and damages done to the environment if the environment could be restored. Emphasis on social contract theory and quality of life theory holds the notions that sovereignty resided in the people for whom governments were trustees and that such governments could be legitimately overthrown if they failed to discharge their functions to the people (Katznelson, 2008).

Ramanathan (1976) further explained the relationships of Social contract theories, viewing a company as an integral part of the society that the society supports and is expected to follow the law of that society. It is expected that they contribute to the society proportionately enough to what the society has given to them.

Castiglione et al (2014) assert that the effect of taxes on environmental quality and on economic performance were addressed by several studies, namely Ekins (1999), Ekins and Barker (2001), European Environment Agency (2005), Kosonen (2010), Scringeour, Oxley and Fatai (2005), among others. Those studies found a positive impact of environmental taxation in European economies. Some other studies highlighted in Castiglione et al. (2014) observed a lot of evidence of the importance of the degree of economic development for environmental awareness. The studies in this group include Dasgupta, Mody, Roy and Wheeler (2001), Dind (2004), Galeotte, Lanza and Pauli (2006). They found that economic growth increases the demand for environmental protection. According to Castiglione et al, (2014), when considering environmental quality one should keep in mind both the positive and negative tendencies.

According to Arlinghaus and Van Dender (2017), a recent study for 27 EU countries employed the macro-econometric E3ME model to investigate the effect on growth and employment of shifting taxes from labor towards fossil fuels and carbon emissions, while also increasing standard and reduced VAT rates and raising taxes on electricity and water use for large users. A total of EUR 554bn was shifted from labor towards natural resources and consumption, which is equivalent to 13% of labor tax revenue. The outcome was a 5.6%-point reduction of average personal income tax rates. The econometric model suggests that gradually introducing the tax shift from 2016 to 2020 would increase employment by 3% in 2020, GDP would rise by 2%, while water use, energy use and carbon emissions would decline by more than 5%. The implication was that there would be a substantial double dividend.

According to Organization for Economic Co-operation and Development (OECD) (2011), environmentally related taxes account for approximately 5% of total tax revenues in the OECD countries. Those taxes are collected to shrink the tax base as against the aim of other taxes to increase revenues at minimal cost to the base. Golusin et al, (2013) suggest that increasing revenues from environmental taxes should be interpreted with caution, as such increases may have been caused by the introduction of new taxes or an increase in tax rates, or alternatively may be linked to an increase in the tax base.

Williams (2016) investigated potential environmental tax policy reforms. The author focused primarily on carbon tax but also considered a range of other possible changes, such as potential changes to the taxes on motor vehicle fuels which are the largest environmental taxes in the US. The results of the study showed that an efficient carbon tax should be imposed on the carbon content of fossil fuels at a rate equal to the social cost of carbon estimated at roughly $45/ton and would rise slowly overtime. The study projected the rise of the cost of carbon over time by roughly 1.5% to 2% a year.

Nguyen, Nguyen and Ha (2020) investigated the relationship between the level of environmental financial accounting practices (EFAP) and cost of capital. The population of the study was 1.188 firm-year observations but 408 firm-year with less than 2 years of information was excluded to calculate EFAP. 73 firm-year was without sufficient financial accounting information to calculate the cost of capital and 35 firm-year was without sufficient financial accounting information to calculate control variables. The paper used a sample of 672 firm-year observations of listed companies on the Vietnam stock market for 5 years from 2013 to 2017. Two-stage regressions with the lag term were adopted to address econometric issues and to improve the accuracy of the regression coefficients. The results showed that Vietnamese firms with higher EFAP performance were capable of rapidly reducing their cost of capital.

Ganda and Garidzirai (2020) employed a system-Generalised Method of Moments (GMM) framework to evaluate the environmental impacts of tax systems in selected 28 EU economies from 2010 to 2017. The results of the study demonstrated that aggregate environmental tax was not effectively lowering greenhouse gas emissions as expected, although it improved environmental sustainability. The authors blamed the situation on the possibility that the environment tax revenue collected in the European Union countries was not used to enhance energy efficiency; hence it could not lower greenhouse gas emissions. Köppl and Schratzenstaller (2021) provided a detailed overview of the theoretical and empirical literature on the effects of carbon taxes. The study focuses on the most important impact dimensions of carbon taxes: environmental effectiveness, effects on important macroeconomic variables (especially growth and employment), effects on innovation and competitiveness, distributional effects, and public acceptance.

3. Materials and methodology

Materials were gathered from extant journals, conference materials, research work papers, seminar papers. The study adopted table content analysis methodology.

4.1. The current status of global warming and climate change and way forward

4.2. Current levels of global warming and the predictions about the future

As the concentration of greenhouse gases in the earth's atmosphere increases, heat is trapped. This leads to an overall warming of the globe and other related changes to the climate. The most important of the greenhouse gases is carbon dioxide. This is emitted primarily through burning fossil fuels. Other types of greenhouse gases like methane are equally important. A tax on such emissions would be a cost – effective means for minimizing such emissions.

According to Ganda and Garidzirai (2020), the European Environmental Agency had in 2019 reported that there was still the necessity to continue implementing zero-carbon practices in European Union (EU) countries even though there was already a noted decrease of 22% in emissions when compared to their 1990 levels.

4.3 Nigeria's environmental challenges and climate action

Nigeria faces a wide range of environmental challenges. Some of the specific phenomena include Climate Change, deforestation and de-vegetation, causing biodiversity loss and land degradation; floods, drought and desertification which are degrading the environment especially in the semi-arid areas of the country; environmental pollution encompassing air, water, land and noise; waste generation; mineral excavation and the accompanying environmental degradation as well as limited access to safe water and poor sanitation.

Nigeria is one of several African countries having a growing youth climate movement (Dunne, 2020). It is the most hit by climate change effects which range from floods to droughts down to heat wave. This leads to loss of lives and livelihoods. Nigeria is part of the three negotiating blocs at international climate talks. The country's annual greenhouse gas emissions were reported to be 506m tonnes of CO_2 equivalent in 2015, based on the data compiled by the Potsdam Institute for Climate Impact Research (PIK).

4.4 Efforts made by the international community to address the menace of global warming and climate change

The United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO) established a body called the Intergovernmental Panel on Climate Change (IPCC) in 1988 for assessing the science related to climate change. This UN body was put in place to provide political leaders with periodic scientific assessments concerning climate change, its implications and risks. Another objective for creating IPCC is to put forward adaptation and mitigation strategies. In that same year that the IPCC was formed, the UN General Assembly endorsed the action by the WMO and UNEP in jointly establishing the IPCC. The IPCC has 195 member states. Thousands of experts from all over the world contribute to the work of the IPCC. For the assessment reports, IPCC scientists volunteer their time to assess the thousands of scientific papers published each year in order to provide a comprehensive summary of what is known about the drivers of climate change, their impacts and future risks as well as how adaptation and mitigation can reduce those risks.

There exists a UN-wide campaign called Greening the Blue. Greening the Blue was established to support the move towards environmental sustainability. Working in liaison with all UN organizations, Greening the Blue seeks to engage staff across the UN and share best practice internally and externally. In addition, it publishes the annual Greening the Blue report, which details the UN System's environmental footprint and the efforts being made to reduce it.

The European Environmental Information and Observation Network is another body that collaborates with the European Environment Agency (EEA) to gather data and produce assessments on a wide range of topics related to the environment. The EEA provides sound, independent information on the environment for those involved in developing, adopting, implementing and evaluating environmental policy, and also the general public.

5. Observations and discussion

This paper observed that environmental values are gradually being reflected in corporate accounting across the globe. Nations, especially developed countries have begun to create a new network of relationships which are developed between environmental accounting and economic measures of environmental protection. The ISAR is not relenting in formulating detailed guidance for a number of environmental items which could be considered by the board of directors of companies for disclosure in their report or management discussion. However, the latter are still generally reluctant to imbibe the new culture of reflecting environment accounting in their final accounts.

Environmental taxation is still considered to be a controversial policy instrument, notwithstanding that a huge number of countries in the European Union and OECD have accepted it as a means of not only protecting their environments but also as an avenue for boosting their tax revenue. It is still contentious whether environmental taxes should be put in place in developing countries. Further, the findings demonstrate the interdependence of economic development and environmental quality. The role of institutional enforcement is also being emphasized as a sine qua non.

Environmental education was discovered to be obviously absent from previous efforts in combating environmental pollution. This appeared to have limited the expected results on the impact.

Finally, the connection between economic development and environmental awareness is considered to be inevitably requiring the application of functional environmental policies.

6. Conclusion and recommendations

This study concludes that environmental pollution has become a global menace. The search for its solution is still a work in progress. In view of this, the following recommendations are made:

1. There is need for reforms and enactment of relevant laws in order to capture the environmental tax regime in Nigeria. Public enlightenment and awareness are equally required in order to make such legislations effective.
2. In alignment with National Research Council (2011), that the inherent complexities and uncertainties of climate change be met by applying an iterative environmental education framework to significantly reduce greenhouse gas emissions.

References

.

Arlinghaus, J. & Van Dender, K.(2017). Environmental fiscal reform:Progress, prospects and pitfalls, OECD report for the G7 environment ministers, Retrieved from www.oecd.org/tax/tax-policy/tax-and-environment.htm.

Ballandras-Rozet, C. (2021), Environmental taxation, Encyclopedia of the Environment, [online ISSN 2555-0950] url : https://www.encyclopedieenvironnement.org/en/society/environmental-taxation/.

Bassey,B.E.,Effiok,,F.O. & Eton,O.E.(2013)The impact of environmental accounting and reporting on organizational performance of selected oil and gas gompanies in Niger Delta region of Nigeria. *Research Journal of Finance and Accounting, 1(3), 9-18.*

Beredugo,S.B. & Mefor,I.P.(2012).The impact of environmental accounting and eporting on sustainable development in Nigeria, *Research Journal of Finance and Accounting, 2(1), 17- 27.*

Castiglione, C. Infante, D. Minervini, M. T. & Smirnova, J. (2014), Environmental Taxation in Europe: What does it depend on? Retrieved from https://doi.org/1o0.1080/23322039, 2014, 01 67362.

Coppolino,J.(2019). Global warming vs. climate change: Why words matter. Retrieved fromhttps://onetreeplanted.org/blogs/stories/global-warming-climate-change, June 17

Dasgupta,S., Mody,A., Roy, A. & Wheeler, D.(2001). Environment regulation and development: A cross – country empirical analysis, Oxford Development Studies, 29, 173 – 187, 10.1080/136008101 25568.

Dinda, S. (2004). Environmental kuznets curve hypothesis: A survey, *Ecological Economies* 49, 432 – 455.

Ekins, P. & Barke, T. (2001). Carbon taxes and carbon emissions trading. J*ournal of Economic surveys;* 15, 325 – 352.

Ekins, P. (1999). European environmental taxes and charges: Recent experiences, issues and trends. *Ecological economics,* 31, 39 – 62.

Elebiju,A.(2020).Nigeria: Time for environmental taxation in Nigeria? LeLaw Barristers & Solicitors,

European Environmental Agency (2005). Market based instruments for environmental policy in Europe (Technical Report No.8).

Gabriela, B.R., Simona, P.A. & Nicoleta, F. (2012). Challenges of environmental accounting and taxation in Romania, West University of Timisoara, Faculty of Economics, and Business Administration.

Ganda,F.& Garidzirai,R.(2020).The environmental influence of tax regimes in selected European Union economies. ttps://www.intechopen.com/chapters/73948

IMF/OECD (2021), Tax Policy and Climate Change: IMF/OECD Report for the G20 Finance Ministers and Central Bank Governors, April 2021, Italy, www.oecd.org/tax/tax-policy/imf-oecd-g20-report-tax-policy-and-climate-change.htm

Köppl,A. & Schratzenstaller,M.(2021). Effects of Environmental and Carbon Taxation. A Literature Review, WIFO Working Papers 619, WIFOLabor Supply: Estimates of the Optimal Gas Tax, *Journal of Public Economics*, 91, 593-617.

Lailagusta (2013). Should developing nations introduce environmental tax? Retrieved from: http://www.debate.org/laitagusta/July.

Mbah, C. J.(2019). Environmental Education in Nigeria. *Journal of Education* 2 (1), 14-23.

Middleton, N. (1995). The global casino: An introduction to environmental issues, John Wiley Monetary Fund and Routledge: London and New York.

National Research Council (2011). The unique challenges of climate change. America's climate choices. Washington, DC: *The National Academies Press.* doi: 10.17226/12781.

Nguyen,H. A.,Nguyen, L.S.& Ha ,H .H.(2020). Environmental accounting practices and cost of capital of enterprises in Vietnam. *Research Journal of Finance and Accounting*, 3(2), 31-40.

Okubor, C. N. (n. d.). Legal issues in environmental taxation. *Ajayi Crowther University Law Journal*, 1-20.

ORADI (2019).SDG#13: Climate Action: Nigeria's Progress Report http://oradi.org/publications/item/43-sdg-13-climate-action-nigeria-s-progress-report.html

Pigou, A. C.(1920). *The economics of welfare, London: Macmillan.*

Pramanik, A. K., Shil, O. H. & Das, A. B. (2007). Environmental accounting and reporting. New Delhi: Deep publication PVT. Ltd.

Ramanathan, K.V. (1976). Towards a theory of corporate social accounting, *Accounting Review,46, (1). 704–711.*

Schattegger, S. & Sturm, A. (1998). Okologisehe rationalitat: arisazpunkte zur ausgestaltung von okoloogieorientilerten management insturmenten die unternehmung 4. 273 -278.

Scrimgeour, F. Oxley, I. & Fatai, K. (2005). Reducing carbon emissions? The related effectiveness of different types of environmental tax: The case of New Zealand. Environmental Modelling and Software. 20. 1439 – 1448.

United Nation (1998).Accounting and Financial Reporting for Environmental costs and liabilities *United Nations conference on trade and development.* United Nations. Geneva.

William, M. S. (1999). Voluntary environmental and social accounting disclosure practices in the Asia-pacific region: An international empirical test of political economy theory, *The International Journal of Accounting* 34(2), 209-214.

Williams,R.C.(2016). Environmental Taxation.NBER Working Paper No. 22303, JEL No. H21,H22,H23,Q50,Q58.

Governance Sustainability Disclosures and Corporate Performance of Quoted Oil and Gas Companies in Nigeria

Etim, R.S., Ndon, E. M. and Asuquo, M. V.

ABSTRACT

This study examined the effect of governance sustainability disclosures on corporate performance of quoted oil and gas companies in Nigeria. The objective was to examine the effect of governance sustainability disclosure on Return on Assets (ROA) of quoted oil and gas companies in Nigeria. The research design adopted was ex-post facto research design. Simple random sampling was used in selecting twelve (12) oil and gas companies that were quoted on the Nigerian Stock Exchange (NSE). Data on governance sustainability disclosures and Return on Assets (ROA) were collected from the published annual reports and financial statements of sampled oil and gas firms in Nigeria. The independent variables were controlled in the model with firm age and firm size. The data covered twelve (12) years which ranged from 2009 to 2020. Data were analyzed using panel linear regression technique. From the results, it was observed that when control variables of firm age and size were not included in the model, governance sustainability disclosure (GOSD) had a direct and insignificant effect on Return on Assets (ROA) of quoted oil and gas firms in Nigeria and when the control variables of firm age and size were included in the model, governance sustainability disclosures had a negative and significant effect on Return on Assets (ROA). It was concluded that governance sustainability disclosure showed mixed effects on the corporate performance of firms in the oil and gas industry in Nigeria. It was recommended that firms in the oil and gas sector should continually disclose fully their governance issues, and that they should improve on these disclosures as firms grow in age and size to enhance their performances over time.

Key words: Governance, Sustainability disclosures, Performance

1.1 Introduction

Sustainability disclosures underline both the legal and industry-standard requirements for the proper reportage of activities of the firm periodically for the benefit of all the stakeholders. These stakeholders include but are not entirely limited to shareholders, investors, government, customers, creditors, employees, and society, given the dynamic nature of the business environment. As such all firms are expected to show due diligence in reporting all their activities within the sustainability disclosure framework of economic, environmental, governance, and social issues (Akbukut and Kaya, 2019). This is more often and in recent times referred to as Environmental, Social and Governance (ESG) reporting in different sectors or industries (Backstrom and Karlsson, 2015). As such, sustainability disclosures involve the process of managing the firms' weight on economic, governance, social, and environmental issues towards identifying opportunities, and risks that actively and latently underline the fortunes of the firms through steering performance gains and enhanced competitiveness (Backstrom and Karlsson, 2015). Based on this, a firm is required to report the impact of its activities economically, socially, environmentally, and in terms of corporate governance.

The essence of this is to ensure the accurate presentation of facts that relate to all the activities of the firm, and through this communication to all the relevant stakeholders, all the information on which its performance is predicated upon. Sustainability disclosures accentuate the need for transparency and accountability of all information that could help stakeholders and other interested parties to establish the true nature and degree of the reported performance of the firm (Al-Dhaimesh and AlZobi, 2019; AlQudah, Azzam, Aleqab and Shakhatreh, 2019). This is the reason why some authors refer to sustainability disclosures as primarily economic, environmental, social, and governance reporting

**** Etim, R.S., Ndon, E. M. and Asuquo, M. V. are lecturers in the Department of Accounting, Faculty of Business Administration University of Uyo***

responsibility (Arowoshegbe and Uniamikogbo, 2016; Asuquo, Dada and Onyeogaziri, 2018).

Economic sustainability disclosure encapsulates all information that covers all the firms' impact on the economic conditions of all the stakeholders and economic systems at domestic, national, and global levels (Baboukardos and Rimmel, 2016). The economic disclosure component of sustainability disclosure is captured in the financial statements or reports that are produced at the end of every financial year. At the same time, environmental sustainability disclosure deals with the reportage of the effect of the organization's activities that directly or indirectly impact the environment or the ecosystem. Various aspects of this disclosure include activities that cause pollution, gas flaring, erosion, toxic wastes deposition, toxic gas emission, and climate change. Social aspect of sustainability disclosure deals with how the activities of the organization affect the entire social systems, social strata, culture, and norms, as well as community relations (Baboukardos and Rimmel, 2016; Ballina, Valdes and Del Valle, 2020). Finally, the governance aspect of sustainability disclosures is attuned to the controlling and the monitoring of the firms' boardroom activities towards vital decision-making with regards to financial and non-financial performance (Bolton and Mattila, 2015). This component of sustainability disclosure is on corporate governance practices in the firms, which is expected to ensure that the organization is managed as it should be.

According to Buallay (2019) if firms are managed as it should, then the primary objective of any firm that embarks on sustainability disclosure is that of an expected financial return (Bolton and Mattila, 2015). This implies that no organization will not want to disclose the impacts of its activities on economic, environmental, and social, if there are governance issues. This could make them work at cross-purposes, and as such may affect their performance. This underscores the importance of governance in the proper reporting of sustainability disclosures that may supplant better performances. This implies that governance sustainability disclosures are expected to in one way or affect the performance of the firm especially in terms of assets utilization as indicated by Return on Assets (ROA) (Birkey, Michelon, Patten and Sankara, 2016). There are suggestions that it may also negatively affect performance since it has been shown that some of the sustainability disclosures may negate higher return on assets (Buallay, Hamdan and Zureigat, 2017). Similarly, there are empirical positions that also support that sustainability disclosure relates to assets of the firm directly, especially as the firm grows in age and assets, thereby enhancing performance (Riedl and Smeets, 2017).

Given the nature of the oil industry in Nigeria with all the complexities and expectations in Nigeria, governance sustainability disclosures are considered as an important domain of sustainability reporting. These are depicted in their various annual and sustainability reports as required legally and obligatory, based on the needs of their various stakeholders. The need to investigate how governance sustainability disclosure in the oil and gas industry in Nigeria affects corporate performance is considered necessary.

1.2 Statement of the problem

Sustainability disclosure in corporate annual reports has attracted considerable research attention in developed nations than in a developing economy like Nigeria (Diantimala, 2018). Findings in the developed nations have encouraged their governments to reform reporting mechanism for the achievement of corporate sustainability drive. Only few studies have been carried out on associated catalyst of corporate governance sustainability reporting on corporate performance in Nigeria.

Developing nations have been under pressure to improve their corporate sustainability reporting, especially in governance. This is because reports on corporate sustainability have been found to be incomplete overtime since in most cases only economic, environmental, and social components are reported. Annual reports of listed oil and gas companies in Nigeria hardly convey information on the frictions within the board of management, insider abuses, disagreements over policies and programmes especially when it concerns serious issues such as gas flaring, oil spillages, waste management, corporate relations with staff and immediate community. The sustainability reportings on governance impact of these companies are mischievously circumvented for short-term profit (Dhaliwal, Li, Tsang and Yang, 2014).

Other exposures abound where financial and social critiques are of the opinion that expenditures on corporate sustainability lead to diminution of return on investment, while exponents of corporate sustainability reporting lend credence to the fact that it would enhance return on investment in the long run (Elena, Mehmet, Rob and Sabri, 2018). The cost of capital reduction perspective argues that ESG disclosures increase cost and has economic consequences stressing that the fundamental purpose of a business is to increase financial profitability and any other non-financial obligation will reduce profitability. They believes that non-financial disclosures especially governance should be performed by non-profit making organizations and charity homes. The value creation perspective on the other hand believe that sustainability governance reports strengthen trust in the organization, generate competitive advantage, motivates employees and lead to superior performance. This corroborates several researches (Fazzini and Dal, 2016; Kaspereit and Lopatta, 2016) over the years on the effect of sustainability disclosures on corporate performance which have often been contradictory. It is also important to note that there are no clear findings existing on how corporate governance sustainability reporting improves returns on assets (ROA). It is against this backdrop that this study examines the effect of governance sustainability reporting on corporate performance of quoted oil and gas companies in Nigeria.

1.3 Objectives of the study

The general objective of this study was to examine the governance sustainability disclosures and corporate performance of quoted oil and gas companies in Nigeria. This study specifically sought to:

i. establish the influence of governance sustainability disclosure on the Return on Assets (ROA) of quoted oil and gas companies in Nigeria.

ii. examine the combined effect of governance sustainability disclosures, firm size and firm age on Return on Assets (ROA) of quoted oil and gas companies in Nigeria.

1.4 Research questions

The following research questions were expected to guide this study:

i. How does governance sustainability reporting influence the Return on Assets (ROA) of quoted oil and gas companies in Nigeria?

ii. How significant is the combined effect of governance sustainability disclosures, firm age, and firm size on Return on Assets (ROA) of quoted oil and gas companies in Nigeria?

1.5 Hypotheses of the study

The following hypotheses were developed in this study:

Ho1: Governance sustainability disclosure has no significant influence on Return on Assets (ROA) of quoted oil and gas companies in Nigeria.

Ho2: The combined effect of economic, environmental, social and governance sustainability disclosures on Return on Assets (ROA) of quoted oil and gas companies in Nigeria is not significant.

2.0 Review of literature

2.1 Sustainability disclosures

The concept of sustainability disclosure maintains that while a firm strives to achieve its traditional objectives of profit and wealth maximization, it is imperative that this profit is maximized through activities that seek to integrate economic, environmental, and social and governance considerations into the decision-making process (Diantimala, 2018). Sustainability is defined as the concept of meeting the social, environmental and economic needs of the present without compromising the ability of future generations and assuring these needs are met through the adoption of corporate governance practices (Diantimala, 2018). This definition consists of three dimensions of firm sustainability other than the economic-namely, environmental, social and governance.

Corporate environmental sustainability refers to a firm's activities associated with protection of natural resources and efforts to preserve the environment. The second dimension of firm sustainability is social sustainability, which refers to long-term efforts that affect the welfare of the society (Kaspereit and Lopatta, 2016). The third dimension is economic sustainability, which refers to a firm's maintaining a long-term presence in the market (Bolton and Mattila, 2015; Diantimala, 2018) by enhancing its financial performance (Laskar, 2019). The fourth dimension in firm sustainability is governance, which refers to the firm's implementing principles to assist the stakeholders in monitoring controls, solving conflicts of interest and enforcing transparency (Kim and Lyon, 2016).

Sustainability should be defined broadly, although not so broadly as to lack specificity, but containing all the dimensions, economic, environmental, social, and governance. Sustainability also means incorporation of social, environmental and economic (Malik, Ali and Ishfaq, 2015). However, to ensure that those three sustainability dimensions (social, environmental and economic) are incorporated into corporate strategy, governance practices should be implemented (Mohammed, Hassan and Bala, 2020).

Thus, sustainability disclosures cover the provision of economic, environmental, social, and governance information to enable others, who are mostly stakeholders of the company to assess how sustainable an organization's operations are (Rose, 2016). Sustainability disclosure practices are also referred to as sustainability reporting or corporate social responsibility (CSR) reporting, non-financial reporting, triple bottom line reporting, or value reporting (Nnamani, Onyekwelu and Ugwu, 2017). Sustainability disclosure is described as the integration of reporting and accounting for social, environmental and economic issues in corporate reporting or simply the “triple bottom line reporting”.

2.2 Governance sustainability disclosure

Sustainability in governance refers to the firm's implementing principles to assist the stakeholders in monitoring controls, solving conflicts of interest and enforcing transparency (Nurlan, Monowar and Timur, 2019). Good corporate governance ensures that rules, regulations and laws, particularly those associated with economic, environmental and social issues, are followed and that corrective action is implemented to maintain the firm's long-term sustainability (Riedl and Smeets, 2017). A well governed firm in terms of corporate performance assists the management in using the resources efficiently and improve performance, hence increasing the stakeholders' trust in the firm's profitability, continuity and sustainability. Therefore, corporate governance is a crucial dimension of sustainability, as it assures a firm's sustainability (Platonova, Asutay, Dixon and Mohammad, 2018).

Governance sustainability disclosure incorporates a firm's implementation of principles to assist the stakeholders in monitoring controls, solving conflicts of interest and enforcing transparency (Rose, 2016; Riedl and Smeets, 2017). Governance sustainability disclosure subsists good corporate governance which captures the rules, regulations and laws, particularly those associated with economic, environmental and social issues, ensuring that they are followed, and that corrective action is implemented to maintain the firm's long-term sustainability (Ruhnke and Gabriel, 2013). By adopting governance practices, firms can sustain themselves over the long term, as these governance practices assure that their operations are on the right track; can anticipate and resolve governance-related problems, such as implementing anti-corruption, anti-extortion and anti-bribery initiatives; and can integrate sustainability into management decisions (Ruhnke and Gabriel, 2013). Therefore, governance improves a firm's reputation and builds or maintains community trust, which indeed enables firms to continue and sustain themselves.

Governance sustainability disclosure has been described variously by different scholars, regulators and policy makers as one of the fundamental elements that determines the state of health or otherwise of any organization and its ability to meet its organizational objectives and survive economic turbulence (Ruhnke and Gabriel, 2013). Stakeholder theories underline that firms develop governance to align environmental and social goals with economic goals, track performance against goals, and convert goals into actions to meet stakeholder expectations (Taouab and Zineb, 2019). The contents of governance sustainability disclosure include disclosure of policies, procedures, board independence and diversity, executive compensation and evaluation of firm's culture of ethical leadership and compliance. It also subsumes the alignment of corporate policies and practices with sustainability goals; transparency to stakeholders; integration of sustainability principles from top down into day-to-day operations of company (Selvam, Gayathri, Vasanth, Lingaraja and Marxiaoli, 2016). Governance focuses on how management is committed to sustainability and corporate responsibility at all levels (Backstrom and Karlsson, 2015).

2.3 Governance sustainability disclosure and corporate performance

Governance disclosure refers to implementing principles to assist stakeholders in monitoring controls, solving conflicts of interest and enforcing transparency (Taouab and Zineb, 2019). Firms report on governance issues to improve the firm's reputation and build or maintain community trust (Taouab and Zineb, 2019). They also anticipate and resolve governance-related problems, such as implementing anti-corruption, anti-extortion and anti-bribery initiatives; integrating sustainability into management decisions; and safeguarding reputations (Taouab and Zineb, 2019).

Firms report on governance issues to improve the firm's reputation and build or maintain community trust (Hahn and Kühnen, 2013). They also anticipate and resolve governance-related problems, such as implementing anti-corruption, anti-extortion and anti-bribery initiatives; integrating sustainability into management decisions; and safeguarding reputations. Vander and Slawinski (2015) found that governance disclosure improved a firm's financial performance, whereas Rose (2016) found that governance disclosure has a negative impact on ROA and ROE. Wasara and Ganda (2019) found that governance disclosure is not significant for market performance. As discussed previously, studies of the relationship between sustainability reporting and firm performance (operational, financial and market) have produced mixed results; this could be due to a firm's nature. Riedl and Smeets (2017) and Taouab and Zineb (2019) claimed that ESG characteristics vary across industries, making it difficult to generalize results when a study is conducted across several industries at once. Studies have shown that the performance of Indian firms has been enhanced significantly as a result of increasing the pillars of sustainability disclosure, specifically in governance disclosure (Uwuigbe and Egbide, 2012). At the same time positive effects of governance sustainability disclosures have been reported for manufacturing firms' and banks in Greece (Taouab and Zineb, 2019). This was also shown for Russian firms with reports indicating the importance of governance disclosure in enhancing the performance of oil and gas firms.

However, using data extracted from a hundred United States firms, weak evidence of an effect was shown for the role of governance disclosure in enhancing firms' performance. This was corroborated through the reporting of the existence of a negative link between governance disclosure and financial performance in Nigerian firms (Uwuigbe, Obarakpo, Uwuigbe, Ozordi, Asiriuwa, Eyitomi, Taiwo, 2018) Thus previous studies have shown mixed results. This variance in results has been attributed to various reasons such as awareness levels in terms of sustainability disclosures and the financial market's characteristics (Ruhnke and Gabriel, 2013). However, it must be stated that in general, governance sustainability disclosure is expected to enhance a firm's performance either positively or negatively.

2.2 Theoretical review

There are theories that substantiate the existence of a relationship between sustainability disclosures and performance of firms. The theories in support of sustainability theories include the legitimacy theory, and stakeholders' theory.

2.2.1 Legitimacy theory

This theory is credited to Mark C. Shusman in 1995. This theory was derived from the political economy theory and relies on the idea that the legitimacy of a company to operate in the society depends on an implicit social contract between the company and society. The assumption of this theory is that the actions of an entity are desirables, proper or appropriate within the socially constructed system of norms, values, beliefs, and definitions. As such the theory states that firms are bound by social contracts, which they are expected to perform in return for the approval of its objectives (Nuber, Velte and Hörisch, 2020). This implies that the accomplishment of the goals or objective of a firm, depends closely to this social contract that requires them to become socially responsible in the society.

Furthermore, the legitimacy theory posits that organizations continually seek to ensure that they operate within the bounds and norms of their respective societies, that is, they attempt to ensure that their activities are perceived by outside parties as being legitimate (Rose, 2016). Contextually, the legitimacy theory subsists that when firms achieve transparent and appropriate sustainability reports, they have asserted their good performance in corporate social responsibility, good business practices, and compliance to standards and regulations (Laskar, 2019). This can improve the stakeholders' perception of the firm's social responsibility performance and transparency. Consequently, a firm's value can be enhanced with a high level of stakeholder perceptions and support (Nnamani et al., 2017).

This theory links the importance of disclosing governance issues relating to the firm such that the firm can reassure that its operations are within the boundaries of the legitimacy that it holds through its incorporation (Mohammed et al., 2020). When these disclosures are made, all the stakeholders are reassured that all the operations of the company are proper and in accordance with the perceived social contract that exists between all the parties. Governance and other sustainability disclosures are in conformity of legitimization of the operations of the firm (Malik et al., 2015). This theory is considered relevant to this study because it captures two important components of sustainability disclosures. These are social and environmental sustainability disclosures which form part of the variables in this study. At the same time, it links sustainability disclosures, indicating that perceptions of the responsibilities of the firm in showing that they care about the immediate and general society can add value to the firm. This theory is an anchor theory of this study.

2.2.2 Stakeholders' theory

This theory is propounded by Edward Freeman in 1984. The basic assumption of this theory is that firms need to manage their relationship with all their stakeholders to grow and survive. Based on this, reporting on specific types of information can be used to attract or sustain the patronage of a given group of stakeholders (Kaspereit and Lopatta, 2016). As such the success or failure of the firm to a reasonable proportion depends on the support of its stakeholders (Arowoshegbe and Uniamikogbo, 2016). This theory proposes that for a firm to survive and grow, all the stakeholders must be carried along through the different financial and non-financial information (Diantimala, 2018). Thus, via sustainability disclosure that covers governance issues, the firm will be able to satisfy all the stakeholders' needs. The requirements of governance sustainability disclosures target the provision of vital information to different stakeholders of the firm. Not only has it captured that it is not only financial information that a firm requires to provide these stakeholders, but also non-financial information, required to satisfy all the stakeholders. This non-financial information is very much a part of the governance sustainability disclosures, which are the focus of this study, hence the relevance of this theory to this study.

2.3 Empirical review

Mohammed et al. (2020) examined the association between sustainability disclosures and the financial performance of Jordanian firms. The researchers used a panel data set of 1,705 firm-year observations of firms listed on the Amman Stock Exchange. Fixed effect regression with robust standard errors was used to analyse the data. The findings revealed that while social and governance disclosures are positively associated with financial performance, environmental disclosures do not have this association. Also, when sustainability disclosures were analysed collectively, a highly positive and significant association was found between them. The researchers recommended that the dimensions of sustainability disclosures complement each other to enhance firms' financial performance.

Hardiningsih, Januarti, Yuyetta, Srimindarti and Udin (2020) investigated the moderating role of country's sustainability reporting law on the relationship between the level of sustainability reporting and firm performance A secondary data was used for this study, the data was sourced through the Bloomberg database. The sample of the study included data from 3,000 firms of 80 countries covering 10 years (2008-2017), which provided 23,738 observations. The results from the study showed that sustainability reporting disclosure (environmental, social and governance) affects a firm's operational performance (ROA) negatively. However, when the components of ESG were considered separately, the results showed it has a positive effect on a firm's operational performance (ROA). On the other hand, sustainability reporting disclosure (ESG) does not affect a firm's financial and market performance (ROE and TQ).

Wasara and Ganda (2019) examined the effect of sustainability reporting and corporate social responsibilities on firm value with mediation of financial performance to 132 manufacturing companies listed on Indonesian Stock Exchange (IDX) in 2017-2018. Quantitative research method was used. Data was analyzed using multiple linear regression model to examine the impact of the disclosure of sustainability reporting and the disclosure of corporate social responsibility toward firm value with the mediation of financial performance. The findings indicated that the disclosure of sustainability reporting and corporate social responsibility do not affect financial performance.

Platonova et al. (2018) explored the relationship between corporate sustainability performance (CSP) and corporate firm performance (CFP) for a sample of the top 500 Indian firms covering the period from 2008 to 2018. A causality design was used and the CSP variables considered were both aggregate and disaggregate levels of environmental, social and governance performance. Analysis of data was conducted to determine bidirectional causality and intensity of the CSP-CFP relationship using the Granger causality test and multiple regression for panel data. Again, there was a sectoral level trend analysis dividing the firms in various industries and classifying them in ESI vs non- ESI sectors. The findings from the study indicated the absence of causality among CSP and CFP variables in either direction or suggested that the CSP-CFP linkage is mostly insignificant for Indian firms at the aggregate level. At an individual firm level, some negative association was found between CSP and CFP. This relationship was also shown to have an adverse impact on CSP-CFP linkage in both cases, which means that Indian firms don't get the financial performance benefits of investments done for sustainability.

Akbukut and Kaya (2019) examined sustainability reporting and its relation with firm performance. Panel data logistic regression analysis of 155 automotive firms from 20 different countries, between 2010-2018 years was used. Also, financial data such as Tobin's Q ratio of the public companies as well as firm size, financial leverage ratio and return on assets were used in measuring the firm performance. The data were sourced through GRI's reports on GRI Sustainability Disclosure Database. The researchers found similar results with some prior literature explaining that sustainability reporting has a significant positive relationship with firm performance. The findings of study also showed the existence of a positive significant relationship between firm size and sustainability reporting, and a negative significant relationship between financial leverage and sustainability reporting in the automotive industry.

Asuquo et al. (2018) examined the effect of sustainability reporting on corporate performance of selected quoted brewery firms in Nigeria. Multiple regression method was used by the researchers. Data was obtained from the audited financial statements of the three brewery firms under study for a period of five years (2012-2016). The result of the study showed that Economic Performance disclosure (ECN), Environmental Performance disclosure

(ENV) and Social Performance disclosure (SOC) have no significant effect on return on asset (ROA) of selected quoted firms in Nigeria. Again, governance performance disclosure was omitted from the indicators of sustainability disclosures. Also, the study covered just five (5) years only and was focused on selected quoted brewery firms. These are gaps.

Uwuigbe et al. (2018) examined the bi-directional relationship between sustainability reporting and firm performance in quoted Deposit Money Banks (DMBs) in Nigeria. Descriptive research design was used. The population size comprised of all deposit money banks quoted on the floor of the Nigerian Stock Exchange, while judgmental sampling technique was used in the selection of the sampled banks. Considering the period 2014-2016, the annual report and stand-alone sustainability reports of the selected banks were analyzed through the use of content analysis and coded in order to obtain the sustainability disclosure index. The panel regression technique was used to analyze the data. The empirical findings showed that there is a bi-directional relationship between sustainability reporting and firm performance of quoted Deposit Money Banks (DMBs) in Nigeria.

Diantimala (2018) investigated the mediating effect of sustainability disclosure on the relationship between financial performance and firm value. The purpose of the study was to examine the effect of financial performance on sustainability disclosure and then to examine the effect of sustainability disclosure on firm value. The researchers used path analysis to examine the hypothesis. The sample used in this study is companies listed on the Jakarta Islamic Index (JII) for the period 2013-2015. However, it was shown that the effect of leverage, profitability, and firm size was not significant. Regarding the indirect effect of financial performance on firm value, the results show that leverage and profitability have a positively indirect effect on firm value. Furthermore, size and liquidity had no indirect effect on firm value.

Backstrom and Karlsson (2015) conducted a study to analyse the relationship between corporate sustainability performance and financial performance in Sweden. The researchers based their study on stakeholder theory and from previous empirical findings, a positive relationship between sustainability performance and financial performance was hypothesised. Furthermore, with the support from previous studies on the effect of board diversity on sustainability and financial performance, the second and final hypothesis predicted a positive impact of board diversity components on the relationship between the two components. Deductive approach using a multivariate regression method. The sample of the study constituted of 1,015 observations of firms listed on the NASDAQ OMX Stockholm during 2009-2013. The results from the study showed a positive relationship between corporate sustainability and financial performance. However, the findings of a robustness test suggested a more complex relationship. Instead of a complete positive relationship, there are indications that the positive relationship is only true for low and moderate sustainability performers.

Buallay (2019) examined the effects of sustainability report disclosure on the company's financial performance which were measured by profitability, liquidity, leverage, activity, and dividend payout ratio. Independent variables used in this study were the Sustainability Report disclosure which was measured by using the GRI (Global Reporting Initiatives) index. The dependent variables used were Return on Assets (ROA), current ratio (CR), Debt Equity Ratio (DER), Inventory Turnover (IT) and Dividend Payout Ratio (DPR). The samples were taken from the manufacturing companies that revealed Sustainability Report Listed on the Indonesian Stock Exchange (IDX). The statistical method used in this study was linear regression analysis. The results showed that the Sustainability Report disclosure positively influences ROA, but it has no significant effect on CR, DER, IT, and DPR. The researchers concluded that the presence of SR disclosure of the company will increase the profitability of the company.

Aggarwal (2013) examined the impact of

sustainability performance of the company on its financial performance: A study of listed Indian Companies. The purpose of this paper was to examine the impact of sustainability rating of company on its financial performance in an Indian context using secondary data. The researcher also separately analyzed the impact of four key components of sustainability (i.e. Community, Employees, Environment and Governance) on financial performance. The findings showed the existence of a no significant association between overall sustainability rating and financial performance. However, further analysis revealed that four components of sustainability have significant but varying impact on financial performance.

Eccles et al. (2014) investigated the effect sustainability reporting has on companies' financial performance. The researchers adopted an event study method to estimate abnormal returns for a 31-day event window for a sample of 68 listed companies, 17 listed in New Zealand Stock Exchange (NZX) and 51 listed in the Australian Stock exchange (ASX). The findings indicated that sustainability reporting was statistically significant in explaining abnormal returns for the Australian companies. It was found that only the CSR type of sustainability report was significant in explaining the abnormal return of New Zealand companies.

3.0 Methodology

The research design adopted in this study is ex-post facto design. This design aligns with the use of quantitative methods in the collection and analysis of data required for examining governance sustainability disclosures and corporate performance of quoted oil and gas companies in Nigeria. The area of this study is the oil and gas sector in Nigeria. The population of this study comprises of all the listed oil and gas companies in the Nigerian Stock Exchange (NSE) as of 31st December 2020. These include twelve (12) companies who are trading in the Nigeria Stock Market currently.

The data sources include the audited annual and sustainability reports published by the oil and gas companies that form the sample of this study from the year 2009 to 2020, and the Bloomberg Database on Environmental, Social, and Governance (ESG) of various years. Content analysis was used for the collection of data on sustainability governance disclosures. This is based on the information provided in the annual reports and sustainability reports of the quoted oil and gas companies in Nigeria

3.1 Empirical specification of model

Multiple linear regression models were used in this study. This is in line with those used in Buallay et al. (2017), Muhammed et al. (2020). These models were slightly modified to capture the effect of time lag since it has been suggested in several works of literature that sustainability disclosure will not immediately lead to better performance, and that also it is a strategic concept, which effects may not occur immediately or in the same year that it is reported (Buallay et al., 2017). This model is specified as follows:

Corporate Performance = f(Governance Sustainability Disclosure) - Equation 1

$CP = f(SD)$ - - - Equation 2

$CP = \alpha 0+\beta iXi,t-1+vi+\mu i,t$ -- Equation 3

Where:

CP is corporate performance (Explained Variable)

$Xi,t-1$ is the independent or explanatory variable for a given firm in a year lagged by 1 year

$\alpha 0$ is the estimated regression intercept or constant

Vi is the individual effect in the model

$\mu i,t$ is the stochastic or error term

The hypotheses for this study are specified as follows:

$ROA = f(GOSD, SIZE, FAGE)$ -Equation 4

$ROA= \alpha 0+\beta 1GOSDi,t-1+vi+\mu i,t$ - --Equation 5

$ROA= \alpha 0+\beta 4GOSDi,t-1++\beta 2SIZEi,t-1+\beta 3FAGEi,t-1vi+\mu i,t$ - - - - Equation 6

Where:

ROA is Return on Assets for a firm i and in a given period t,

GOSDi,t-1 is Governance Sustainability Disclosure for a firm i, and period t, lagged by one year

SIZE is Firm Size for the firm i, and period t

FAGE is Firm Age for the firm i, and period t

$\alpha 0$ is the estimated regression constant

$\beta 1$,$\beta 2$,$\beta 3$ are the estimated coefficients of the independent or explanatory variables

vi are the individual effects in the model
μi,t is the error or stochastic term for a firm i, in period t.
i is for an individual oil and gas company
t is the given period

3.3 Data Analysis technique

Panel regression techniques were used in the analysis of data in this study. The assumption in this technique is that all the Ordinary Least Square (OLS) assumptions in a transformed variable are met, issues relating to normality and linearity will not arise given that most of the variables are either transformed or in ratio form, and that a deviation from normality will not institute a pronounced or substantial variation in the analysis (Backstrom and Karlsson, 2015).

4.0 Analysis and discussion

Descriptive statistics analysis

The results for the descriptive test conducted for this study is presented in Table 1.

Table 1: Descriptive Statistics Analysis of Data for the Study

Statistic	ROA	GOSD	SIZE	FAGE
Mean	0.170588	77.05629	7.344274	19.98611
Median	2.856240	75.00000	7.561048	21.00000
Maximum	151.0478	93.75000	9.325628	42.00000
Minimum	-166.1215	50.00000	3.028368	0.000000
Std. Dev.	26.79531	10.00268	1.521618	11.02000
Skewness	-1.467267	-0.555971	-1.545100	-0.087456
Kurtosis	22.01325	3.064664	5.065526	2.203897
Jarque-Bera	2189.849	7.391882	81.74308	3.986245
Probability	0.000000	0.024824	0.000000	0.136269
Sum	24.22344	11019.05	1042.887	2878.000
Sum Sq. Dev.	101236.4	14207.62	326.4604	17365.97
Observations	142	143	142	144

Source: Author's Computation (2021)

Table 1 shows that the mean and median of Return on Assets (ROA) was obtained as 0.17% and 2.86%. This indicates that the average of Return on Assets (ROA) for all the twelve (12) companies that were selected for this study for the period of 12 years is 0.17%, while the most central of the ROA for all the companies is 2.86%. . The level of variability in the ROA was further showed by the skewness results obtained with a value of -1.467. This indicates that the data on ROA is negatively skewed. This implies the asymmetry of the mean and the median in the distribution. The data on ROA could be said to be fairly negatively skewed. For governance sustainability disclosure, (GOSD) the outcome of their mean, median, standard deviation, skewness, and kurtosis values indicate the relative normality of the data respectively with a Jarque Bera probability of 0.02. The control variables used in this study are firm size (SIZE), and firm age (FAGE). The mean values obtained for SIZE and FAGE are 7.344 and 19.98 respectively, while the median values obtained were 7.56 and 21.00 respectively. The average firm age of all the firms used in the study is 19.96 years, indicating that all the firms used in the study are approximately twenty (20) years old in the operations in the oil and gas industry in Nigeria. Generally, all the data for the variables in the study were shown to have a moderately negatively skewed distribution, and different levels of variability.

Bivariate correlation analysis

This analysis was conducted to examine the strength of the correlation among all the variables used in this study. The essence of this was to avoid multicollinearity problems that may arise with further estimation using the data collected for the variables. The existence of a very high strength or degree of correlation in the variables may indicate the presence of a multicollinearity problem which may affect the outcome of estimation results using the data for the variables. The simple bivariate correlation analysis result is presented in Table 2.

Table 4.2: Simple Bivariate Analysis Results for the Variables

	ROA	GOSD	SIZE	FAGE
ROA	1.000000			
GOSD	0.109834	1.000000		
SIZE	-0.065223	-0.511651	1.000000	
FAGE	-0.152443	0.227880	-0.050750	1.000000

Source: Researchers' Computation (2021)

Table 4.2 shows that the correlation coefficient between Return of Assets (ROA), and the independent variables which include GOSD, SIZE AND FAGE, was obtained as -0.2321, 0.1098, -0.0652, and -0.1524 respectively. This shows that the correlation between ROA and variables such as SIZE, and FAGE is negative, while the correlation between ROA and GOSD is positive. Again, the strength of the correction coefficient between ROA and these variables were not very high. This may indicate in simple terms the absence of multicollinearity among the variables of ROA, GOSD, SIZE and FAGE, in the data set used in the study.

Panel unit root analysis

This test was conducted to establish the suitability of the data series in estimating possible long-run relationship using the Kao cointegration method. The panel unit root tests were conducted with the assumption of common unit root processes and individual unit root processes adopting Levin, Lin & Chu (LLC), Im, Pesaran and Shin W-stat and Augmented Dickey Fuller (ADF) - Fisher Chi-square methods respectively for all the variables in the study. The tests were conducted at different levels of integration (0,1, and 2) until all variables were found to be stationary. The results from the panel unit root analysis are presented on Tables 4.3:

Table 4.3: Panel Unit Root Analysis Results for Variables

Variable	LLC Statistic	Prob.	Im, Pesaran and Shin W-stat	Prob.	ADF-Fisher Statistic	Prob.	Order of Integration	Decision
ROA	-28.4223	0.0000	-10.5862	0.0000	82.3337	0.0000	I(1)	Stationary
GOSD	-5.77221	0.0000	-3.23287	0.0006	47.4562	0.0005	I(1)	Stationary
SIZE	-3.60285	0.0002	-1.81214	0.0350	36.9716	0.0440	I(1)	Stationary
FAGE	-4.00016	0.0000	-1.87335	0.0305	7.85198	0.0197	I(1)	Stationary

Source: Author's Computation (2021)

The null hypothesis before the conduct of this test is that all the variables have unit root problem. However, the conduct of the panel unit root test using Levin, Lin & Chu (LLC), Im, Pesaran and Shin W-stat and Augmented Dickey Fuller (ADF) - Fisher Chi-square methods at level (order of integration equal to zero) indicates that the null hypothesis was not rejected given that none of the variables were found stationary. Thus, Return on Assets (ROA) and Governance Sustainability Disclosure (GOSD), Firm Age and Firm Size (SIZE) were all found to be stationary at First Difference (Order of Integration = 10). This indicated the absence of unit root in these variables.

Cointegration analysis

Cointegration analysis explains the possibility that the combination of the variables may result to a long-run relationship. This test was conducted using the Kao Cointegration Test method. The test results of the cointegration of the dependent and independent variables in the study with and without the control variables are presented in Table 4.4.

Table 4.4: Kao Cointegration Results

	t-Statistic	Prob.
ADF	-3.057335	0.0011
Residual variance	599.6733	
HAC variance	430.8993	

Source: Author's Computation (2021)

From the extracted result, there was cointegration between the variables used in the study with and without the control variables. The implication of this result is that governance sustainability disclosures (GOSD) and Return on Assets (ROA) relate in a long-run relationship when the age and size of the firm are considered.

4.5 Test of hypotheses

Regression analysis in the study was conducted based on the number of hypotheses in the study. This implies that each model earlier raised in the study will be analysed based on the regression results obtained first without the control variables, and then with the control variables in every case of the model.

The null hypotheses state that, governance sustainability disclosure has no significant effect on Return on Assets (ROA); and that governance sustainability disclosure, firm size and firm age has no significant effect on Return on Assets (ROA). The regression results with the control variables and without the control variables that captures this research hypotheses are restated as follows:

Table 4.5: Regression Results for Hypotheses

Variables	Equation 4.7 (Without control) Coefficients	t-stat (Prob.)	Equation 4.8 (With Control) Coefficients	t-stat (Prob.)
Constant	-44.03	-1.1709 (0.2440)	-36.15	-1.159535 (0.2484)
GOSD	0.57	1.1625 (0.2474)	0.565	1.9378(0.0549)
SIZE			0.24	0.1317(0.0024)
FAGE			-0.46	-2.0468 (0.0428)
R^2	0.1723 (17.23%)		0.055 (5.5%)	
F-stat	2.029 (0.0027)		2.448 (0.0667)	

Source: Author's Computation (2021)

Table 4.5 showed the regression results without the control variables and with the control variables. From the results shown for the regression results without the control variables, that is Firm Size and Firm Age, the Return on Assets (ROA) will decrease by an average of 44.03% if the independent variable is held constant, which is governance sustainability disclosure (GOSD). Furthermore, a unit change in Governance Sustainability Disclosure (GOSD) will cause an increase of 0.57% in Return on Assets (ROA). This direct effect of Governance Sustainability Disclosure (GOSD) is statistically insignificant given t-statistic value of 1.1625 and the probability value of 0.2474. This effect relationship between GOSD and ROA is statistically insignificant since the computed t-statistic value of 1.1625 is less than the critical t-statistical value of 1.812 at 5% level of significance (t0.05,10). Also, the probability value obtained was also found to be less than 0.05. Also, the coefficient of determination (R2) value of 0.1723 indicates that 17.23% of the variations in ROA has been explained by GOSD. The remaining 82.77% of the variations can be attributed to other variables. This is given by the error term. This shows that the Governance Sustainability Disclosure (GOSD) has a low predictive power to explain the variations in the dependent variable, Return on Assets (ROA).

Similarly, the results for the model with the control variables: Firm Size (SIZE) and Firm Age (FAGE), indicate that ROA will decrease by an average of -36.15% if all the independent variables (GOSD, SIZE, FAGE) are held constant. Similarly, a unit increase in the governance sustainability disclosure (GOSD) score will lead to a 0.56% increase in ROA; a unit increase in the SIZE of the firms, will cause a 0.243% increase in ROA, while an additional year to the Firm Age (FAGE) will lead to a decline of 0.456% in ROA. The direct effect relationship between GOSD and Return on Assets (ROA) was found to be statistically significant given that the computed t-statistic values of 1.9378 was found to be greater than the critical t-statistic value of 1.860 (t0.05, 8). Also, the probability value of 0.0549 was found to be within the 5% acceptable region. However, Firm Size (SIZE) was found to have a positive statistically isignificant effect on ROA with a computed t-statistic value of 0.1317 and probability values of 0.8954. Firm Age (FAGE) showed an inverse effect on ROA, but the inverse effect is also statistically significant given that the computed t-statistic is less than 1.860, the critical t-statistic value at 5% level of significance.

The coefficient of determination (R2) value of 0.055 indicates that 5.5% of the variations in ROA has been explained by GOSD, SIZE and FAGE. The remaining 94.50% of the variations are accounted for by other variables not included in this study. This is captured in the study by the error term. As shown, the control variables exert some influence on the governance sustainability disclosure since without; it had no significant effect on ROA. Similarly, the effect of the social sustainability disclosure on ROA became significant when it was combined with the control variables of firm size and firm age in the model.

Finally with the computed F-statistic value of 2.44 less than the critical F-statistical value of 3.909 (F3, 140, the null hypothesis of an insignificant effect of social sustainability disclosure on the Return on Assets (ROA) will hold, and the alternative hypothesis is rejected. This shows that social sustainability disclosure as a stand-alone disclosure requirement, does not have any significant effect on the corporate performance of oil and gas firms in Nigeria under the period covered in this study.

4.4 Discussion of the Findings

Without control by firm age and size, governance sustainability disclosure has direct effect on the Return on Assets (ROA) of oil and gas firms in Nigeria. However, when controlled by firm age and size, governance sustainability disclosure the positive effect was found to be significant. This in in consonance with the findings in Muhammad et al (2020), Buallay et al. (2017), who all agreed that governance sustainability disclosure has a positive and significant effect on financial or market performance of a firm. In this case, the increased disclosure of governance issues such as the statement of governance structure, conflicts of interests, highest governance body's role in sustainability reporting, and the periodic consultation of stakeholders on economic, environmental, and social topics, there is the tendency that it could lead to increased level of performance as indicated by increase in Return on Assets (ROA).

Thus, it is important to note that by this, the positive effect that governance sustainability theory has on corporate performance of firms, accentuates the propositions in Stakeholders and legitimacy theories. This is because, through governance disclosure, several stakeholders are assured that the best practices are adopted in the management of the firm, and this could lead to further commitments towards the firm. At the same time, proper disclosure of governance issues is predicated on proper functioning of the firm, within the boundaries of the laws establishing it (legitimacy), and that in continuation of this, the firm is free from circumspection, which allows it to pursue its legitimately-derived objectives.

5.0 Summary, conclusion and recommendations

5.1 Summary and conclusion

This study focused on the examination of the effect of governance sustainability disclosures on corporate performance of quoted oil and gas companies in Nigeria. The research objectives developed for this study include to examine the effect of governance sustainability disclosure on Return on Assets (ROA) of quoted oil and gas companies in Nigeria. The research design adopted was ex-post facto research design. Simple random sampling was used in selecting twelve (12) oil and gas companies that are quoted on the Nigerian Stock Exchange (NSE). Data on governance sustainability disclosures and Return on Assets (ROA) were gathered from the yearly annual reports and financial statements of the of the sampled oil and gas firms.

Furthermore, the independent variables were controlled in the model with firm age and firm size. The data covered twelve (12) years (2009-2020). Data were analyzed using panel linear regression technique. From the results, it was found that when controlled by firm size and firm age, governance sustainability disclosure has an inverse and significant effect on return on assets of firms in the oil and gas industry, and when not controlled by firm size and age, governance sustainability disclosure (GOSD) has a direct and insignificant effect on the Return on Assets (ROA) of quoted oil and gas firms in Nigeria respectively.

The effect of governance sustainability disclosures on the performance of firms individually and jointly produced mixed results without the confines of firm size and age. The mix of results indicates strength of governance disclosure to influence the performance of oil and gas firms. When not controlled by age and size of the firm, governance has direct effect on ROA, and when controlled, it shows an inverse significant effect on ROA. Based on this, it can be stated that governance sustainability disclosure shows mixed results on the corporate performance of firms in the oil and gas industry in Nigeria.

Recommendations

The following recommendations are therefore made:

i. Firms in the oil and gas sector should endeavour to disclose fully their governance measures. This has the capacity to enhance their performances over time.

ii. Governance sustainability disclosures should be adhered to as the firm increases in age and size in line with best practices.

References

Aggarwal, P. (2013). Impact of sustainability performance of company on its financial performance: A study of listed Indian companies. *Global Journal of Management and Business Research,* 13(11): 60-70.

Akbukut, D. H., & Kaya, I. (2019). Sustainability reporting and firm performance. *Pressacademia,* 9(9): 81-84.

Al-Dhaimesh, O. H., & AlZobi, M. K. (2019). The effect of sustainability accounting disclosures on financial performance: An empirical study on the Jordanian banking sector. *Journal of Banks and Bank Systems,* 14(2): 1-8.

AlQudah, A. M., Azzam, M. J., Aleqab, M. M., & Shakhatreh, M. Z. (2019). The impact of board of directors' characteristics on banks performance: Evidence from Jordan. *Academy of Accounting and Financial Studies Journal,* 23(2): 1-16.

Arowoshegbe A. O., & Uniamikogbo, E. (2016). Sustainability and triple bottom line: An overview of two related concept. *Igbinedion University Journal of Accounting,* 2: 88-126.

Asuquo, A. I., Dada, E. T., & Onyeogaziri, U. R. (2018). The effect of sustainability reporting on corporate performance of selected quoted brewery firms in Nigeria. *International Journal of Business and Law Research*, 6(3): 1-10.

Baboukardos, D., & Rimmel, G. (2016). Value relevance of accounting information under an integrated reporting approach: A research note. *Journal of Accounting and Public Policy,* 35(4): 437-452.

Backstrom, S., & Karlsson, J. (2015). Corporate sustainability and financial performance- The influence of board diversity in Swedish context. Unpublished M.Sc. Thesis, Uppsala University Sweden.

Ballina, F. J., Valdes, L., & Del Valle, E. (2020). The signaling theory: The key role of quality standards in the hotel's performance. *Journal of Quality Assurance in Hospitality and Tourism*, 21(2): 190-208.

Birkey, R. N., Michelon, G., Patten, D. M., & Sankara, J. (2016). Does assurance on CSR reporting enhance environmental reputation? An examination in the US context. *In Accounting Forum*, 40(3): 143-152.

Bolton, L. E., & Mattila, A. S. (2015). How does corporate social responsibility affect consumer response to service failure in buyer–seller relationships? Journal of Retailing, 91(1): 140-153.

Buallay, A. (2019). Between cost and value: Investigating the effects of sustainability reporting on a firm's performance. *Journal of Applied Accounting Research,* 2(4): 10-19.

Buallay, A., Hamdan, A., & Zureigat, Q. (2017). Corporate governance and firm performance: Evidence from Saudi Arabia. *Australasian Accounting, Business and Finance Journal,* 11(1): 78-98.

Dhaliwal, D., Li, O. Z., Tsang, A., & Yang, Y. G. (2014). Corporate social responsibility disclosure and the cost of equity capital: The roles of stakeholder orientation and financial transparency. *Journal of Accounting and Public Policy,* 33(4), 328-355.

Diantimala, Y. (2018). The mediating effect of sustainability disclosure on the relationship between financial performance and firm value. Journal of Accounting, Finance and Auditing Studies, 4(2), 32-48.

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science,* 60(11): 2835-2857.

Elena, P., Mehmet, A., Rob, D., & Sabri, M. (2018). The impact of corporate social responsibility disclosure on financial performance: Evidence from the GCC Islamic Banking Sector. *Journal of Business Ethics,* 151: 451-471.

Fazzini, M., & Dal, M. (2016). The value relevance of assured environmental disclosure: The Italian experience. *Sustainability Accounting, Management and Policy Journal,* 7(2): 225-245.

Freeman, R. E. (1984). *Strategic management: A stakeholder approach. Boston*, MA: Pitman,72p.

Hahn, R., & 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,* 59: 5-21.

Hardiningsih, P., Januarti, I., Yuyetta, E. N. A., Srimindarti, C., & Udin, U. (2020). The effect of sustainability information disclosure on financial and market performance: Empirical evidence from Indonesia and Malaysia. *International Journal of Energy Economics and Policy,* 10(2): 18-25.

Kaspereit, T., & Lopatta, K. (2016). The value relevance of SAM's corporate sustainability ranking and GRI sustainability reporting in the European stock markets", Business Ethics: *A European Review,* 25(1): 1-24.

Kim, E. H., & Lyon, T. P. (2016). Greenwash vs. brown wash: Exaggeration and undue modesty in corporate sustainability disclosure. *Organization Science,* 26(3): 705-723.

Laskar, N. (2019). Does sustainability reporting enhance firm's profitability? A study on select companies from *India and South Korea. Indian Journal of Corporate Governance*, 12(1): 12-20.

Malik, M. S., Ali, H., & Ishfaq, A. (2015). Corporate social responsibility and organizational performance: Empirical evidence from banking sector. *Pakistan Journal of Commerce and Social Sciences, 9*(1): 241-247.

Mohammed, S. D., Hassan, A. & Bala, A. J. (2020). The determinants of corporate social and environmental disclosure in the Nigerian oil and gas Industry: An empirical investigation. I*nternational Journal of Auditing and Accounting Studies,* 2(2): 129-153.

Nnamani, J. N., Onyekwelu, U. L., & Ugwu, O. K. (2017). Effect of sustainability accounting on the financial performance of firms in the Nigerian brewery sector. *European Journal of Business and Innovation Research,* 5(1): 1-15.

Nuber, C., Velte, P., & Hörisch, J. (2020). The curvilinear and time- lagging impact of sustainability performance on financial performance: Evidence from Germany. *Corporate Social Responsibility and Environmental Management,* 27(1): 232-243.

Nurlan, O., Monowar, M., & Timur, N. (2019). The impact of sustainability performance indicators on financial stability: Evidence from the Russian oil and gas industry. *Environmental Science and Pollution Research Article Published,* 26:8157-8168.

Platonova, E., Asutay, M., Dixon, R., & Mohammad, S. (2018). The impact of corporate social responsibility disclosure on financial performance: Evidence from the GCC Islamic banking sector. *Journal of Business Ethics*, 151(2): 451-471.

Riedl, A., & Smeets, P. (2017). Why do investors hold socially responsible mutual funds? *The Journal of Finance,* 72(6): 2505-2550.

Rose, C. (2016). Firm performance and comply or explain disclosure in corporate governance. *European Management Journal,* 34(3): 202-222.

Ruhnke, K., & Gabriel, A. (2013). Determinants of voluntary assurance on sustainability reports: an empirical analysis. *Journal of Business Economics,* 83(9): 1063-1091.

Selvam, M., Gayathri, J., Vasanth, V., Lingaraja, K., & Marxiaoli, S. (2016). Determinants of firm performance: A subjective model. International *Journal of Social Science Studies,* 4(7): 90-100.

Taouab, O., & Zineb, I. (2019). Firm performance: Definition and measurement models. *European Scientific Journal,* 15: 1857-1881.

Uwuigbe, U., & Egbide, B. C. (2012). Corporate Social Responsibility Disclosures in Nigeria: A Study of Listed Financial and Non-Financial Firms. *Journal of Management and Sustainability,* 2: 160.

Uwuigbe, U., Obarakpo, T., Uwuigbe, O. R., Ozordi, E., Asiriuwa, O., Eyitomi, G. A., & Taiwo, O. S. (2018). Sustainability reporting and firm performance: A bi-directional approach. *Academy of Strategic Management Journal,* 17(3): 1-16

Vander, C. A., & Slawinski, N. (2015). Embracing tensions in corporate sustainability: A review of research from win-wins and trade-offs to paradoxes and beyond. *Organization and Environment,* 28(1): 54-79.

Wasara, T. M., & Ganda, F. (2019). The relationship between corporate sustainability disclosures and firm financial performance in Johannesburg stock exchange listed mining companies. *Sustainability*, 11(16): 44-49.

Investors' Reaction to Information Disclosures on Human and Social Factors in the Annual Reports: Evidence from the Nigerian Capital Market

Sunday Asukwo Okpo

Abstract
This study examined the reaction of investors towards disclosure of information on human and social disclosure in annual reports of companies. The main objective of the study was to examine how disclosure of information on human and social disclosure will trigger a corresponding reaction by investors in the Nigerian capital market. The main thrust of the study was to examine whether the resurgence of the Nigeria capital market could be attributed to the disclosure of information on human and social factors. The population of the study was the firms listed on the Nigerian stock exchange between 2015 and 2019 from which a sample of sixty firms were selected. The control variable in the study was investor's reaction which was proxied by market capitalisation, while the independent variable was the voluntary disclosure of human and social factors which was proxied by disclosure index developed by the researcher. The data for the study were extracted from annual reports of the selected firms within the period under consideration using contents analysis and based on disclosure index. The data were analysed using descriptive statistics as well as regression models and SPSS version 20. The results of the analysis indicated a positive correlation between human and social factor disclosure and market capitalisation. This implied that increase in disclosure on human and social factors will also lead to increased market capitalisation. The study therefore concluded that increased disclosure will create a positive reaction from investors. Arising from the above the study recommended amongst others that government and regulatory authorities should encourage increased disclosure of information on human and social factors.

Key Words: Market Capitalisation, Voluntary Disclosure, Human and social factors, Annual reports

Introduction

The agitations for increased disclosures in annual reports in the last two decades have generated a lot of interests from not only users of annual reports but also from regulators of financial reporting across the world. This has led various jurisdictions to come out with different moves to encourage preparers of financial statement to increase the disclosure contents of financial statements. The need for increased disclosures became apparent due to the dynamics of business environment coupled with competition across the globe. The global melt down and collapse of some big companies also led to increased agitation for more disclosures in financial statement (Gray, Manson and Crawford, 2017). The demand for increased disclosures was in the area of non-financial information, as the users feel that mandatory disclosure was no more exciting and consequently monotonous (Beatie, McIness & Fearnley, 2004). In order to encourage increased voluntary disclosures in annual reports the International Federation of Accountants Committee (IFAC) came out with a policy guidelines number 8 in 2013 in which it emphasized voluntary disclosure in five key areas (National Accountant, 2013).

Investors in the capital market make use of various sources of information in making their investment decisions. These sources include annual report of companies, analysts' reports, stock exchange information, press statements and so on. However, the bulk of information used by investors always come from financial statements. For financial statement to be useful it must contain value-relevant information (Osuala, 2012). Information disclosed in the financial statements are classified into two: mandatory and voluntary. While mandatory disclosures are in accordance with the provisions of the law, standards or regulations; the voluntary disclosures are as deemed necessary by preparers of the financial statements (Shehata, 2014). Discussions on voluntary disclosures in the past usually centered on management discussions and analysis (MD&A) (see Bossolan,

**** Sunday Asukwo Okpo is a Ph.D student in the Department of Accounting and Taxation, Faculty of Administration, Nasarawa State University, Keffi***

1997, Bossolan and Plumee, 2003). Thus based on the suggestions and recommendations of IFAC, voluntary disclosures should focus on five keys areas: governance, risks, strategies, environment and human and social factors (National, Accountant, 2013).

Investors in the capital market rely greatly on the information contained in the financial statements of companies (Binh, 2012). They carry out analysis of the annual report in order to identify any information that will reveal the future potential of the company. The Nigerian capital market started picking up after the melt down and within this period the tempo for increased disclosure of voluntary information got to the peak. Thus there seems to be a link between the rise of the capital market activities and increased voluntary disclosures. However, going by the fact that mandatory disclosure was no more exciting, it becomes evident that only voluntary disclosure could make the difference.

However, in the recent past, emphasis of disclosure has been on corporate governance and environmental information with little or no attention given to human and social factors disclosures. This creates a gap as to whether disclosure of information on human and social factors could motivate investors in the capital market to react differently particularly with regards to the resurgence of activities in the Nigerian capital market. Consequently this study is therefore conducted in order to evaluate whether the resurgence of the capital market activities is directly linked to the availability of voluntarily disclosed information on human and social factors. The outcome of the study will narrow the identified gap and contribute to the growing literature on voluntary disclosure of human and social factors.

Objectives of the study

The main objective of this study is to examine the relationship between disclosure of information on human and social factors and reaction of investors in the Nigerian capital market. However, the other objective include:

i) To investigate whether the disclosure of information on human and social factors have effect on market capitalization of the Nigerian capital market.

Review of related literature

Concept of human and social disclosures

The human resources represent a very important aspect of an organisation. This is in view of the fact that it is the human resources that can turn all other resources into product or services. Therefore the quality of human resources will determine the level of performance of any organisation. Firms tend to voluntarily disclose information on human development and training programmes in order to inform stakeholders of the sustainability of their performance.

The human capital is considered as intangible asset which creates value for the firm. This is particularly apparent in a knowledge based economy which is characterised by advancement in technology. The human capital is emphasized as a building block that creates value by harmonising the various other components to create value for the firm. Firm attempts to add value and innovation by subjecting its workforce to developmental training. This in turn will impact on the quality of products and services.

The importance of disclosure of information on human and social factors cannot be understated. According to Ebimobowei (2011), users of social accounting adopt the information to assess whether the firm is socially, financially and environmentally responsible. To that extent, the human capital disclosure is considered as the main performance indicator of any organisation (Mohammed, 2015).

There are many suggestions as to the nature of human capital disclosure. Abeysekera (2008) suggests that human capital should include training and development, entrepreneurial skills, employee equity, employee safety, knowledge, productivity, skills, value, expert networks and expert terms. Guthrie & Petty (2000) maintain that human capital include employee competence, know-how, education, vocational qualification, work-related knowledge and work-related competence.

Mohammed (2015) found a strong demand for human capital information among users of financial statements and maintained that this information comes into effect when there is need to arrive at a final decision using subjective premiums and discounts. He further argued that analysts are particularly interested in information about the qualities of fully employed managers as the activities of these categories of personnel can give competitive advantage. Human factors can be disclosed in different ways in the financial statement. However, Ebimobowei (2011) maintains that Nigerian companies prefer to disclose human and social accounting in the director's report, chairman's statements and notes to the accounts in the form of short qualitative information, human resources and community involvement.

Human capital disclosures differ across various sectors. For instance, firms that rely more on non-tangible assets in economic value creation may tend to disclose more of human capital than others (Mohammed, 2015). The disclosure of information on human and social factors have no doubt implications in the investment decision process. The investors tend to place emphasis on the quality of human resources based on the level of training, job security, health and other social welfare packages. This is expected to give assurances of the sustainability of performances over time. This information usually come from voluntary disclosure section in the chairman's and director's report.

Capital market and reaction of investors

Capital market is a market where long term finance can be raised (Akingbohungbe, 1996). Also Osamwonyi (2003) described capital market as a market for long term funds and securities whose tenor extends more than one year. Capital market is a critical component of the Nigerian economy (Islam, Rahman and Yusuf, 2005). It performs crucial role of mobilising funds from the surplus sectors to deficit units, thereby promoting capital formation. Thus a strong capital market is fundamental to the growth and development of any country because it helps the economy to increase capital formation, provides the necessary elements to manage financial risk, ensures continuity of the enterprise after founders, and providers of funds to governments and companies at more attractive terms (Olajide, 2003). In the same vein, Nzekwu (2003) documented that a sound capital market provides market signals on current estimates and future expectations, helps ensure efficient and sustainable funding of large-scale or long term projects.

Investors in the capital market usually rely on information obtained from various sources for the purpose of making investment decisions. These information are always analysed with a view to identifying areas of strength and weaknesses. One of the major sources of information available to capital market investors is the information disclosed in the financial statements. In this regard the availability of such information is expected to trigger a reaction by investors. Thus financial statements are said to contain value-relevant information when such information are beneficial to investors in their investment decisions. The reactions of investors can be in two ways: either to invest in the company, in which case the information contained in the financial statements are persuasive enough to motivate them to invest in the company; or to decline investing in the company, in which case the information contained in the financial statements are not strong enough to encourage them to invest in the company. When the information available are strong enough the market will react positively in such a way that investors will rush to benefit from the perceived expected returns. The forces of demand and supply will lead to increased price of stock as a result of the increased demand for the company's stock. This increased investments in the capital market will naturally lead to expansion in the market capitalization of the company's stock.

Arguments of whether the mandatory contents of financial statement are no more sufficient for decision making by investors, are no more new (see Suijs, 2011, Boesso & Kumar, 2006). However, what is new is whether the voluntarily disclosed information on human and social factors have the potency to trigger positive reactions which exacerbated the increased tempo of activities in the capital market. The Nigerian capital market started picking up after the global meltdown in 2012 which coincided with the time when the policy guidelines on voluntary disclosures were issued by International Federation of Accountants Committee (IFAC) in 2013.

Empirical literature

There are many studies in extant literature on the relationship between disclosures on human and social factors and capital markets. Hejazi and Hesari (2012) studied the reaction of investors to the disclosure of corporate social responsibilities. The data for the study were sourced from questionnaires administered on professional and non-professional investors. The areas covered were corporate social responsibilities, positive and negative behaviours. The various hypotheses were tested using ANOVA. Their findings indicate that social behaviour is substantially important for investment decision making. They also found that the interaction between social behaviour and financial information has a significant impact on investment probability. They concluded that the disclosure of non-quantifiable social responsibility can have effect on decision making of investors.

Basu, Pierce and Stephan (2018) studied the effect of investor inattention on voluntary disclosure. The motivation for this study came from the fact that managers are more likely to disclose information voluntarily when they perceive that the investors will be more attentive to the disclosure. Thus it is assumed that when managers perceive that investors will give attention to the voluntary information they will be motivated to disclose more. The data for the study came from quarterly earnings announcements from Compustat merged with I/B/E/S between 1998 and 2015 as well as conference calls between 2002 and 2015 and non-GAAP disclosures data between 1998 and 2006. Pearson correlation and multiple regression models were used to test the hypothesis developed for the study. The independent variables consist of earning announcements, conference calls and non-GAAP disclosure; while the independent variable is made up of voluntary disclosure indicators. Their findings indicate that firms are more likely to provide voluntary disclosures when institutional owners are distracted. They also found that voluntary disclosures are more precise, less aggressive and contain less content when investors are less attentive. They suggested that investor's inattention is an important factor determining firm' propensity to provide voluntary disclosures.

Dima, Regab & Hegazy (2018) conducted a study on the determinants of human capital voluntary disclosures in the Lebanese commercial banks. Drawing data from a sample of 16 banks and analysing using multiple regression, they found that age, size and foreign owners explain the level of disclosures of human capital. On the other hand, the study also found that leverage and profitability do not affect the disclosures of human capital. Anifowose, Rashid & Annuar (2017) studied the determinants of human capital disclosures in the post IFRS regime among listed firms in Nigeria. Data were extracted from the annual reports of listed firms using content analysis. The data were analysed using multiple regression model. The result of the analysis indicates that firm size, age and industrial affiliation have significant positive influence on the quality of human capital disclosure among listed firms in Nigeria. However, auditor type and joint audit were found to have significant negative impact on the quality of human capital disclosures.

Ali & Ahmad (2019) investigated the association of organisational attributes with human resources disclosure with evidence from Bangladesh banks. The data from the study were extracted from the annual reports of selected banks using content analysis. The data were analysed using multiple regression model. The proxies for the human capital disclosure were length of service, size of the bank, profitability, total number of employees and number of pages of annual reports. The result of the analysis shows that profitability and number of pages of annual reports are significantly and positively associated with the level of disclosure of human capital of banks while other attributes were found to have no significant impact on the human capital disclosure.

Mohammed (2015) examined the disparity on the desires of human capital disclosures among financial analysts and fund managers in Kurdistan. Using data obtained from annual reports of 100 listed firms in Kurdistan using content analysis, their findings indicate that very limited information are provided by most firms majority of whom are figureheads. Consequently, analysts rely on alternative source of information to get their desired information. Hay (2018) explored the voluntary Human Capital (HC) disclosures determinants in the annual reports of the

Lebanese commercial banks. 48 annual reports were examined in the study, representing a sample of 16 commercial Lebanese banks in the period of 2015-2017. The statistical and the regression results showed that size, age and foreign ownership, explain the level of voluntary HC disclosures. In contrast, leverage and profitability were not considered as determinants of HC disclosure in the Lebanese commercial banks.

Birindelli, Ferretti, Chiappini & Cosentino (2020) investigated the intellectual capital disclosure of Italian banks over the years 2016–2017 and found that intellectual capital (IC) disclosure is generally poor and that the intensity of disclosure varies slightly between healthy and distressed banks. They argued that regarding the quality of disclosure, healthy banks present a higher, albeit modest, tendency to disclose non-qualitative and forward-looking information, maybe due to the fact that they are more focused on the strategies and the relationships with stakeholders as opposed to a more short-term approach of the distressed banks. To complement their study on healthy and distressed banks, the researchers repeated the analysis focusing on bank size and independent directors. In this case, results did not show relevant differences in terms of IC disclosure. Hence, their ?ndings suggested the need to consider banks' IC disclosure as a strategic asset for increasing, among others, transparency and reputation.

Mutalib, Haflz, & Hairul (2017) examined the possible determinants of human capital disclosure among listed firms in Nigeria. Their findings indicated a significant positive influence on firm's age, size and industry classification on human capital disclosure. Hamid (2004) provided empirical evidences on the corporate social disclosure practice in the highly regulated industries namely banking and finance. Result from the study on disclosure theme shows that product related disclosure was highest. Comier, Aerts, Ledoux, & Magnan (2009) extended the literature on voluntary disclosure by investigating the impact of precision attribute of social and human capital disclosure on information asymmetry. They provided evidence on how the stock market reacts to different levels of information precision. Overall, results suggested that quantitative disclosure reduces share price volatility and increases Tobin's Q.

Ali (2018) examined the effect of the disclosure of intellectual capital on the market value of shares in Jordanian commercial banks by shedding light on the level of disclosure of intellectual, human, structural and relational capital on the market value of the share. The study community composed of all the Jordanian industrial companies and public shares traded in the Amman Stock Exchange during the study period (2013–2016). The researcher reached the most important results which showed that the general trend in the 4 years (2013–2016) was towards increasing the level of disclosure of the components of intellectual capital. This indicated the continuous increase by the industrial companies at the level of disclosure. However, this level was below the required threshold, not exceeding in all years (56.0%). There is also a relative increase in the level of disclosure of structural capital and interest relative to the disclosure of human capital, which may be seen as a decline in the interest of companies in the development of their human resources compared to the structural aspect and relations with other parties.

Ullah and Karim (2015) studied human resource disclosure in annual reports of listed banks in Bangladesh. The data for the study were extracted from the financial statements of selected banks using contents analysis based on disclosure index established by the researcher. The data were analysed using SPSS version 19. The results of analysis indicates a positive correlation between bank characteristics and human disclosures. The results however show a poor correlation between asset and human resource disclosure. The study recommends that government and other regulatory bodies should formulate relevant policies which may create a favourable work environment for human resources. Ambrose (2020) examined the relationship between human factor disclosure and market value of deposit money banks in Nigeria. The data for the study were extracted from the financial statements of money deposit banks listed in the Nigerian stock exchange for the years 2015 to 2019 using content analysis. The data were analysed using e-view. The result of the analysis shows that there is positive relationship between human factor disclosure and market value of money deposit banks in Nigeria. It recommends that banks should strive for increased disclosure of human factors in their financial statements.

Theoretical framework

This work draws from agency theory, capital needs theory and signalling theory. However, the work is majorly anchored on capital need theory. This theory suggests that companies tend to engage more in voluntary disclosures when they have need to raise capital from the capital market. The main thrust of this theory stems from the fact that when companies want to raise capital from the capital market they may choose to increase their disclosure levels. The aim is to increase the perception of investors towards the companies. This theory is hinged on the fact that the company's cost of capital is believed to provide for a premium which captures investor's uncertainty about the adequacy of available information about the company. Therefore in order to reduce the cost of capital the investors should be able to interpret the prospect of the company through voluntary disclosure (FASB, 2001).

In line with the above, Bayer and Guttman (2012) documented that in the course of managers disclosing information voluntarily in order to improve the perception of investors about the firm's value, they may choose to engage in suboptimal operating, investing and financing decisions. In this case, investor's perception of firm's value is important when firms have need to raise funds from capital market for new investment opportunities. The increased disclosure is necessary for the investors to be able to have a broader view on the prospect of the company. The perception of investors about the company is very crucial as the investors will be convinced that the firm has the capacity of enhancing the realization of their investment objectives. Accordingly voluntary disclosure conveys information that will improve the perception of investors and consequently provide the incentive for investors to make decision whether to invest or not (Binh, 2012).

The capital need theory applies when managers have intention of approaching capital market to raise fund. They tend to publicly make certain information available voluntarily in order to persuade prospective investors to invest in the firm. Thus investors will be persuaded by additional disclosure to invest in the firm.

Methodology

This study is expected to use ex-post facto design. This is because the data for the study will be obtained from financial statements of the listed companies. The data will be obtained from financial statements of companies using content analysis. The population of the study include all the 196 companies listed on the floor of the Nigerian stock exchange. Some of the companies were eliminated from the list because they did not meet the requirements as their shares were not actively traded on the floor and that their financial statements were not also available. Consequently, 60 companies were eventually selected as a sample for the study.

The only hypothesis of the study was developed based on the objectives of the study.

H0: There is no significant relationship between disclosure of information on human and social disclosure and market capitalization in the Nigerian capital market.

Model development

The control variable in the study is the investors' reaction to voluntary information on human and social factors, which is proxied by market capitalisation; while the independent variable is the human and social factor disclosure which is based on an index constructed by the researcher leveraging on similar index developed by Bolossan (1997), Uchenna & Alhieri (2014), and Ambrose (2020). After a careful review of extant literature on similar work, the researcher developed the following disclosure indexes which are used to proxy voluntary disclosures on human and social factors:

- Qualification of employees
- Training policy
- Employee's welfare
- Workplace safety
- Labour turnover
- Promotion policy

Consequently, 360 disclosure-point index was developed and used to measure voluntary disclosure of information of human and social factors.

The first model which shows that voluntary disclosure is a function of human and social factors is established as follows:

VIDSCORE = f(H&SDISC) .. (1)

A model which establishes the relationship between market capitalisation and voluntary disclosure of information on human and social factors is stated as follows:

MKTCAP = f(VIDSCORE) . ……………. (2)

Where MKTCAP = Market capitalization

VIDSCORE = Voluntary disclosure score.

Then a functional model is established as

MKTCAP = ß0 + ß1H&SDISC + μ …(3).

Where ß0 and ß1 are coefficients to be obtained from the analysis and μ is the error term meant to measure other factors not captured in the model.

Data collection

The data for the study were extracted from the published annual reports of the 60 selected companies listed on the floor of the Nigerian stock exchange for the period 2015 to 2019. This period was selected to coincide with the period in which the capital market was progressively picking up. This allowed for the isolation of the time frame for the return of the capital market to normal from the other period when activities went on as usual. Contents analysis was used to extract data from the financial statements. Score of 1 was awarded when the disclosure item was found in the financial statements while 0 was awarded when it was not disclosed. The data collated were analysed using multiple regression model.

Results of data analysis

The descriptive statistics were minimum, maximum, mean and standard deviation, skewness and Kurtosis. The result is presented in Table 4.1.

Table 4.1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis		Jarque-Bera	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error	Statistic	Prob.
Human and Social Factors	60	.00	.67	.3970	.17103	-1.314	.309	.621	.608	17.31	0.000
Reaction of investors	60	28,312,266.50	2,744,203,312,501.20	103,655,142,039.72	372,825,113,954.19	6.380	.309	44.372	.608	4520.08	0.000
Valid N (listwise)	60										

Source: Researcher's Computation, 2020.

The result of the analysis reveals that the minimum Human and Social Factors disclosure was 0%, maximum Human and Social Factors disclosure was 67%, average Human and Social Factors disclosure was 39.70% and standard deviation was 17.10%. This implies that the selected companies made average Human and Social Factors disclosure of 39.70% and the degree of dispersion of the disclosures from the mean was 17.10%. The value of skewness for Human and Social Factors disclosures was -1.314 which implies that it was highly negatively skewed meaning the left tail of the distribution is longer than the right. The kurtosis value was +0.621 meaning that it was platykurtic showing that its tails are shorter and thinner and its central peak is lower and broader.

The result of the analysis in Table 4.1 further revealed that the minimum value for Investors Reaction proxied by market capitalization was N28,312,266.50, maximum value was N2,744,203,312,501.20, average market capitalization stood at N103,655,142,039.72 and standard deviation was 372,825,113.95. This implies that the average capitalization of the selected companies in between 2015 and 2019 financial years was N103,655,142,039.72 . The value of skewness for investors reaction (market capitalization) was 6.38 which implies that it was highly positively skewed meaning the left tail of the distribution is longer than the right tail. The kurtosis value was +44.37 meaning that it was leptokurtic showing that its tails are longer and fatter and its central peak is higher and sharper.

Test of hypothesis

The research hypothesis formulated was subjected to test using linear regression analysis and the results are presented in Table 4.2, 4.3 and Table 4.4.

Table 4.2 Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.548[a]	.300	.235	.88882	2.072

a. Predictors: (Constant), HUMAN & SOCIAL FACTORS.
b. Dependent Variable: MARKET CAPITALIZATION

Table 4.3 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.286	5	3.657	4.629	.001[b]
	Residual	42.660	54	.790		
	Total	60.946	59			

a. Dependent Variable: Market capitalization
b. Predictors: (Constant), HUMAN & SOCIAL FACTORS.

Table 4.4 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1.	(Constant)	8.862	.413		21.470	.000		
	HUMAN & SOCIAL FACTORS	-1.744	.765	.294	2.280	.027	.783	1.278

H0: Human and social factors disclosure has no significant effect on investors' behaviour in the Nigerian stock market.

The result of the analysis shown in Table 4.4 indicates that the beta value of 0.294 was obtained for Human and social factors disclosures while the p-value stood at 0.027. The t-cal was 2.280 while the t-tab was 2.000. In line with the decision rule of the study, the research hypothesis is rejected and the alternate accepted because t-tab<t-cal. and p-value<0.05. This implies that human and social factors disclosure has significant effect on investors' reaction in the Nigerian stock market.

Discussion of findings

The result indicates that human and social factors disclosure significantly affect investors' reaction in the Nigerian Stock Market. This was indicated by the result of the analysis where the beta coefficient was 0.294 or 29.4%. This means that 29.4% variation in investor's behaviour is accounted for by human and social factors disclosure made by the companies listed in the Nigerian Stock Exchange. The result indicates a positive relationship between human and social factor disclosures and investor's action. This shows that as disclosure of information on human social factor increases there will be increase in market capitalisation of such firms. This increase will arise as a result of the fact that investors will be motivated by positive information about the firm and would pay a higher price for the shares. Moreover there will be increase in volume of shares purchased.

These findings are in agreement with prior work by Ullah & Karim (2015) who found a positive correlation between human resource disclosure and market value of banks in Bangladesh; and Ambrose (2020) who also found a positive correlation between human factor disclosure and market value of money deposit banks in Nigeria. Moreover Hejari & Hesari (2012) found that social disclosure is substantially important in investment decision making.

Recommendations

The findings of this study reveal a positive correlation between human and social disclosure and market capitalisation. This implies that as disclosure on human and social factors increases the investors in the capital market will react positively by investing in such companies and consequently the share price will rise and there will be increase in market capitalisation of such firms. Thus the confidence of investors will be enhanced by increased disclosure of information on human and social disclosure.

Arising from the above findings the study makes the following recommendations:

a. That regulatory authorities should sensitize the preparers of financial statements to consider the disclosure of information on human and social factors as important as other disclosure.
b. That the management of entities should create conducive working environment which will make preparers of financial statements to be proud of disclosing such information in their annual report.
c. That the users of financial statements (particularly investors) should consider disclosure of information on human and social factors as part of their decision making package.

References

Abeysekera, I. (2008). Intellectual Capital Disclosure Trends, Singapore and Sri Lanka, *Journal of Intellectual Capital,* 9 (4), 723 – 737.

Akingbohungbe, S. S. (1996). The Role of Financial System in the Development of the Nigerian Economy, Paper presented at the a Workshop Organised by Centre for Africa Law and Development studies.

Ali, M. and Ahmed, T. (2019). Association of Organisational Attributes with Human Resource Disclosure: Evidence from Bangladesh Banks, *International Journal of Accounting and Financial Reporting, 9 (2).*

Ambrose, E. A. (2020). Examination of the relationship between Human Factor Disclosure and Market Value of Money Deposit Banks in Nigeria, *IDOSR Journal of Arts and Management, 5 (1).*

Anifowose, M. Rashid, H. M and Annuar, H. A. (2017). Determinants of human capital Disclosure in the post IFRS Regime: An Examination of listed firms in Nigeria, *(Malaysian Accounting Review, JOUR, 16.*

Basu, P. Pierce, S. and Stephan, A. (2018). The Effects of Investor Inattention on Voluntary Disclosure. Downloaded at: https://ecles.utah.edu.

Beattie, V. McInnes, W. and Fearusley, S. (2004). A Methodology for Analysing and Evaluating Narratives in Annual Reports: A Comprehensive Descriptive Profile and Metrics for Disclosure Quality Attributes, Accounting Forum, 28 (3), 205–236.

Binh, T. O. (2012): Voluntary Disclosure Information in the Annual Reports of Non-Financial Listed Companies: The Case of Vietnam, *Journal of Applied Economics and Business, JAEBR 2 (2), 69 – 90.*

Boesso, G. and Kumar, K. (2007). Drivers of Corporate Voluntary Disclosures: A Framework for Empirical Evidence from Italy and United States, Accounting, *Auditing and Accountability Journal, 20 (2), 269 – 296.*

Botosan, A.C. (1997). Disclosure Level and the Cost of Equity Capital, *The Accounting Review, 72(3), 323 – 349.*

Botosan, C. A. & Plumlee, M. A. (2002): A Re-examination of Disclosure Level and the Expected Cost of Capital, *Journal of Accounting Research, 4(1), 21 – 40.*

Comier, D., Aerts, W. Ledoux, M., & Magnan, M. (2009). Attributes of social and human capital disclosure and information Asymmetry between managers and investors. *Canadian Journal of Administrative Sciences, 26(1): 71–88.*

Dima, A. Ragab, N. S. and Hegazi, W. (2018). The determinants of Human Capital Voluntary Disclosures in the Lebanese Commercial Banks, *Academy of Accounting and Financial Studies Journal, 22 (6).*

Ebimobowei, A. (2011). A Study of Social Accounting Disclosures in the Annual Reports of Nigerian Companies, *Asian Journal of Business Management, 3(3), 21 – 31*.

Hay, D.A. (2018). The determinants of human capital voluntary disclosures in the Lebanese commercial banks. *Academy of Accounting and Financial Studies Journal, 22(6):1-18.*

Hejazi, R. and Hesari, S. (2012). Investor's Reaction to the Disclosure Types of Corporate Social Responsibilities, 2012 2nd International Conference on Social Science and Humanity, IPEDR, vol. 31.

Islam, M. A., Rahman, I. & Yousuf, S. (2015): Investor's Investment Decision in Capital Market: Key Factors, *Global Journal of Management and Business Research 15(4)*.

Gray, I. Manson, S. and Crawford, L. (2017). The Audit Process, Principles, Practice and Cases, Cengage Learning, UK.

Mohammed, A. J. (2015). Human Capital Disclosure. Evidence from Kurdistan, *European Journal of Accounting and Finance Research, 3(3), 21 – 31.*

Mutalib, A., Haflz, M. and Hairul, A. (2017). Determinant of human capital disclosure in the post IFRS regime: an examination of listed firms in Nigeria. *Malaysian Accounting Review, 16 (2), 1-20.*

Nzekwu, G. (2003). Place of Fiscal Incentives in Capital Market Development, This Day Newspaper, 9/10/2003, Volume 9 No 3091, pg 42

Oladejo, R. (2003). Exploring Capital Market Opportunities, *Business Times, January 6-10, 2003, pg 30.*

Osamwonyi, I. O. (2005): Capital Market Imperfections and Community Economic Development in Nigeria, A paper presented at the Academy of Management Nigeria, Abuja on 23/11/2005).

Osuala, A. E., Ugwumba, E. & Osuji, J. I. (2012): Financial Statements Contents and Investment Decisions – A Study of Selected Firms, *Journal of Research, 100, (165 – 170).*

Shehata, N. F. (2014): Theories and Determinants of Voluntary Disclosures, Accounting and Finance Research, 3(1).

Suijs, J. (2007): Voluntary Disclosure of Information when Firms are Uncertain of Investor's Response, Journal of *Accounting and Economics, 43(2 – 3), 391 – 410.*

Uchenna, E. & Alheri, B. (2013). Voluntary Disclosure Practice of listed Companies in Nigeria, ICAN *Journal of Accounting and Finance, 2(1), 13 – 29*.

Ullah, M. H, & Karim, M. T. (2015). Human and Social Disclosures in Annual Reports of listed Banking Companies in Bangladesh, *Global Journal of Quantitative Science, 2(1).*

Financial Innovation and Performance of Deposit Money Banks in Nigeria

*Ibekwe, Angela Obiageli M.Sc. **

Abstract

Financial Innovation is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions, and markets. The main objective of the study is to investigate the impact of financial innovations on the performance deposit money banks in Nigeria. The specific objectives are to: examine the impact of automated teller machine on the performance of deposit money banks in Nigeria, assess the impact of mobile banking on the performance of deposit money banks in Nigeria, examine the impact of internet banking on the performance of deposit money banks in Nigeria and investigate the impact of point of sale on the performance of deposit money banks in Nigeria. The study adopted an ex-post facto research design because the data for the study are secondary data that already exist in the archives of well acclaimed financial institutions such as the Central Bank of Nigeria. The results of the study indicate that automated teller machine, mobile banking and point of sales have positive and significant effect on return on asset while internet banking has negative and insignificant effect in return on asset. The study thus concluded that financial innovation have positive effect on the profitability of commercial banks in Nigeria and have enhanced the return on asset of the commercial banks in Nigeria. Amongst the recommendations is that government should provide adequate infrastructure in the area of power supply, telecommunications and internet. Industry stakeholders will have to join hands with other stakeholders in improving this infrastructure. The banks, switching companies, card companies etc. must work towards improving equipment quality and standardization, as well as maintenance. The banks must improve service quality and customer responsiveness in cases of lost or stolen cards, frauds, and other customer complaints in relation to e-payments. There is a significant need for public education and awareness on the benefits of e-payments. All stakeholders must strengthen system security and integrity to prevent/reduce frauds and errors to improve public confidence in e-payments. There is an additional need for ensuring ease of use, and customer interactive features in mobile and on-line shopping systems.

Key World: Financial Innovation, Performance of Deposit Money Banks, Nigeria

Introduction

Financial innovations such as those available in ATMs, phone banking, Internet banking, debit cards, credit cards, agency banking and smartcard applications are taking place at an overwhelmingly fast pace in the global banking industry. Banking can be traced back to the year 1694 with the establishment of the Bank of England.

The bank was started by a few individuals who were actually money lenders with an aim of lending money at interest. The history of financial innovations is the history of the invention of tools and techniques. Innovation in the financial sector is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions, and markets (Tufano, 2002).

It may be viewed as the design, development, and implementation of innovative financial instruments and processes, and the formulation of creative solutions to problems in finance. According to Sandvik (2003), financial innovation is one of the most important competitive weapons and generally seen as a firm's core value capability. It is considered as an effective way to improve firm's productivity due to the resource constraint issue facing a firm.

Ignazio (2007) groups financial innovations into; new products for example adjustable rate mortgages and exchange-traded index funds; new services for

**** Ibekwe, Angela Obiageli is a lectutrer in the Department of Banking and Finance, Faculty of Management Sciences, Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus, Anambra State, Nigeria***

example on-line securities trading and Internet banking; new "production" processes for example electronic record keeping for securities and credit scoring and new organizational forms for example a new type of electronic exchange for trading securities and Internet-only banks. Most of these financial innovations are used in the financial sector in Kenya by key market players including the commercial banks.

According to Makur (2014), commercial banks have continuously been innovating new products, services and governance in order to improve their financial performance.

The financial sector has over time developed successfully with innovation products and services available in financial market. Some of these products are debit cards, credit cards, ATM cards, M-pesa and others which facilitate the use of electronic means of payment and sometimes substitute for the use of physical cash. Similarly these products gain a wider recognition in financial market leading to reduction of holding amount of money.

That latest service innovation will lead to furthering of financial inclusion and innovative service offerings for all Nigerians by presenting their financial services offering on to a single platform which will make banking services more accessible, flexible convenient and more affordable.

Statement of the problem

Financial markets are becoming increasingly integrated and globalized, which has resulted in the demand for new types of investments. Ability to innovate the financial innovation and its effects of have become the main element results in the threat of existence to deposit taking in financial institutions. Financial performance is significant to the growth of the organization. The international financial environment changes, the growing of financial markets which are international and amalgamation of domestic also lead to financial innovation. Locally, financial institutions like commercial bank have been forced to adapt to new financial innovations in order for them to handle the large sum of money they transact daily. They have continued to innovate and serve consumers better by introducing new products, new functions of financial institutions and call for transformations in the strategies of regulating agencies. In spite of all these innovations, the role of innovation on financial institution's growth has not been felt fully in the financial sector. This could be due to inadequate understanding about the drivers of innovation and the slow testing of bank's performance (Mabrouk and Mamoghli, 2010).

Banks and other financial intermediaries are at the heart of the world's recent financial crisis.

The deterioration of their asset portfolios, largely due to distorted credit management, was one of the main structural sources of the crisis (Steven, 2002). The fast-changing competitive environment, globalization, economic changes, regulation, privatization and the like demands that commercial banks are run efficiently and effectively by continuously engaging in financial innovations.

In Nigeria, the emergence of new technologies, products, processes, markets and competitor banks places demand on any commercial bank to apply any skills necessary to remain competitive and achieve competitive advantage. The banking industry has already been depicted (Parasuman ,2001) as exhibiting little market orientation and fulfilling services with little regard to customer's needs as well as including branches dissimilar in efficiency which have contributed to low financial performance. In Kenya Long lines, transaction errors, queuing, insecurity and network failures have been said to be the most frequent problems using banking services (Smith, 1999). This highly lowers customer's perception on the quality of service offered and hence reduces the bank's credibility, hence profitability (Joseph et al., 2003).

As the importance of financial innovation in developing countries including Kenya increases, so does the need for research on the subject. (Joseph et al, 2003). Despite the recognized importance of financial innovations and an extensive descriptive literature, there have been surprisingly few empirical studies. This situation has denied the banks the much needed information regarding this important area of financial innovations sometimes leading to reverse causality in the innovation-performance relationship. Mugambi (2006) attest that researches have been done on areas of service excellence and customer satisfaction in the banking industry. However, there was no study in Kenya that had looked at the impact of financial innovation on commercial banks with reference to financial performance.

This study therefore, intends to investigate the impact of financial innovations on the profitability of commercial banks in Nigeria.

Review of related literature

Conceptual framework

Financial innovation

Financial Innovation is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions, and markets (Tufano, 2002).

It may be viewed as the design, development, and implementation of innovative financial instruments and processes, and the formulation of creative solutions to problems in finance. According to Sandvik (2003), financial innovations is one of the most important competitive weapons and generally seen as a firm's core value capability. It is considered as an effective way to improve firm's productivity due to the resource constraint issue facing a firm.

Ignazio (2007) groups financial innovations into; new products for example adjustable rate mortgages and exchange-traded index funds; new services for example on-line securities trading and Internet banking; new "production" processes for example electronic record keeping for securities and credit scoring and new organizational forms for example a new type of electronic exchange for trading securities and Internet-only banks. Most of these financial innovations are used in the financial sector in Nigeria by key market players including the commercial banks.

Financial innovation has been used by many banks as a formidable strategic variable to out weight any form of competition among the deposit money banks by which banks can improve their performance while simultaneously being able to maintain their effectiveness in the market (Kamau &, Oluoch, 2016). Accordingly, bank efficiency is measured by the ratio of quick and easy measures of bank ability to turn resources into revenue. The commonly used efficiency measurements are return on assets, return on equity and interest margin. The developments in the banking sub sector have not only led to the increase in the number of banking institutions but, also the development in level of sophistication with new payment systems and asset alternatives to holding money. This has resulted mainly from technological advancement and increase in competition as the number of institutions increase. Developments in payment systems have started to create close substitutes for hard currency, thus affecting a core part of banking operations (Okonkwo , Obinozie & Echekoba, 2015).

Scholars have investigated the nexus between financial innovation and efficiency of the banking industry for both developed and emerging economies of the world. The results of these studies have empirically laid credence to the positive effect of financial innovation on bank satisfaction. In the context of Nigeria as an emerging economy, findings on the linkage between financial innovation and efficiency of the banking industry are mixed. Jegede (2014) noted that the deployment of ATMs terminals have averagely improved the performance of Nigerian banks because, of the alarming rate of ATM fraud. Conversely, the findings of Okonkwo , Obinozie & Echekoba, 2015) showed that investments in electronic banking services and ATMs do not really improve banks' performance reflected with return on equity in Nigeria.

The world banking and financial system is in the throes of a transformation caused by increasing globalization and deregulation. Financial innovations such as those available in ATMs, phone banking, Internet banking, debit cards, credit cards, agency banking and smartcard applications are taking place at an overwhelmingly fast pace in the global banking industry. Banking can be traced back to the year 1694 with the establishment of the Bank of England. The bank was started by a few individuals who were actually money lenders with an aim of lending money

at interest. The history of financial innovations is the history of the invention of tools and techniques.
Financial innovation fosters an organization to grow, prosper and transform in synchronization with the changes in the environment, both internal & external. Banking is no exception to this. The banking sector has witnessed radical transformation of late, based on many innovations in products, processes, services, systems, business models, technology, governance and regulation. The pervasive influence of information technology has revolutionaries in banking (Kumar, 2011).

Automated teller machine

ATM is a computer controlled device that dispenses and provides other services to customers who identify them with a personal identification number (PIN). The physical carriage of cash as well as frequent visit to the banks is being reduced. The principal advantage of ATM is that it dispenses cash at anytime of the day even as it needs not to be located within the banking premises but in stores, shopping malls, fuel stations etc, unlike the traditional method where customers have to queue for a very long period of time to withdraw cash or transfer funds. The ATM is the most popular e-transaction solution in Nigeria. ATM is popular because of its convenience.

Mobile banking

This involves the use of mobile phone for settlement of financial transactions. This is more or less fund transfer process between customers with immediate availability of funds for the beneficiary. It uses card infrastructure for movement of payment instructions as well as secure SMS messaging for confirmation of receipts to the beneficiary. It is very popular and exciting to the customers given low infrastructure requirements and a rapidly increasing mobile phone penetration in the country. Services covered by this product include account enquiry; funds transfer; recharge phones; changing passwords, bill payments. Even though the product is exciting most customers are yet to fully buy into it in Nigeria, hence, both the apex bank and other banks still have a lot to do in terms of increasing awareness of the product to the saving populace in the country (Siyanbola, 2013).

Internet banking

Internet banking refers to systems that enable bank customers to get access to their accounts and general information on bank products and services through the use of bank's website, without the intervention or inconvenience of sending letters, faxes, original signatures and telephone confirmations (Olorunsegun, 2010). Siyanbola (2013) puts it that internet banking involves conducting banking transactions on the internet (www) using electronic tools such as the computer without visiting the banking hall. E-commerce is greatly facilitated by internet banking and is mostly used to effect payment. Internet banking like mobile banking also uses the electronic card infrastructure for executing payment instructions and final settlement of goods and services over the internet between the merchants and the customers. Commonly used internet banking transactions in Nigeria are settlements of commercial bills and purchase of air tickets through the websites of the merchants. Level of awareness of the advantages of this product to the saving populace is still very low; hence, there is every room for improvement if cashless banking would be effective as expected (Siyanbola, 2013). Funds transfer, airtime top up, balance enquiry, password change, bill payment etc can also be conducted on the internet banking plat form.

Performance of deposit money banks

Bank performance generally implies whether a bank has fared well within a trading period to realize its objectives. The only document that explains this is presumably the published financial statements. According to Rose, (2001), a fair evaluation of any bank's performance should start by evaluating whether it has been able to achieve the objectives set by management and stockholders. Certainly, many banks have their own unique objectives. Some wish to grow faster and achieve some long-range growth objective, others seem to prefer quiet life, minimizing risk and conveying the image of a sound bank, but with modest rewards to their shareholders (Salehi & Alipour, 2014). Ordinarily, stock prices and its behavior are deemed to reflect the performance of a firm. This is a market indicator and may not be reliable always. However, the size of the bank, the volume of deposit and its profitability could be deemed as more reliable performance indicators. For the purpose of this study, profitability indicators, precisely the Return on Equity Capital (ROE) and the returns on Assets (ROA) are used to assess bank performance.

Theoretical framework

This study was governed by the Schumpeter theory of financial innovation.

Schumpeter financial innovation theory argued that technology creates opportunities for new profits and super profits as a result of increased investment by banks or financial institution on products of innovation. The second theory is the resource based theory propounded on the sustainability of competitive advantage based on capabilities and resources (Barney, 1991). Effective performance of the banks on the premises of the resource based theory is customer centric, hence firms strive to: provide superior customer value, achievement of relative lower costs, control of dominant market share and superior financial performance.

The competitive advantage grows out of the value of a firm which creates for its buyers and should exceed the firm cost of creating the value (Peteraf & Bergen 2003).

Empirical review

Abubakar (2020) examined the effects of automated teller machine (ATM) on user satisfaction in Nigeria: A study of United Bank for Africa in Sokoto metropolis: The Nigerian Banking sector over the years has been experiencing significant changes and development in its Information and Communication Technology. Among the development is the introduction of Automated Teller Machine (ATM) that intends to decongest the banking halls as customers now can go to any nearest ATM outfit to consummate their banking transactions such as: cash withdrawal, cash deposit, bill payments, and transfer of fund between accounts. The research was carried through cross-sectional survey design which questioned respondents on ATM services. The population of study mainly constituted of customers of United Bank for Africa within Sokoto metropolis. The sample in this study consisted of 100 respondents who are users of the ATM services. The data collected was analyzed by use of multiple logistic regression analysis. The findings revealed that, the impact of ATM services in terms of their perceived ease of use, transaction cost and service security is positive and significant. However, the result also indicates that the impact of ATM services in terms of availability of money is positive but insignificant.

Taiwo and Agwu (2019) examined the role of e-banking on the operational efficiency of commercial banks in Nigeria. Primary data were obtained by administering questionnaires to staff of four purposively selected banks (Ecobank, UBA, GTB and First bank). Pearson correlation was used to analyze the results obtained using the Statistical Package for Social Sciences (SPSS) and it was observed that banks' operational efficiency in Nigeria since the adoption of electronic banking has improved compared to the era of traditional banking. This improvement was noticed in the strength of banks, revenue and capital bases, as well as in customers' loyalty. It was concluded that the introduction of new channels into their e-banking operations drastically increased bank performances, since the more active customers are with their electronic transactions the more profitable it is for the banks.

Asidok, and Michael, (2018) estimate the impact of automated teller machine (ATM) transactions on bank profitability in Nigeria using selected banks data from Electronic payment system office, Central Bank of Nigeria statistical bulletin from 2007-2016.The study adopts Panel unit root and SURE model estimation technique to conduct quantitative analysis for four selected old and new generation banks. The results of this study were analyzed using economic a priori criteria, statistical criteria and econometric criteria. The positive and statistically significant relationship between automated teller machine of old and new generation banks in Nigeria indicates that automated teller machine is a major factor that contributes to old and new bank's performance in Nigeria. The positive and statistically significant relationship between point of sale of old and new generation bank in Nigeria indicates that point of sale is a major factor that contributes to old and new banks performance in Nigeria. The positive and statistically significant relationship between mobile banking of old and new generation banks in Nigeria indicates that mobile banking is a major factor that contributes to old and new banks performance in Nigeria.

Adaora, Jisike and, Amalachukwu (2018) empirically ascertained the effect of automated teller machine (ATM) related fraud on deposit money banks financial performance in Nigeria. Empirical studies relating to electronic banking and banks performance in Nigeria has been centered on its benefit of improving profitability of deposit money banks while the effect of fraud perpetrated on automated teller machine (ATM) platforms used by banks operating in the economy are often neglected. The Ordinary Least Square (OLS) was applied in estimating the regression equation, whereas effect of fraud on various channels of electronic banking and financial performance ascertained with the help of the granger causality analysis. The findings from the study dispelled that fraud on point of sale terminals has significant negative effect on interest income, while fraud on automated teller machines, mobile banking and web had no effect on return on assets, return on equity and non-interest income of banks. Joseph (2019) examined the impact of electronic banking on the profitability of commercial banks in Kenya. The study adopted a descriptive research design. The population of the research consists of the 43 commercial banks in operations as at 31st 2014 in Kenya. A census survey was undertaken.

The study used secondary data obtained from various Central Banks of Kenya publications. Statistical Package for Social Sciences (SPSS) was used in the analysis of data. Descriptive statistics produced trends, means and percentages while inferential statistics produced regression and correlation results which showed the causal relationship among the variables. The results from multiple regression indicated that there is a positive significant relationship between ATM transactions and bank profitability ($p<0.05$-0.004). A unit increase in ATM transactions leads to an increase in ROE (bank profitability) by 1.662 units. Further, the study found a positive significant relationship between POS transactions and bank profitability ($p<0.05$-0.021). A unit increase in POS transactions leads to an increase in ROE by 1.34 units. Trend analysis revealed that ATM transactions had a general positive trend over time. The highest volume of ATM transactions was registered in 2012. POS transactions have also steadily increased between January 2007 and June 2015. There has been an exponential positive growth in mobile transactions since the inception of M-Pesa in 2007. The average ROE of commercial bank has been relatively stable over the period covered by the study. The study used descriptive statistics to summarize the relationship between the independent variables and the dependent variable. Results indicated that the model of the study explained 16.9% of the dependent variable. The ANOVA tests further validated the model by indicating that it sufficiently explained the variation of profitability in commercial banks ($F=6.407$, $p=0.000$).

Njogu, (2019) determined the effects of electronic banking on profitability of commercial banks in Kenya. These data were collected from the Central Bank of Kenya and Commercial banks. Regression analysis was done for the period to determine the effects of electronic banking on profitability of commercial banks in Kenya. The study covered a period of 5 years from year 2009 to 2013.The findings on the coefficient of determination, the study found that major changes in the financial performance of commercial banks in Kenya could be accounted to changes in internet banking, point of sales, automatic teller machine, mobile banking and size of the bank at 95% confidence interval .

The study found that there was a strong positive relationship between financial performance of commercial banks and electronic banking , as it was found that there was a strong relationship between financial performance of commercial banks and electronic banking. Size of the bank was also found to positively influence the financial performance of commercial banks in Kenya. Electronic banking has helped the commercial banks to lower their cost of banking, through technology which has created greater opportunities to the banks to offer great flexibility to the customers. This has enabled commercial banks to be very fast in adopting electronic banking which has enabled commercial bank to be ubiquity in coverage, flexibility, interactivity, and with greater accessibility compared to conventional banking channels such as Automated

Teller Machine (ATM),Point of Sale Mobile banking and internet banking which influence the financial performance of the bank . Electronic banking service provides convenience and promptness to customers along with cost savings, banks are also interested in expanding their market through internet services. The study further revealed that the P-value was less than 0.05 in all the variables, which shows that all the independent variables were statistically significant.

Jude, (2019) analyzed the empirical test of whether banks offering Internet banking are profitable, and to help fill essential space in knowledge concerning profitability, cost efficiency and other characteristics based on Banks perspectives for adopting internet banking system.
A panel data from 22 retail banks operating in Turkish Republic of Northern Cyprus (KKTC), comprising of a Public Bank, 14 Private Banks and 7 Foreign Branch Banks. Our dataset is drawn from the year-end aggregate income statements and balance sheets compiled by the Central Bank of Northern Cyprus. The finding showed that banks offering internet banking services to 57 of their customers or has internet as their alternative distributive channel experienced an increase on the banks returns from their assets and while those banks that are not using internet as their medium for service delivery experienced a lower return on their assets. This also signifies a positive effect of internet adoptions on bank's profitability.

Eze and Egoro, (2016) examined the impact of electronic banking on the profitability of commercial banks in Nigeria. The study sought to examine the relationship between different e-banking channels and the profitability of commercial banks in Nigeria. Four e-banking channels (automatic teller machines, electronic mobile banking, internet banking transactions, and point of sales services) were identified and regress against the profit before tax of commercial banks operating in Nigeria between 2006 and 2014. The study used the confirmed ECM model (via residual diagnosis) to test the formulated hypotheses. The results revealed that the impact of electronic banking on the profitability of commercial banks was significant; whereas, the impact of the individual channels was varied. The study recommends, amongst others that, commercial banks should intensify effort to deploy more ATM delivery points and also make them more effective and efficient and that the regulatory authorities should also collaborate with the banks to put in place an enabling operating environment and regulatory framework to bring out optimal deployment of these services to customers. This is especially with respect to addressing the issue of failed transactions.

Ekanem, Alhaji, Adeniyi and Adeogun (2017) investigate the impact of automated teller machine (ATM) on customer satisfaction and profitability of deposit money banks in Nigeria. The study used a quantitative approach to data collection to gather information from selected customers and workers of deposit money banks in Maiduguri, Borno state, Nigeria. In this study, a well-structured closed ended questionnaire was designed and distributed to participants in the responding organizations to elicit information pertaining to their adoption of ATM in conducting financial transactions with deposit money banks. The data obtained were analyzed and presented in tabular form with the aid of descriptive statistics. This study found that the generality of the concept of electronic automation has in the past few decades accorded great acceptance and relevance in almost all organizations, institutions and especially the banking institutions.

Kashmari et al. (2016) evaluated the impact of financial innovation, which needs a heavy cost in terms of money and time, on the share of each bank in attracting deposit as one of the most important goals and competitive tools of a bank. By using Panel Data-Vector Autoregressive methods (Panel-VAR) and Granger causality test, data of 23 Iranian banks in the 7 years (2007-2013) has been studied. The results showed that based on the Granger Causality Test, the number of ATM machines, POS, Personal Identification Number (PIN) pad, SWIFT system and amount of banking facilities provided by each bank, has causal relation in explaining the increase of the bank's share in attracting deposits; but the Market Share was recognized as the cause of the innovation. Also, the causality direction of deposits' share and the amount of facilities were noticed to be bilateral.

Catherine (2015) investigated the effect of financial innovations on financial performance of commercial banks in Kenya. The study adopted an explanatory research design. The population of the study was all the 43 commercial banks operating in Kenya in the study period. The study conducted a census on all the 43 commercial banks .The study used primary data. An ordinary linear regression model was used. The regressions were conducted using statistical package for social sciences (SPSS) version 20. The study's findings indicated that there is a negative and significant relationship between product innovation and ROA. The relationship between service innovation and ROA and also organizational innovation and ROA was found to be positive and significant.

Methodology

Research design

The study adopted an ex-post facto research design because the data for the study are secondary data that already exist in the archives of well acclaimed financial institutions, such as the Central Bank of Nigeria.

Model specification

The model used for the study was the adaptation and modifications from the work of Alagh and Emeka (2014). They analyzed the effect of financial innovation on profitability of commercial banks in Nigeria.

The model is stated thus:
ROA = f(ATM, MB,POS)

Where:
ROA = Return on Asset
ATM= Automated Teller Machine
MB= Mobile Banking
POS=Point of Sales

The model was adapted and modified.
ROA = f(ATM, MB,POS, ITB)
The estimation equation:
$ROA = \beta 0 + \beta 1\ ATM + \beta 2 MB + \beta 3\ POS + \beta 4\ ITB\ \mu$ -- 1

Where:
ROA = Return on Asset
ATM= Automated Teller Machine
MB= Mobile Banking
POS=Point of Sales
ITB= Internet Banking

$\beta 0$ and μ are the constant and error term respectively while $\beta 1$, $\beta 2$, $\beta 3$, and $\beta 4$ are the coefficient of financial innovation on the profitability of commercial banks in Nigeria

Method of analyses: The data will be analyzed with econometric techniques involving Augmented Dickey Fuller Tests for Unit Roots and the Ordinary Least Square (OLS).

Data analysis

The variables were tested for stationarity. The test aimed at understanding the state at which the variables can be held stable for regression analyses. This test becomes pertinent because time series variables are often prone to non-stationarity which is capable of distorting the reliability of regression results. The variables used in the analysis were subjected to Augmented Dickey Fuller (ADF) Tests, to determine whether they are stationary series or non-stationary series. The variables were tested for stationarity at "intercept only" and at "intercept and trend".
The result on Table 3 revealed that at a level, under the "intercept only", return on asset, automated teller machine, point of sale, mobile banking and internet banking were stationary at [1(0)]. From the analyses of stationarity of the variables, it was seen that the variables have stationarity were stationary at level I(0). Thus, the most suitable tool of analyses is the Ordinary Least Squire methods of analysis.

Unit root test

Table 1: Summary of the Unit Root Result

Variables	T-statistics	Probability	Order of Integration
ROA	-6.088595	0.0000	1(0)
ATM	-3.867397	0.0053	1(0)
POS	-4.619034	0.0010	1(0)
MB	-5.531824	0.0031	1(0)
ITB	-2.757183	0.017	1(0)

Author's computation

Analyses of the effect of financial innovation on the performance of deposit money banks in nigeria.

Table 2. Ordinary least squire

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.667553	0.824890	10.809263	0.0260
ATM	0.164745	1.010577	2.163021	0.0058
POS	0.518247	0.672745	3.770347	0.0183
MB	0.068816	0.039042	2.762604	0.0302
ITB	0.164745	1.010577	2.163021	0.0058

R-squared	0.712561	Mean dependent var	4.676947
Adjusted R-squared	0.655073	S.D. dependent var	7.153306
S.E. of regression	6.953540	Akaike info criterion	6.888364
Sum squared resid	1208.793	Schwarz criterion	7.165910
Log likelihood	-100.7696	Hannan-Quinn criter.	6.978837
F-statistic	19.349696	Durbin-Watson stat	2.971283
Prob(F-statistic)	0.006525		

Author's computation

Automated teller machine (ATM): The coefficient of automated teller machine is positive at 0.164745 with probability value of 0.0058, which revealed that automated teller machine had positive and significant effect on return on asset (ROA). The implication is that a unit increase in revenue from automated teller machine (ATM) will lead to 0.65 increases in return on asset (ROA).

Point of sale (POS): The coefficient of point of sale is positive at 0.518247 with probability value 0.0183 which showed that point of sale had positive and significant effect on return on asset (ROA). This means that a unit increase in revenue from point of sale will lead to 0.518 increases on return on asset (ROA).

Mobile banking (MB): The coefficient mobile banking is positive at 0.068816 with probability value of 0.0302 showed that mobile banking had positive and significant effect on return on asset (ROA). This means that the a unit increase in revenue from mobile banking will lead to 0.068 increases on return on asset (ROA).

Internet banking (ITB): To determine the effect of internet banking (ITB) on return on asset (ROA), the coefficient of internet banking (ITB) was used. The result showed that internet banking (ITB) has positive (0.518247) and significant ($p. < 0.05$) effect on return on asset (ROA). Thus hypothesis two: Internet (WEB) banking transaction has no significant effect on the Performance of Deposit Money Banks in Nigeria, is rejected. The study therefore concludes that Internet (WEB) banking transactions has positive and significant effect on the Performance of Deposit Money Banks in Nigeria

The coefficient of the Adjusted R-squared = 0.655073 showed that about 66% of changes on the performance of deposit money banks is accounted for by the level of electronic banking in Nigeria. This implies that electronic banking in Nigeria is one major contributor on the performance of deposit money banks in Nigeria.

The F-statistics (19.349696; $p. < 0.05$) indicated that all the variables of the model (electronic financial innovation variables) have significant effect on the performance of deposit money banks in Nigeria.

The Durbin Watson statistics (2.971283) showed that there was no autocorrelation in the model employed.

Test of hypotheses

To test the hypotheses, the statistical significance of the individual parameters in the Ordinary Least Squire Analysis in Table 2 is used to test hypotheses.

Table 3 summary of the hypotheses

Variable	Probability	Coefficient	Conclusion
Constant	0.0260	0.667553	Statistically Significance
ATM	0.0058	0.164745	Positive and Significant
POS	0.0183	0.518247	Positive and Significant
MB	0.0302	0.068816	Positive and Significant
ITB	0.0058	0.164745	Positive and Significant

Hypothesis one

Decision rule:
Reject null hypothesis if p-value is less than 0.05 (i.e. $P < 0.05$) and accept alternate hypothesis. Otherwise accept null and reject the alternate.

H0: Automated Teller Machine (ATM) does not have positive and significant effect on the performance of deposit money banks.

Ha: Automated Teller Machine (ATM) has positive and significant effect on the performance of deposit money banks.

From table 3, since the probability value is less than 5% (0.0058<0.05), the null hypothesis is rejected while the alternative hypothesis is accepted implying that: Automated teller machine has significant effect on the performance of deposit money banks. The implication is that a unit increase in revenue from automated teller machine (ATM) will lead to 0.65 increases effect on the performance of deposit money banks

Hypothesis two

Decision rule:

Reject null hypothesis if p-value is less than 0.05 (i.e. P < 0.05) and accept alternate hypothesis. Otherwise accept null and reject the alternate.

Ho2: Point of sale does not have positive and significant effect on the performance of deposit money banks.

Hi: Point of sale has positive and significant effect on the performance of deposit money banks.

From table 3, since the probability value is less than 5%(0.0183<0.05), the null hypothesis is rejected, while the alternative hypothesis is accepted implying that point of sale has significant effect on the performance of deposit money banks. This means that 1 unit increase in revenue from point of sale will lead to 0.518 increases on the performance of deposit money banks.

Hypothesis three

Decision rule:

Reject null hypothesis if p-value is less than 0.05 (i.e. P < 0.05) and accept alternate hypothesis. Otherwise accept null and reject the alternate.
Ho3. Mobile banking does not have positive and significant effect on the performance of deposit money banks.
Hi. Mobile banking does not have positive and significant effect on the performance of deposit money banks.
From table 3, since the probability value is less than 5% (0.0302<0.05), the null hypothesis is rejected while the alternative hypothesis is accepted, implying that mobile banking has significant effect on the performance of deposit money banks. This means that a unit increase in revenue from mobile banking will lead to 0.068 increases on the performance of deposit money banks.

Hypothesis four

Decision rule:

Reject null hypothesis if p-value is less than 0.05 (i.e. P < 0.05) and accept alternate hypothesis. Otherwise accept null and reject the alternate.
Ho3. Internet (ITB) banking transactions has no significant effect the Performance of Deposit Money Banks in Nigeria.
Hi. Internet (ITB) banking transactions has significant effect the Performance of Deposit Money Banks in Nigeria.
From table 3, since the probability value is less than 5% (0.0058<0.05), the null hypothesis is rejected while the alternative hypothesis is accepted, implying that Internet (ITB) banking transactions has significant effect the Performance of Deposit Money Banks in Nigeria. This means that a unit increase in revenue from Internet banking transactions will lead to 0.068 increases on the performance of deposit money banks.

Discussion of findings

Automated teller machine: The result of the study indicates that automated teller machine has positive and significant effect on the performance of deposit money banks.
The results of our findings are consistent with the work of Adu, (2016) in terms of automated teller machine, it was discovered that automated teller machine has positive effect on the performance of deposit money banks in Nigeria.

Point of sale: The result indicates that point of sale has significant effect on the performance of deposit money banks.

The results of our findings are inconsistent with the work of Agwu, Atuma, Ikpefan, and Aigbiremolen, (2014) (2016), they posited that point of sale has negative and insignificant effect on the performance of deposit money banks in Nigeria.

Mobile banking: The result indicates that, mobile banking has significant effect on the performance of deposit money banks.

The result of our findings are consistent with the work of Asidok, and Michael, (2018) in terms of mobile banking (MB), it was discovered that mobile banking has significant effect on the performance of deposit money banks in Nigeria

Conclusion and recommendations

Conclusion

The regression result indicates that automated teller machine, point of sale mobile banking, Internet have positive and significant effect on the performance of deposit money banks. The study thus concludes that financial innovations have positive effect on the performance of deposit money banks and have improved the performance of Deposit money Banks in Nigeria within the period under review

Recommendations

In line with the objectives and findings, we recommend that:

1. Managers of deposit money banks should from time to time train customers with regard to automated teller machine, its benefits, risk exposure, physical and electronic security to avoid financial loss in the hands of hackers, trainings should be held for bank staff in short periods to acquaint them with modern developments of the sophisticated technology in changing times to improve the performance of deposit money banks in Nigeria.

2. Managers of deposit money banks should improve service quality and customer responsiveness in cases of lost or stolen cards, frauds, and other customer complaints in relation to point of sale to enhance the performance of deposit money banks in Nigeria.

3. There is an additional need for managers of deposit money banks in Nigeria to ensuring ease of use, and customer interactive features in mobile and on-line shopping systems, to accelerate to performance of the deposit money banks in Nigeria.

4. Managers of deposit money banks should improve service quality and customer responsiveness in cases of lost or stolen cards, frauds, and other customer complaints in relation to point of sale to enhance the performance of deposit money banks in Nigeria.

References

Abaenewe, Z. C.; Ogbulu, O. M.; Ndugbu, M. O. (2013). Electronic banking and bank performance in Nigeria: *West African Journal of Industrial and Academic Research* 6(1): 171–187.

Abubakar, M., Gatawa, N. M. & Birnin-Kebbi, H. S. (2013). Impact of information and communication technology on banks performance: *A Study of Selected*

Ackorlie, C (2009). *Business and Financial Times. Banking Survey.*

Adaora, I. M.., Jisike, J. O.& Amalachukwu, C. A. (2018). Effect of automated teller machine (ATM) fraud on deposit money banks financial performance in Nigeria: *Discovery Publication. All Rights Reserved 4 (3), 4-61.*

Adaora, I. M.., Jisike, J. O.& Amalachukwu, C. A. (2018).. Effect of automated teller machine (ATM) fraud on deposit money banks financial performance in Nigeria: *Discovery Publication. All Rights Reserved 5 (6) 12-52*

Adewoye J. O. (2013), Impact of mobile banking on service delivery in the Nigerian commercial banks. *Int. Rev. Manage. Bus. Res. 2(2):333-344.*

Adu, C. A. (2016).Cashless policy and its effects on the Nigerian economy: *European Journal of Business, Economics and Accountancy 4, (2),3-2 2*

Agwu M.E., Atuma O., Ikpefan, O.A. & Aigbiremolen, M.O. (2014). Impediments to e-banking services marketing in developing economies – a study of Nigerian banks. *European Journal of Business and Social Sciences (EJBSS); 5(3),2-25*

Ajayi S. I. & Ojo O. O. (2006). Money and banking: Analysis and policy in the Nigerian context.

Ajayi, S.I., & Ojo, O.O. (2006),Money and banking: analysis and policy in the Nigerian

Allen & Hamilton(2002). Internet banking. A survey of current and future development. *Emerald Internet Research, 2(3), 323-339.*

Amedu, U. M. (2005), Domestic electronic payment in Nigeria: The Challenges.

Amu, H & Nathaniel, C. (2016). The relationship between automated teller machine (ATM) and the performance of Nigerian commercial banks: *International Journal of Management and Applied Science, 3, (9),10-21*

Analysis of Costs and Benefits of Payment Instruments, AEI-Brookings Joint Center.

Asidok, N. O. & Michael, A. A. (2018). Mobile banking transactions and bank profitability in Nigeria: *International Journal of Economics, Commerce and Management United Kingdom 6(6) 5-9*

Asidok, N. O. & Michael, A. A. (2018). Mobile banking transactions and bank profitability in Nigeria: *International Journal of Economics, Commerce and Management United Kingdom 6(6) 5-9*

Asidok, N. O. & Michael, A. A. (2018). Mobile banking transactions and bank profitability in Nigeria: *International Journal of Economics, Commerce and Management United Kingdom 6(6) pg 5-9*

Asokan, N Janson, P., Steiner, M., & Weidner, M. (2000), Electronic payment systems IBM

Baddeley, M. (2013). Using E-cash in the new economy: An Economic Analysis of Bank of Nigeria. Bullion, 29 (1).

Central Bank of Nigeria, CBN (2011). Cashless Lagos implementation: New cash policy stakeholder engagement sessions (October). Retrieved from: http://www.cenbank.org/cashless/Cashless%20Lagos%20Presentation_November.pdf

Commercial banks in Nigeria (2001-2011), European Scientific Journal, (7),9, 2

Commonwealth Business Council. (2014). White paper publication on payment solutions

Context, Ibadan, Daily Graphics.

Cost, pricing, and payment choice: *Journal of Money, Credit, and Banking, 33, 2(216 -234).*

Daniel, D.G., Swartz, R.W., & Fermar, A.L. (2012), Economics of a cashless society: An

Dos Santos, B. L., & Peffers, K. (2013), The effects of early adoption of information

Ekanem, E. U. U., Alhaji, A. K., Adeniyi, M. Y.,& Adeogun, B. S. (2017). Impact of automated teller machine on customer satisfaction and profitability of commercial banks: IIARD *International Journal of Banking and Finance Research 3 (2) 17-21*

Ernest .S. O., & Fadiya .B. B. (2013), Cashless banking in Nigeria: challenges and benefits

Eze, G. P.& Egoro, S (2016). Electronic banking and profitability of commercial banks in Nigeria: *Journal of Finance and Economic Research 3(1) 12-57*

Faniran, O.A & James, A. O. (2015). Acceptance of mobile banking in Nigeria: *International Journal of Management and Applied Science, 3, (9) 15-21*

Fatai, A. S., Zakariyah, O. A., Samuel, O. O. & Mudashiru, A. S. (2017). Effect of automated teller machine (ATM) on demand for money in Isolo Local Government Area of Lagos State, Nigeria: *Journal of Applied Business and Economics vol. 16(3) 2014*

Goodhart, Charles A. E. (2000), Can central banking survive the IT revolution?

Humphrey, D. B., Kim, M., & Vale, B. (2001), Realizing the gains from electronic payments:

Humphrey, D. B., Kim, M., & Vale, B. (2001), Realizing the gains from electronic payments: *International Finance, 3, 2(189-209)*

Joseph, M. V. (2019). Impact of electronic banking on the profitability of commercial banks in Kenya: Journal of Technology and Systems 1(18) 18 – 39

Journal of Internet Banking & Commerce, 12(2) 31-65 *Journal of Internet Banking & Commerce, 12(2).*

Jude, C. N. (2019). Internet banking in terms of profitability: the case of northern Cyprus banks: International Journal of Retail & Distribution Management, 29(6)21-83

Lasisi, M. A. R. & Abubakar, S. J. (2020). An empirical study of automated teller machine (ATM) and user satisfaction in Nigeria: A study of United Bank for Africa in Sokoto metropolis: International Journal of Management Technology 2, (3)1- 11,

Micropayment Systems, UK Cambridge: Journal of Electronic Commerce Research, 5(4)

Njogu, J. N. (2019). The effect of electronic banking on profitability of commercial banks in Kenya : *International Journal of Financial Services Research, 22(2), 93-117.*

Okibo, B. W & Wario, A. Y. (2014). Effects of e- banking on growth of customer base in Kenyan banks, *International Journal of Research in Management & Business Studies 1(1):*78–84.

Oyewole, O. S.; Abba, M.; El-Maude, J. G. (2013). E-banking and bank performance: Evidence from Nigeria, I*nternational Journal of Scientific Engineering and Technology 2(8): 766–771*

Peter, I. A. & Emenike, K. O. (2016). Impact of automated teller machine on banking services delivery in Nigeria: A Stakeholder Analysis: *International Journal of Accounting Research, 1(6), 14-21.*

Pyun, C. S., Scruggs, L., & Nam, N. (2002). Internet banking in the US, Japan and Europe", Multinational Business Rev 7381.

Uchenna, O.G (2015). Automated teller and banks profitability in Nigeria: *International Journal of Accounting and Finance Research 7(3), 21-29*

Uppal, R. K. (2011), E-Delivery channels in banks-A fresh outlook: *Journal of Arts Science* Worku. G. (2010), Electronic banking in Ethiopia – practices, opportunities and challenges:

Response of Firm Productivity to Human Capital Expenditures in Oil and Gas Firms in Nigeria

*Eneh, Catherine Amoge, Prof. Okwo, Ifeoma Mary **

Abstract

This study empirically investigated the response of firm productivity on human capital expenditure in oil and gas firms in Nigeria. It spanned for the period of ten years (2009-2018). Specifically, the study examined the effect of employee expenditure on education and training, expenditure on salaries and wages, and expenditure on health on the turnover of Oil and Gas firms in Nigeria. Research design adopted was ex-post facto design while analytical tools employed were descriptive statistics and Ordinary Least Squares (OLS) panel regression analysis technique. From the regression result, it was discovered that employee expenditure on education and training (coeff. = 0.070, t = 0.381, p=0.7056>0.05) had positive and insignificant effect on the turnover of Oil and Gas firms in Nigeria. Expenditure on salaries and wages (coeff. = 0.383, t* = 1.784, p=0.0836>0.05) and expenditure on health (coeff. = 0.040, t* = 0.146, p=0.8849>0.05) had negative and insignificant effects on the turnover of Oil and Gas firms in Nigeria. A joint estimate as shown by Fisher's statistics (F=17.264, p=0.0000<0.05) revealed that human capital expenditures have significant effect on turnover of Oil and Gas firms in Nigeria. In conclusion therefore, expenditures in human capital are essential factors for growth in turnover of Oil and Gas firms in Nigeria. On these backgrounds, the study recommended among other things that the oil and gas firms should invest more in training their workers than increasing their salaries and wages for increased turnover and overall productivity.*

Key Words: Productivity, Expenditure, Human Capital, Panel Least Squares Regression

1.0 Introduction

It is the goal of every organization to generate high revenue and maximize profit. However, investment on workers is an essential factor towards achieving this target. Firms believe that when they invest on their workers, the resultant effect is improved productivity. In other words, the success of any organization is largely dependent on the commitment of their workers. In an organization, investment in human development ensures that employees (staff) are well trained and reasonably motivated to deliver both physically and mentally on their responsibilities. This commitment encourages increase in firm productivity and sustains competitiveness (James, 2015).

In today's global economy, particularly in manufacturing firms where knowledge, skills and other human capabilities are very crucial to the existence and survival of companies, workforce has evolved into arguably the biggest competitive differentiator for organizations in virtually all industries.. Also, companies place a premium on its human capital development with the conviction that this would translate to improved efficiency in the business and bring about strategic advantage over competitors. The companies appreciate this fact and usually state in their annual report that “our employees are our greatest asset”. But still, staff move from one industry to another at slightest opportunities with both the genetic and specific investments made on them, thereby leaving the departed company with the option to reinvest in another staff so as to cover such vacuum created and be able to move forward. The question therefore, is, what is the value of this great asset and their contributions to the productivity of manufacturing firms in Nigeria? The broad objective of this study is to ascertain the response of firm productivity to human capital expenditures in oil and gas manufacturing companies in Nigeria for the periods of ten (10) years (2009-2018). The specific objectives were: to investigate the effect of expenditure on education and Training (EETR); salaries and Wages (ESW) and expenditure on Health (EHT) on the Turnover (TVR) of oil and gas firms in Nigeria.

**** Eneh, Catherine Amoge is a lecturer at Enugu State University Teaching Hospital, Parklane, Enugu, while Prof. Okwo, Ifeoma Mary is a lecturer in the Department of Accountancy, Enugu State University of Science and Technology (ESUT), Enugu***

The following hypotheses guided this study

1) Expenditure on education and training does not significantly influence Turnover (TVR) of oil and gas firms in Nigeria.
2) Expenditure on salaries and wages has no significant effect on Turnover (TVR) of oil and gas firms in Nigeria.
3) Expenditure on health has no significant effect on Turnover (TVR) of oil and gas firms in Nigeria.

2.0 Review of related literature

2.1 Conceptual review

Omodero (2019) defines human capital expenditure as spending that are related to recruiting, training and retraining, compensation, salaries and allowances, retaining and pension incurred on the employee of particular firms in the hope of gaining return on this investment in terms of being more productive, more competitive and above all, more profitable in future. They are expenditures burn out from employee training, motivation, condition of health, e.t.c. for increased productivity and expansion. Ogujiuba (2013) stressed that investing in human capital development is critical as it is targeted at ensuring that the nation's human resource endowment is knowledgeable, skilled, productive and healthy to enable the optimal exploitation and utilization of other resources to engender growth and development. Human capital expenditure consists of salaries and wages; expenditure on education , training, health among others.

Turnover is the net sales generated by a business. Turnover according to Kenton (2019) is an accounting concept that calculates how quickly a business conducts its operations. It can also refer to the proportion of employees that leave a business within a specific period, also sometimes known as 'churn' (Hall, 2018). Most often, turnover explains how quickly a company collects cash from accounts receivable or how fast the company sells its inventory. In the investment industry, turnover is defined as the percentage of a portfolio that is sold in a particular month or year. A quick turnover rate generates more commissions for trades placed by a broker.

2.2 Theoretical review

This study is anchored on human capital theory propounded by Becker in 1962. Central to Human Capital Theory (HCT) is the fact that any investment in the development of the human person in advancement of his skills translates to the increase in the desired workforce needed to advance the goals and objectives of an organization. In relation to this study, the theory advances that investments in people in terms of education, skill, training, etc., would result in increase in the individuals' output.

2.3 Empirical review

Ukenna, Ijeoma, Anionwu and Olisa (2010) examined the effect of investment in human capital development on organizational performance. Analysis of Variance (ANOVA), t-test, multiple regression analysis, simple regression analysis, and Pearson's correlation coefficient were employed to analyze the data. Finding revealed that training and skill are stronger predictors of human capital effectiveness over and above knowledge and education. Perera and Thrikawala (2012) investigated the impact of investment in human capital on financial performances of the companies in Sri Lanka. Findings revealed that there is a significant relationship between investment in human capital and firm financial performances.

Using the ordinary least square analytical technique, Edom, Inah and Adanma (2015) examined the impact of human resource accounting on the profitability of Access Bank of Nigeria Plc, from 2003 to 2012. The finding showed that there is a positive relationship between the indicators of human resource cost and the profit of the organization. Also, there was a significant relationship between training cost, development cost and the profit of the bank. However, the number of staff does not have a significant effect on profit of the bank.

By employing panel least squares multiple regression analysis, Ubesie, Eneh and Udeh (2019) examined the effect of human capital expenditures on corporate social responsibility of oil and gas firms in Nigeria for the period of 10 years (2008-2017). The result revealed that human capital expenditures proxy by expenditure on salaries and wages, on education and training and expenditure on health have significant positive effect on Corporate Social Responsibility (CSR) of oil and gas firms in Nigeria.

Okafor, Ofobruku, Obi-Anike and Agbaeze (2019) examined the effects of human capital development on employees' performance in Nigeria's public hospital using linear regression statistical technique to analyze the data collected. The finding revealed that the lacks of articulate human capital development strategy geared towards filling identified skills, knowledge and attitude gap were responsible for the meagre employees' performance in Nigerian hospitals.

Chukwu, Ugo and Osisioma (2019) used regression analysis to examine the effect of human capital on the market value of banks in Nigeria for the period 2010 to 2014. The result showed that only one variable - the proportion of highly paid employees - had a significant effect on the market value of firms.

3.0 Methodology

This study adopted ex-post facto research design. Data were extracted from annual accounts and financial statements of the four selected oil and gas firms in Nigeria namely, MRS oil, TOTAL oil, Conoil, and Oando Oil and Gas firms were studied. This study employed descriptive statistics and panel least squares regression analysis to justify the objectives of this study. Model framework for this study is the panel least square regression model which took its basis from the classical linear regression model. The model is specified thus:

$LogTVR_t = \beta_0 + \beta_1 LogESW_t + \beta_2 LogEETR_t + \beta_2 LogEHT_t + \varepsilon_t$ -(Eq. 2)

$LogTVR_t$ = Turnover at time t (Dependent variable),

$LogESW_t$ = Expenditure on Salaries and Wages at time t,

$LogEETR_t$ = Expenditure on education and training at time t,

$LogEHT_t$ = Expenditure on Health at time t,

β_0 = Constant/intercept of the regression model,

β_1, β_2, and β_3 = Coefficient of ESW, EETR, and EHT respectively in the model,

ε_t = stochastic error (white noise) associated with the model

4.0 Data presentation and analysis

4.1 Data presentation

Tables 1: The annual time series data from the selected oil and gas firms (Panel Data)

Years	TVR (₦'000)	ESW (₦'000)	EETR (₦'000)	EHT (₦'000)
MRS oil: 2009	60,900,243	1,511,054	8,156	12,090
2010	68,671,449	1,401,562	7,764	13,112
2011	71,490,715	1,225,372	5,309	13,320
2012	79,727,349	581,257	62,902	14,976
2013	87,786,323	360,419	63,319	15,213
2014	92,325,405	618,953	82,150	15,021
2015	87,099,216	371,609	84,431	15,342
2016	109,635,054	441,056	90,025	15,735
2017	107,088,347	517,599	93,217	15,813
2018	89,552,819	463,706	983,204	205,025
Total oil: 2009	5,543,326	3,829,005	45,690	13,834
2010	7,256,443	4,416,650	48,665	13,567
2011	7,384,465	5,547,322	50,132	15,433
2012	8,198,723	5,983,442	47,002	17,661
2013	9,105,433	6,359,707	44,897	19,807
2014	11,987,933	6,533,412	47,331	22,116
2015	23,106,210	6,805,276	47,653	24,510
2016	21,132,723	6,786,096	49,429	21,663
2017	32,840,384	7,483,750	37,049	21,765
2018	37,205,480	7,863,354	35,988	22,356
Oando oil: 2009	4,207,854	54,778	441,409	1,408
2010	4,352,005	108,075	488,961	1,155
2011	8,122,502	227,148	762,193	1,634
2012	7,358,881	494,860	645,227	1,698
2013	5,883,304	265,416	984,022	1,943
2014	14,217,468	69,994	866,119	2,004
2015	8,452,665	43,720	640,553	2,337
2016	4,858,182	631,710	734,939	2,509
2017	497,422,483	376,141	828,103	2,794
2018	488,518,160	399,707	907,216	2,113
Conoil Oil: 2009	101,853,173	1,856,914	132,156	55,169
2010	102,878,494	1,889,847	149,023	60,435
2011	157,512,072	1,802,721	257,308	52,977
2012	149,993,261	1,562,621	898,750	83,682
2013	121,803,182	1,664,674	921,044	78,541
2014	104,223,841	1,167,803	821,500	47,788
2015	82,919,220	1,994,046	450,198	48,592
2016	85,023,546	1,908,477	100,617	59,023
2017	70,229,461	1,435,469	112,010	44,256
2018	75,838,134	968,502	896,682	80,032

Source: Financial Statement and Accounts of the selected oil and gas firm(2009-2018).

Table 2 Descriptive statistics result and interpretation

Estimated Parameters	LOG(TVR)	LOG(ESW)	LOG(EETR)	LOG(EHT)
Mean	17.41219	13.85243	11.92327	9.558611
Median	18.05606	14.08593	11.57271	9.653953
Maximum	20.02495	15.87772	13.79940	12.23089
Minimum	15.25246	10.68556	8.577159	7.051856
Std. Dev.	1.349985	1.401538	1.504369	1.345656
Skewness	-0.139307	-0.402987	-0.292528	-0.360577
Kurtosis	1.874780	2.548488	2.146300	2.243188
Jarque-Bera	2.239577	1.422427	1.785157	1.821381
Probability	0.326349	0.491048	0.409598	0.402246
Sum	696.4877	554.0973	476.9307	382.3445
Sum Sq. Dev.	71.07594	76.60800	88.26193	70.62080
Observations	40	40	40	40

Source: Author's computation using Eviews 10 package

The result shows that all the variables (dependent and independent) are clustered on the left hand side of the normal curve (negatively skewed). There is no excess kurtosis (k>3.0) and the Jarque-Bera estimate of normality in distribution series of the variables (with p-values > 0.05) indicates that each of the series follows normal and smooth curve. The standard deviations indicate that the series are clustered around the mean. However, the parametric statistics are considered in further analysis.

Table 3 Panel Unit Root Test: Levin, Lin & Chu t* Approach

Variable	Levin, Lin & Chu t*	p-value	Order of integration	Comment
Log(TVR)	-3.604	0.0002	I(0)	Stationary
Log(ESW)	-5.837	0.0000	I(0)	"
Log(EETR)	-2.745	0.0030	I(0)	"
Log(EHT)	-2.813	0.0025	I(0)	"

Source: Author's Extract from E-views 10.0 output (See Appendix A)

The panel unit root test result indicates that the variables are stationary at their level as their respective probability values of Levin, Lin & Chu t* is less than 0.05. This therefore justifies the use of Ordinary Least Square (OLS) panel regression analysis for the hypothesis testing.

Test of hypothesis :

Decision rule: Reject the null hypothesis if the p-value is less than 0.05 otherwise, do not reject.(**Level of significance** ($\alpha = 0.05$)

Hypothesis one

Ho: Expenditure on education and training has no significant effect on turnover of oil and gas firms in Nigeria.

Table 4 Result of effect of log(EETR) on log(TVR)

Dependent Variable: LOGTVR
Method: Panel Least Squares
Date: 02/24/20 Time: 18:04
Sample (adjusted): 2010 2018
Periods included: 9
Cross-sections included: 4
Total panel (balanced) observations: 36
Convergence achieved after 5 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	17.32770	2.508074	6.908766	0.0000
LOGEETR	0.069513	0.182392	0.381117	0.7056
AR(1)	0.796843	0.100233	7.949944	0.0000

R-squared	0.661196	Mean dependent var	17.48176
Adjusted R-squared	0.640663	S.D. dependent var	1.324175
S.E. of regression	0.793773	Akaike info criterion	2.455618
Sum squared resid	20.79251	Schwarz criterion	2.587578
Log likelihood	-41.20112	Hannan-Quinn criter.	2.501675
F-statistic	32.20075	Durbin-Watson stat	2.339711
Prob(F-statistic)	0.000000		

Inverted AR Roots .80

Source: Author's Eviews 10 result

The coefficient of employee expenditure on education and training is 0.0695, the t-statistic value is 0.381 with associated probability value of 0.7056>0.05. This indicates that employee expenditure on education and training has positive and insignificant effect on turnover of oil and gas firms in Nigeria. From the result, a unit increase in employee expenditure on education and training will lead to about 0.070 unit increases in turnover of oil and gas firms in Nigeria. The explanatory power of the model as measured by coefficient of determination (R-squared) is 66.1% which is above average of 50.0%. The implication is that the model is a good one as about 66.1% of the total variations in turnover of oil and gas firms can be attributed to employee expenditure on education and training. The unexplained 33.9% are attributable to other relevant variables not included in the model. However, the Durbin-Watson statistic value of 2.339711 following the rule of thumb indicates the model is not suffering from autocorrelation problem.

Hypothesis two

Ho: Expenditure on salaries and wages has no significant effect on turnover of oil and gas firms in Nigeria.

Table 5: Result of effect of log(ESW) on log(TVR)

Dependent Variable: LOGTVR
Method: Panel Least Squares
Date: 02/24/20 Time: 18:05
Sample (adjusted): 2010 2018
Periods included: 9
Cross-sections included: 4
Total panel (balanced) observations: 36
Convergence achieved after 7 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.62313	3.070758	7.692930	0.0000
LOGESW	-0.382911	0.214614	-1.784182	0.0836
AR(1)	0.808340	0.086327	9.363722	0.0000

R-squared	0.689835	Mean dependent var	17.48176
Adjusted R-squared	0.671037	S.D. dependent var	1.324175
S.E. of regression	0.759484	Akaike info criterion	2.367301
Sum squared resid	19.03494	Schwarz criterion	2.499261
Log likelihood	-39.61142	Hannan-Quinn criter.	2.413359
F-statistic	36.69748	Durbin-Watson stat	2.018991
Prob(F-statistic)	0.000000		

Inverted AR Roots	.81

Source: Author's Eviews 10 result

From the panel ordinary least squares regression as shown above, the coefficient of expenditure on salaries and wages (Log(ESW)) is -0.383, with t-statistic value of -1.784 and associated probability value of 0.0836>0.05. This implies that expenditure on salaries and wages has negative and insignificant effect on turnover of oil and gas firms. The null hypothesis is therefore not rejected. This means that expenditure on salaries and wages has no significant effect on turnover of oil and gas firms in Nigeria. Also, the result shows that a unit increase in the workers' salaries will lead to about 0.383 unit decreases in turnover of the oil and gas firms in Nigeria.

The explanatory power of the model (R-squared) is 69.0% which indicates that the model is a good one, hence, about 69% of the total variations in turnover of oil and gas firms in Nigeria can be explained by expenditure on salaries and wages of the workers. However, the Durbin-Watson statistic value of 2.018991 according to Guajarati and Porter (2009) or the rule of thumb indicates that the model is free from autocorrelation problem.

Hypothesis three

Ho: Expenditure on health has no significant effect on turnover of oil and gas firms in Nigeria.

Table 6: Result of effect of log(EHT) on log(TVR)

Dependent Variable: LOGTVR
Method: Panel Least Squares
Date: 02/24/20 Time: 18:07
Sample (adjusted): 2010 2018
Periods included: 9
Cross-sections included: 4
Total panel (balanced) observations: 36
Convergence achieved after 6 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.68257	3.082319	6.061206	0.0000
LOGEHT	-0.040135	0.275160	-0.145859	0.8849
AR(1)	0.809485	0.104357	7.756851	0.0000

R-squared	0.659973	Mean dependent var	17.48176
Adjusted R-squared	0.639365	S.D. dependent var	1.324175
S.E. of regression	0.795205	Akaike info criterion	2.459221
Sum squared resid	20.86757	Schwarz criterion	2.591181
Log likelihood	-41.26598	Hannan-Quinn criter.	2.505279
F-statistic	32.02557	Durbin-Watson stat	2.361051
Prob(F-statistic)	0.000000		

Inverted AR Roots	.81

Source: Author's Eviews 10 result

The coefficient of employee expenditure on health (Log(EHT)) is -0.040, with t-statistic value of -0.146 and associated probability value of 0.8849>0.05. This shows that employee expenditure on health has a non-significant negative effect on turnover of oil and gas firms in Nigeria. The null hypothesis is therefore not rejected which means that employee expenditure on health has no significant effect on turnover of oil and gas firms in Nigeria. As shown in the result, a unit increase in employee expenditure on health will lead to about 0.040 unit decreases in turnover of the oil and gas firms in Nigeria.

The R-squared estimate is 66.0%. This implies that about 66.0% of the total variations in turnover of oil and gas firms can be explained by health expenditure. However, the model is a good one. However, the Durbin-Watson statistic value of 2.361051 following the rule of thumb indicates that the model is free from autocorrelation problem.

Table 7: Multiple panel regression result

Dependent Variable: LOGTVR
Method: Panel Least Squares
Date: 02/24/20 Time: 18:02
Sample (adjusted): 2010 2018
Periods included: 9
Cross-sections included: 4
Total panel (balanced) observations: 36
Convergence achieved after 9 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.12180	4.734624	5.094764	0.0000
LOGESW	-0.382366	0.231137	-1.654281	0.1082
LOGEETR	0.008000	0.216061	0.037028	0.9707
LOGEHT	-0.056349	0.325758	-0.172978	0.8638
AR(1)	0.815656	0.095064	8.580072	0.0000

R-squared	0.690175	Mean dependent var	17.48176
Adjusted R-squared	0.650198	S.D. dependent var	1.324175
S.E. of regression	0.783171	Akaike info criterion	2.477314
Sum squared resid	19.01406	Schwarz criterion	2.697248
Log likelihood	-39.59166	Hannan-Quinn criter.	2.554077
F-statistic	17.26414	Durbin-Watson stat	2.046831
Prob(F-statistic)	0.000000		
Inverted AR Roots	.82		

Source: Author's Eviews 10 result

The multiple regression result authenticates that employee expenditure on salaries and wages (Log(ESW)) and expenditure on workers' health (Log(EHT)) have negative and insignificant effect on turnover of oil and gas firms in Nigeria, while employee expenditure on education and training (Log(EETR)) has positive and insignificant effect on turnover of oil and gas firms in Nigeria.

The joint significant estimate is F = 17.264 with probability value of 0.0000<0.05. This indicates that human capital expenditure proxied by expenditure on salary and wages, expenditure on education and training, and expenditure on health have joint significant effect on the productivity (turnover) of oil and gas firms in Nigeria. The model is a good one as it explains about 69.0% of the total variations in turnover of the firms. With the Durbin-Watson statistic value of 2.046831 indicates that the model is free from first order autocorrelation problem.

4.4 Discussion of findings

With a coefficient value of 0.070, t-statistic value of 0.381 and associated probability value of 0.7056, this paper established that employee expenditure on education and training has a non-significant positive effect on turnover of oil and gas firms in Nigeria. The meaning is that advancement in education of the employees will help to promote turnover of oil and gas firms in Nigeria. This finding aligns with the findings of Ubesie et al (2019), Ukenna et al (2010), among others.

The study also uncovered that employee expenditure on salaries and wages (with coeff. = 0.383, t* = 1.784, p=0.0836>0.05) has insignificant negative effect on turnover of oil and gas firms in Nigeria. This finding is in partial support of the work of Yusuf (2011) in Nigerian banks, among others. On the contrary, the outcome of this study disobeys the work of Perera and Thrikawala (2012) that staff salary has positive effect on organizational profitability in Nigeria.

Moreover, this study established that employee expenditure on health with a coefficient value of 0.040, t-statistic value of 0.146 and associated probability value of 0.8849>0.05 is not favourable to turnover of oil and gas firms in Nigeria.

The implication of this finding is that when a firm spends much on his workers, the level of turnover (in terms of revenue) of the firm will confidently drop. The insignificant effect of employee expenditure on health on the turnover of oil and gas firms in Nigeria does not support the work of Perera and Thrikawala (2012), Olowolaju and Oluwasesin (2016), among others.

The collective significant effect of human capital expenditures on turnover of oil and gas firms in Nigeria agrees with the work of Perera and Thrikawala (2012) in Sri Lanka. The finding equally supports the work of Ubesie, et al (2019), amongst others. On the contrary, the outcome nods in disagreement to the work of Chukwu et al (2019).

5.0 Conclusion and recommendations

5.2 Conclusion

Having explored the response of firm productivity to human capital expenditures in oil and gas firms in Nigeria using panel least squares regression analysis techniques for the period of 2009-2018, the study established that firm productivity respond significantly to human capital expenditure in oil and gas firms in Nigeria. The implication is that expenditure in human capital contributes substantially to turnover of oil and gas firms in Nigeria.

5.3 Recommendations

Based on the findings of this study, the following recommendations were made:

1) The oil and gas firms should invest more on education and training of their employees for wider knowledge and exposure on the strategies for increased productivity of the firm.
2) They should review their salary structure (downward) to match with the firms' turnover since increased salary and wages are not favourable to the firm's productivity.
3) The oil and gas firms should curtail and monitor expenditure on health of their workers as it decreases turnover of the firms.

References

Chukwu, G. J., Ugo, C. C. & Osisioma, B. C. (2019). Market valuation of human capital in Nigerian Banks. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 9(1), 21–29.*

Edom, G. O., Inah, E. U. & Adanma, E. S. (2015). The impact of human resource accounting on the profitability of a firm: Empirical from Acess Bank of Nigeria PLC. *European Journal of Accounting, Auditing and Finance Research, 3(7), 76-94.*

Hall, J. (2018). How to calculate turnover for your business. Retrieved online from: https://www.simplybusiness.co.uk/knowledge/articles/2018/05/what-is-business-turnover/ on January 24, 2020.

James, U. M. (2015). Local content policy, human capital development and sustainable business performance in the Nigerian Oil and Gas Industry. *Journal of Management and Sustainability, 5(1), 75-83.*

Kenton, W. (2019). Turnover definition. https://www.investopedia.com/terms/t/turnover.asp Retrieved online on February 22, 2020.

Kum, F., Cowden, R. & Karodia, A. M. (2014). The impact of training and development on employee performance: A case study of ESCON consulting. *Singaporean Journal of Business Economics, and Management Studies, 3(3), 72-105.*

Makgata, R. M. & Ngwakwe, C. C. (2017). Human capital expenditures and company sales turnover. Corporate Ownership and Control, 14(3), 320-328.

Ogujiuba. K. (2013). The impact of human capital formation on economic growth in Nigeria. *Journal of Economics, 4(2), 121-132.*

Okafor, C. N., Ofobruku, S. A., Obi-Anike, H. O. & Agbaeze, E. K. (2019). An investigation of the effect of human capital development on employees' performance in Nigeria public hospitals: A study of the federal medical hospital Keffi. *Academy of Strategic Management Journal, 18(4), 1-13.*

Omodero, C. O. (2019). Government general spending and human development: A case study of Nigeria. *Academic Journal of Interdisciplinary Studies, 8(1), 51-59.*

Perera, A. & Thrikawala, S. (2012). Impact of human capital investment on firm financial performances: An empirical study of companies in Sri Lanka. IPEDR, 54(3).

Seidel, M. (2019). What are the factors that affect productivity? Retrieved from https://bizfluent.com/info-10000291-factors-affect-productivity.html on February 20, 2020..

Singh, R. & Molhanty, M. (2012). Impact of training Practice on employee's productivity: A comparative study. Inter-science Management Review, 2(2), 87- 92.

Ubesie, M. C., Eneh, C. A. & Udeh, N. (2019). Effect of human capital expenditures on corporate social responsibility of oil and gas firms in Nigeria. *American Journal of Theoretical and Applied Business, 5(4), 102-112.*

Ukenna, S., Ijeoma, N., Anionwu, C. & Olisa, M. C. (2010). Effect of investment in human capital development on organizational performance: Empirical examination of the perception of small business owners in Nigeria. *European Journal of Economics, Finance and Administrative Sciences, 94-107.*

Voegtlin, C. & Greenwood, M. (2016). Corporate social responsibility and human resource management: A systematic review and conceptual analysis. Human Resource Management Review, 26, 181–97.

Imoughele, L. E. & Ismaila, M. (2013). Determinants of public health care expenditure in Nigeria: An error correction mechanism approach. *International Journal of Business and Social Science, 4(13), 222-233.*

Appendices

Appendix A: Unit Root Test

Panel unit root test: Summary
Series: LOGTVR
Date: 02/24/20 Time: 17:58
Sample: 2009 2018
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.60442	0.0002	4	32
Breitung t-stat	0.52566	0.7004	4	28
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.33755	0.3679	4	32
ADF - Fisher Chi-square	11.3807	0.1810	4	32
PP - Fisher Chi-square	4.31823	0.8273	4	36

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: LOGESW
Date: 02/24/20 Time: 17:59
Sample: 2009 2018
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.83711	0.0000	4	32
Breitung t-stat	-0.21669	0.4142	4	28
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.38084	0.3517	4	32
ADF - Fisher Chi-square	12.3049	0.1381	4	32
PP - Fisher Chi-square	5.62330	0.6893	4	36

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: LOGEETR
Date: 02/24/20 Time: 18:00
Sample: 2009 2018
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.74491	0.0030	4	32
Breitung t-stat	1.00772	0.8432	4	28
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.09439	0.4624	4	32
ADF - Fisher Chi-square	8.65308	0.3724	4	32
PP - Fisher Chi-square	4.29550	0.8295	4	36

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: LOGEHT
Date: 02/24/20 Time: 18:01
Sample: 2009 2018
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.81265	0.0025	4	32
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.00607	0.4976	4	32
ADF - Fisher Chi-square	9.58795	0.2951	4	32
PP - Fisher Chi-square	6.30419	0.6132	4	36

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

GUIDE FOR AUTHORS

1. Contributors are encouraged to submit their papers electronically to the Editor-in-Chief. Should they prefer to submit hard copies, then they should send three original copies of their articles, tables and figures to: The Editor-in-Chief, c/o ANAN Secretariat, 250 Herbert Macaulay Street. P.M.B. 1011, Yaba, Lagos E-mail: ananeditorial@gmail.com Submission of a paper to the journal will be taken to imply that it (the paper) represents original, unpublished work not under consideration for publication elsewhere. By submitting a manuscript, the authors agree that the copyright has been assigned to ANAN.
2. The submission should include a cover page showing the authors' names, address for correspondence, including G.S.M., e-mail, and any acknowledgements.
3. Submission should be in English, typed in double spacing with wide margins, on one side only of the paper, preferably of A4 size. The title, but not the authors' name should appear on the first page of the manuscript.
4. Articles should be as concise as possible and preceded by an abstract of not more than 100 words and a list of not more than six keywords.
5. Referencing should adopt the Harvard system, which gives the author's name and the date of publication as a key to the full bibliographical details, which are set out in the list of reference. When the author's name is mentioned in the text, the date is inserted in parentheses immediately after the name, as in Herbert (2005). When a less direct reference is made to one or more authors both name and date are bracketed, with the references separated by a semi-colon, as several authors have made similar observation (Herbert, 1999; Iwok, 2000;Osisioma 2002). Where references are made to a book, appropriate page numbers should also be provided (Iwok, 2000: 39). When the reference is to a work of dual or multiple authorship, use Herbert and Wallace (1996) or Iwok et al (1999) respectively.
   If an author has two references published in the same year, add lower case letters after the date to distinguish them, as in (Osisioma, 2002a, 2002b). Always use the minimum number of figures in page numbers, dates, etc.
6. Direct quotations of 40 words or more should start on a separate line and be indented.
7. Submissions should include a reference list, in alphabetical order, at the end of the article. The content format should contain the following examples.
   Herbert, W.E (1995) Alternative strategies to Foreign Investment, (UMI Publishers, Ann Arbor: MI) Herbert, W.E (1997) "Theories of Foreign Investment and the multinational Firm", Herbert, W.E., Holland J. and Lonie, A.(Eds) European Financial Management: principles and practice (Blackwell)
8. On acceptance for publication, authors will be requested to provide a copy of their paper in exact accordance with the conventions listed in the preceding notes. If the final version of the paper is not submitted in accordance with these conventions then, publication may be delayed by the need to return manuscripts to authors for necessary revisions. Authors should note that, following acceptance for publication, they will be required to provide not only a hard copy of the final version, but also a copy on a virus-free disk, in Ms-Word format. Authors will also be required to complete a publishing agreement form assigning copyright to the Association/Publisher. Page proofs will be sent for correction to a first-named author, unless otherwise requested. The difficulty and expense involved in making amendments at page proof stage make it essential for authors to prepare their typescript carefully; any alteration to the original text is strongly discouraged.
9. Early Electronic Offprints: Corresponding authors can now receive their article by e-mail as a complete PDF. This allows the author to print up to 50 copies, free of charge, and disseminate them to colleagues. This facility will be available up to two weeks prior to publication. Alternatively, corresponding authors can ask to receive the traditional 10 offprints. A copy of the journal will be sent by post to all corresponding authors after publication. Additional copies of the journal can be purchased at the author's preferential rate as determined by the Association.
10. All articles must be electronically submitted with the author/s' correspondence and email addresses as well as telephone numbers. Where an article has more than one author, the correspondence author's address must be specified.
11. Spelling, Grammar, Punctuation, and And Inconsistencies: Authors are responsible for preparing manuscript copies, which are clearly written in acceptance, scholarly English, and which contains no errors of spelling, grammar, or punctuation. Neither the editor nor the publisher is responsible for correcting errors of spelling and grammar. The manuscript, after acceptance by the Editor, must be immediately ready for typesetting as it is finally submitted by the author(s). Also authors are responsible for checking the accuracy of all arithmetic calculations, statistics, accounting and numerical date, text citations, and references.
12. Copyright: It is a condition of publication that authors assign copyright or license the publication rights in their articles, including abstracts, to the Association/Publisher. This enables the Association to ensure full copyright protection and to disseminate the article, and of course, use the article elsewhere after publication without prior permission from the Association, provided that acknowledgement is given to the Journal as original source of publication. Authors are themselves responsible for obtaining permission to reproduce copyright material from other sources.
13. The Association reserves the right to edit, amend, cancel or refuse to publish any article or advertisement without prior notification.
14. Only good quality articles are accepted for publication, the Editorial Board will not go into correspondence for rejected articles.

The Certified
National Accountant
A QUARTERLY JOURNAL OF THE ASSOCIATION OF NATIONAL ACCOUNTANTS OF NIGERIA

ACKNOWLEDGMENT FORM

Forward to:

Chief Executive Officer,
Association of National Accounts of Nigeria,
Plot 559, Mabushi District,
Off Ahmadu Bello Way, Abuja, FCT.

I hereby acknowledge receipt of ________________ copies of July - September, 2021 edition of the Certified National Accountant Journal.

1. Name: ____
2. Membership No: _____________________________________
3. Phone Number: ______________________________________
4. E-mail Address: _____________________________________
5. Office Address: ______________________________________

____
Signature and Date

NIGERIAN COLLEGE OF ACCOUNTANCY, JOS
ADMISSION TO EACH ACADEMIC SESSION

Applications are invited from suitably qualified candidates for admission into Nigerian College of Accountancy (NCA), Kwall, Near Jos, Plateau State.

DATE OF APPLICATION: Application forms are available from July to October each year.

REQUIREMENTS:

(A) Bachelor of Science (B.Sc) Accounting of any NUC accredited Nigerian University, or any approved Overseas University;

(B) Higher National Diploma in Accountancy (HND) from any NBTE accredited Nigerian Polytechnic.

NOTE:

Any applicant who is a graduate of an Overseas University/Polytechnics is required to provide Transcript of his/her academic records properly issued and signed by the Registrar of the institution.

Holder of B.Sc/HND in Business Administration, Economics and Banking and Finance, may be admitted to the CONVERSION PROGRAMME, which after nine months, qualifies a candidate for admission to the Professional Class.

METHOD OF APPLICATION

Request for Application Form should be made direct to:

Director-General, Nigerian College of Accountancy,
Accountancy Road, Kwall Near Jos, Plateau State.
Candidates should enclose self-addressed envelope (30cm x 22.5cm) with N50 stamp affixed.

Or
National Secretariat
Association of National Accountants of Nigeria,
Plot 559, Mabushi District,
Off Ahmadu Bello Way, Abuja, FCT.

Or
Our Liaison Office
250, Herbert Macaulay Street, Lagos.
Or, Online@www.anancollege.org.ng

AN APPLICATION FEE OF N,10,000 IN BANK DRAFT MADE PAYABLE TO THE NIGERIAN COLLEGE OF ACCOUNTANCY, JOS, should accompany the request for forms. Personal cheques or Postal Orders WILL NOT BE ACCEPTED.

The INFORMATION BOOKLET of the College giving details of existing syllabus and other requirements, can also be obtained for a token fee of N500.

DIRECTOR-GENERAL,
Nigerian College of Accountancy,
Jos.